Complimentary

THE FIRST FIVE YEAR PLAN

1973–78

PLANNING COMMISSION
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
NOVEMBER, 1973

FOREWORD

The Planning Commission of the Government of the People's Republic of Bangladesh has prepared a Plan for reconstruction and development of the economy taking into account the inescapable political, social and economic realities of Bangladesh. The Plan has charted a course for the nation for the coming five years.

The Plan was prepared within a year and a half of the liberation of Bangladesh. It is unusual for a country to prepare a Five Year National Development Plan within such a short time. In the case of Bangladesh, it is specially so because there was no planning machinery in the country at the time of liberation nor comprehensive and reliable data on all aspects of the economy. These may have left some gaps in the Plan. Nevertheless it was decided to launch the Five Year Plan at an early date because the Government felt the urgent need to provide a sense of direction and determine the order of priorities within the framework of which coherent and consistent policies and programmes could be formulated.

No plan, however well-formulated, can be implemented unless there is a total commitment on the part of the people of the country to work hard and make necessary sacrifices. All of us will, therefore, have to dedicate ourselves to the task of nation building with single-minded determination. I am confident that our people will devote themselves to this task with as much courage and vigour as they demonstrated during the war of liberation.

SHEIKH MUJIBUR RAHMAN
Prime Minister,
Government of the
People's Republic of Bangladesh
and
Chairman,
Planning Commission.

DACCA;
November, 1973.

PREFACE

Bangladesh inherited a poor, undiversified economy, characterised by an underdeveloped infra-structure, stagnant agriculture, and a rapidly growing population. She had suffered from years of colonial exploitation and missed opportunities, with debilitating effects on initiative and enterprise. Superimposed on all these were the effects of the war of liberation, which caused serious damage to physical infrastructure, dislocation in managerial and organisational apparatus and disruption in established external trading relationships. She has over the last year and a half been recovering from the ravages and disruptions of war. The First Five-Year Plan, therefore, builds on such foundations.

One could have delayed the formulation of a Plan until after the short-term task of economic recovery and reconstruction was over. However, reconstruction efforts have to be integrated into the long-term development perspective. Moreover, the nation needed a social perspective and a plan of action which would provide a sense of direction and determine the priorities.

We are aware that statistical data and empirical investigations into the various aspects of the economy were not sufficiently comprehensive and reliable to meet the full needs of planning. But it was not possible to await the results of statistical investigations, which are time consuming, before the Plan was formulated. The Plan, however, provides for adequate flexibility so as to be able to incorporate, in terms of projects and programmes, the results of subsequent analysis and additional statistical information, as soon as they are available. The Annual Plans are expected to provide the necessary mechanism of adjustment and flexibility.

The Plan was prepared with a very severe time constraint, *i.e.*, in less than a year's time. Inadequacies and gaps in the Plan were inevitable given the compulsion to produce the Plan in this short time span rather than the normal period extending over several years, during which detailed deliberations and studies must take place. Therefore, a few important issues could not be dealt with in as great a depth as we would have liked. Several study groups and technical committees were formed consisting of representatives of Ministries, Agencies, and many others outside the Government to guide and advise the Commission in its task. All of them had to work under pressure. The Commission is grateful for the unstinted support, cooperation and participation of all the Ministries and Agencies, who were concerned with the formulation of the Plan.

The Plan does not set unduly high sights lest it generates greater expectation than it is able to fulfil. Starting from a low income base and all-round deprivation as we do, we need a considerable amount of development outlay to merely provide a rapidly growing population with the minimum needs. The Government has perforce to concentrate its attention on the alleviation of suffering of those who are on the critical margin. The task of reconstruction, development and meeting the gaps caused by decades of neglect is so overwhelming that within a short period of five years only a beginning can be made in our concerted attack on poverty. The Plan recognises that the basic resource in Bangladesh is its vast manpower; projects and programmes must be so formulated as to make its maximum use within the constraints of technology and socio-political institutions. The Plan emphasises self-reliance. Economic assistance from foreign countries will, therefore, be directed towards building up our economy and developing domestic resources for a rapid reduction of our dependence on foreign assistance by the end of the Plan period.

The need for social transformation consistent with our political objectives has been foremost in our mind. But social transformation has to be consistent with our preparedness to make the new system work. Social changes without necessary preparation may, on the one hand, bring discredit to the institutional changes and on the other cause dislocation and suffering. The Plan proposes only such institutional changes as are integral to the success of the Plan and which do not tend to outstrip our ability to organise and implement. Simultaneously, it will be necessary to build up an appropriate cadre of government functionaries, motivated workers and political leadership at the grass root level who will do the ground work and prepare the country for further social changes in the next phase of our development effort.

Development is a slow and painful process. It means present sacrifice for future gains. It is specially painful for a country at a very low level of living such as Bangladesh where an increasing and significant reliance is to be placed on domestic resources for development. We can make the sacrifice, which is so essential for development, socially tolerable only if it is equitably shared by all. The room for flexibility is so small, the ability of the socio-economic system to withstand the effects of mistakes and waste is so severely limited that in the use of scrace resources as well as in experimenting with new institutions, great caution and extreme care need be exercised.

NURUL ISLAM
Deputy Chairman,
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DACCA;
November, 1973.

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FRAMEWORK OF THE PLAN

CHAPTER 1

SOCIAL AND POLITICAL PERSPECTIVES OF PLANNED DEVELOPMENT

1.1 Democracy

The State of Bangladesh is founded on the four basic principles of democracy, nationalism, secularism and socialism. Some of these are easier to realise than the others. The country is being governed on the basis of a parliamentary democratic system. The Government of the People's Republic of Bangladesh has adopted a Constitution ensuring the democratic rights of the people. Fundamental rights of the people—freedom of speech, freedom of the press, freedom of assembly, and the rights of the people to govern themselves, are all guaranteed in the constitution.

1.2 Nationalism

Bangladesh which emerged as an independent nation after a prolonged struggle for national emancipation and a tremendous sacrifice in terms of human suffering and bloodshed is irrevocably committed to maintaining the national integrity. Our nationalism, however, does not preclude us from developing close and friendly relationships with the other countries of the world. It only enjoins on us that we take upon ourselves the responsibility of bringing about the cultural, social, and economic development of the Bangalees. We cannot shift the burden of our development on to others.

1.3 Secularism

True to our secular belief, we stand committed to disband all communal forces from the body politic. The War of Liberation against the colonial oppressors which we waged as one man demonstrated that Bangladesh is able to rise above religious bigotry and differences of caste and creed. Even though decades of obscurantism and religious fanaticism cannot be obliterated in one day, such bigotry will not be able to thrive on the soil of Bangladesh if communalism ceases to be a political weapon. Our struggle for emancipation has highlighted our homogeneity and our struggle against poverty will only strengthen it.

1.4 Socialism

However, the ideal of socialism cannot be translated into reality as easily or as quickly as the other three principles of State policy. In Bangladesh today it remains a vision and a dream. We have already taken some steps in this direction. But much more needs to be done if we are to avoid the painful processes which some countries had to go through in their quest for a socialist way of life. We may falter midway or end up with an authoritarian social order instead of political and economic emancipation for the masses if there is no firm commitment to establish socialist institutions. Notwithstanding the differences in the transitionary process or in the broad strategies, there are certain basic conditions which all socialist countries had necessarily to fulfil for achieving their goals. We cannot be an exception to that.

1.5 The Constitutional Commitment

There are several provisions in the Constitution of the People's Republic of Bangladesh to ensure the establishment of an exploitation-free society in Bangladesh. According to the constitution, (a) conditions are to be created to emancipate the toiling masses from all forces of

exploitation; (b) every citizen is to enjoy the right to work; (c) all citizens are to be assured equal opportunity so that an egalitarian society can be established; (d) enjoyment of unearned income is to be discouraged; and (e) there will be limits to private ownership of means of production as prescribed by law.

The need to limit private ownership of the means of production, and to ensure the right to work and equality of opportunity for all citizens has also been recognized by the social democratic governments of the world. Our constitution has highlighted and adopted these objectives as a social obligation. However, we have to look beyond the goals and achievements of the welfare states if exploitation is to be eliminated and egalitarianism realised in the manner of a truely socialist society.

For building a socialist society we must be able to make a correct assessment of the objective conditions obtaining in the country. Without this assessment a country may adopt a programme which is unrealistic, either too ambitious or too modest. While formulating programmes, we need not only take into account the objectives which we wish to attain but also the human agents who will be required to implement the programme. The planners in a country can only give the direction. Execution of policies and programmes depends entirely on the political will of the country and as such on the commitment and the effectiveness of the leadership, the ability of the party in power to mobilise the people, and the dedicated functioning of the government machinery. From this point of view, planning is more a political process than a mere economic device.

1.6 Pre-Conditions for Socialist Development

The removal of the capitalist system of income distribution, of the private ownership of means of production and of the precapitalist mercantile or feudal forms of production relations is a necessary precondition for socialist development. Depending upon the objective conditions of the society, this may have to be done in stages, but no plan for socialist transformation can afford to ignore the basic necessity of fulfilling these pre-conditions.

A programme for socialist transformation will have to identify clearly the forms and manners in which the mercantile and feudal production relations function and measures have to be taken to eliminate them. The gradualness that may have to be introduced in the methods required for their transformation is dictated only by the needs of expedience and orderly functioning of the economy since too abrupt a dislocation at one time may seriously disturb the production system. But the society will have to be prepared for these basic changes, particularly in land ownership relations. In an economy where more than 80 per cent of the activity is dependent on agriculture, it is inconceivable to bring in socialism without the socialisation of agriculture.

1.7 The Need for Production and Austerity

In an underdeveloped economy such as Bangladesh, the socialist transformation of the economy must accompany the growth of productive forces. It has to be clearly understood that anything which hampers increase in productivity or growth of productive forces and dissipates the meagre resources of the country in unproductive activities and unnecessary consumption is in contradiction with the basic principles of socialism. A traditional form of society generates values and habits that are antagonistic to the norms of productive work, manual labour and working discipline. As the democratic process protects the rights of workers and trade unions, socialism demands basic discipline from labour and management and hard

work from the population. Egalitarian distribution of social income is an essential feature of socialist development.

In a socialist society the different classes of income earners and the various professional or social and economic groups are conscious of the fact that the government will take necessary steps to ensure their due share of the national output. If all decisions affecting the lives of the people are arrived at through debates and discussions in which all professions and groups participate effectively no one's interests need suffer. In a non-socialist society an individual can increase his own income when national income remains stationery or is even declining. Changes in sectoral incomes and price changes affect different people differently. A particular group of workers can and do exact higher wages only through collective action. In such a situation a group of workers fight for wage increases without taking into account the impact of such action on the economy or the society as a whole. Such behaviour results from the lack of a co-ordinated incomes policy involving every segment of the society. The phenomenon where every one is trying to reap benefits guided by sectarian economic interests without considering the consequences of such action must be discouraged.

In a developed economy the flexibility in the economic structure and high wages enable the economy as well as the individual worker to withstand the destabilizing effect of labour unrest. Because of high rates of savings and investment and the consequent growth in income it is possible to meet the demands for periodic wage increases by trade unions and thus curb their militancy and avoid economic anarchy. When wages are high the workers are not so eager to resort to militant action for the realisation of their demands. But in a low income country such as ours the dislocation caused by labour disputes can have serious economic consequence because of the narrow economic base. It will be difficult for the society to absorb any labour unrest which is generated by sectarian wage demand unrelated to productivity or any refusal to fulfil obligations on the part of workers. Such problems cannot, however, be solved by mere coercive action. The government must succeed in convincing the people of their determination to ensure that a minimum living wage is available to all workers and that poverty and deprivation will be shared by all until such time as income has risen sufficiently before it can expect responsible behaviour from the different classes of income earners. The incomes policy must, however, apply to all members of the society irrespective of whether an individual is engaged in the public or the private sector.

Just as disciplined hard work is necessary, so also is it essential that all forms of unproductive consumption are removed from the economic system. Generation of economic surplus and its mobilisation and productive investment are the means by which productive forces have to be developed. History has no instance of any socialist development where, in the transition period, consumption has not been reduced to the essential minimum and where unnecessary luxury and conspicuous consumption were not eliminated. For a well formulated socialist plan, the basic premise has to be that the Government and the ruling party will have the will and the determination to transform a society with traditional values to a production oriented society where work, discipline and savings are the basic tenets of economic activity.

1.8 The Need for Cadres

A society in transition towards socialism has to accept the need to adopt radical measures to free the masses from their age-old bondage to traditional values and customs as well as from their exploiters. As long as the broad masses are unable to accept the norms of behaviour

necessary for a radical transformation of society, no amount of socialist policy adopted by the government can usher in socialism. The change in social outlook and in the institutions embodying such an outlook can never be or has never been achieved only by government functionaries. It is only a political cadre with firm roots in the people and motivated by the new ideology and willing to live and work among the people as one of them that can mobilise the masses and transform their pattern of behaviour.

A government functionary with his training and expertise can only function effectively where his duties and scope of work are clearly outlined and rules of business and code of conduct properly laid down. Where these are absent, the results are invariably chaotic because civil servants with varying background, training, expertise and responsibilities can only work harmoniously where each one knows what is expected of him. They can, therefore, be neither innovators nor catalytic agents for social change. Revolutionary thinking must precede revolutionary action by the masses.

A cadre can serve as an effective catalytic agent only so long as he totally identifies himself with the people. A government servant, on the other hand, is in effect a skilled worker and only a few amongst them would be motivated, specially in the early years of social transformation. No doubt his professional pride is an important motivating force for him to do his best. But in many cases the primary attraction for a job lies in the material incentive which the society offers a functionary for his effort. This can never be true of a political cadre. His compensation lies in the realisation of his ideals and not material rewards.

Before socialism becomes a reality, the task is to educate the public about the need for social change. The cadres are the instruments through which the task is carried out. We must, however, be aware of the fact that a cadre is as likely to degenerate as any one else. The experience of socialist countries shows that a political cadre has to be watched in the same way as any Government servant or other kinds of functionaries. Whenever a party has failed to be vigilant and to take immediate remedial measures the cadres have deviated from their goals and resorted to self-indulgence thus defeating the very purpose of their existence. It is not only the cadre at the ground level who needs to be watched but the performance of the party workers at all levels has also to be constantly reviewed so that neither complacence nor self-indulgence can overtake them. The cadres who are successful should be rewarded by conferment of higher responsibilities. Those who fail should be punished but the door for rehabilitation must be kept open for them. The highest level of party functionaries must subject themselves to self-criticism and be aware of the fact that they must personally set examples for the party workers to emulate.

1.9 The Objective Conditions in Bangladesh

We have indicated some of the pre-conditions for socialist transformation. These have to relate to the objective conditions within Bangladesh if a viable strategy for development towards socialism is to emerge. The prevailing constraints in building socialism in Bangladesh, therefore, need to be taken into account.

The political leadership must be dedicated to the ideals of socialism. It will have to provide the leadership in bringing about a social transformation. The party leadership must shoulder the obligation and responsibility to set examples in social behaviour and come up with bold new ideas for social action, which will give them the moral authority to effect desirable changes.

The Bangladesh Constitution has precluded the emergence of a one-party state. In a multi-party state the administration is expected to maintain an identity which is separate from he ruling party so that party cadres cannot be automatically injected into the machine to supervise its operation. All that the party cadres can do is to supervise the machine from

outside. Political cadres with adequate understanding, motivation and training to control and direct the bureaucracy as well as to mobilise the people have yet to emerge in sufficient numbers.

The problem may have been partially mitigated by giving ideological orientation to the bureaucracy. But the Government functionaries in Bangladesh are as much the product of the socio-economic environment as any one else. They are equally exposed to and affected by the social climate in the country. Indeed the heritage of the colonial structure and the past method of operations tend to influence him more than those who work outside the system. In independent Bangladesh, such alienation of a Government functionary and the people must be replaced by their positive identification with the commonman.

In a situation where cadres are yet to emerge and the bureaucracy is not sufficiently motivated the survival of exploitative elements remains a serious problem. On the land, feudal forms of production relations are reflected in unequal land ownership. These perpetuate the subjugation of the village poor through dependence for land, work, credit and other necessities of production and consumption on the affluent farmers.

Private enterprise is still dominant in the distribution system. In the prevailing conditions of scarcity they have exacted scarcity premium on items in short supply. The state agencies have not charged scarcity prices, but the intermediaries have reaped the benefits. This prevents the benefits of state ownership and trading from being passed on to the consumers. In the field of construction and indenting for foreign supplies, private enterprise is also active in Bangladesh today. In all these areas of activities scope for substantial unearned income persists without the recipients having to perform any corresponding productive function to earn it. It is difficult to devise a mechanism to subject them to social control or to collect adequate taxes from them. Their high living standards create social tension in a situation of acute scarcity and exercises an undesirable "demonstration effect" on the rest of the society.

However, along with the constraints there are also positive factors working in favour of a socialist programme. Some of these are indicated below.

The war of liberation has heightened the political consciousness of the people and has made them aware of the need for political struggle to realise a better life. The demand for social justice underlying the political struggle has thus been transformed into a widely held expectation to build a socialist economic order. All political parties are more or less inclined to work for socialism even though their strategies or interpretations vary.

In the pre-liberation period, indigenous private capital remained underdeveloped. It has also received a major set-back as a result of the nationalisation policies of the Government on 26th March, 1972. On the land, whilst feudal forms of production still survive large-scale feudal land ownership is absent and land ownership patterns are more equal than in most developing societies. The rural poor are also more aware of their strength and the advantages of collective action.

Some of the most able and skilled members of society are in Government service, in the bureaucracy and productive sectors. Given proper orientation, motivation and leadership they can use their skills to manage the economy more efficiently.

The liberation war has thrown up a whole generation of young men willing to dedicate themselves to the transformation of society. Leadership and organisation can mobilise their talent and energies towards productive ends. Finally, we have a socially homogeneous population where linguistic, religious, tribal and caste differences are not serious constraints to the development process.

1.10 The Socio-Political Assumptions of the Plan

In drawing up the Five-Year Plan we have been guided by the analysis of pre-conditions for building socialism in Bangladesh which have been related to the objective conditions prevailing in the country. This Plan is thus based on the realities and capabilities of Bangladesh today. It does not assume that within five years we can approximate to the social structures prevailing in other socialist countries nor does it assume that the experience of the post-liberation period disqualifies us from all attempts to organise productive forces more efficiently and with a view to realising socialist objectives. The Plan, however, recognises the urge for social transformation among the masses. The socio-political assumptions underlying the Plan may, therefore, be summarised in the following paragraphs.

1.11 Investment Strategy

The Plan cannot hope to meet the full expectations of the people with the available resources. Investment strategy has however been biased towards meeting the consumption needs of the masses and expanding employment opportunities both through preference for a labour intensive investment strategy and unconventional measures to mobilise labour. Our commitment to the principle of nationalism is indicated by an investment strategy directed to achieve a substantial decline in the degree of dependence on external assistance. This has restricted our Plan size and put limits on improving the levels of living of the masses during the Plan Period.

1.12 Reducing Exploitation

Under the prevailing objective conditions elements of exploitation can only be reduced in phases if the productive process is not to be disrupted. With this end in view, the Plan spells out the need for land reforms along with extension of co-operatives with emphasis on small farmers and landless labourers. In the industrial sector investment strategy in the Plan will aim to secure the ascendency of the public sector whilst leaving small and cottage industries largely for private initiative and enterprise. In the field of trade, both dimestic and foreign, State and co-operative enterprises are to play an increasingly dominant role, leaving retail trade primarily in the hands of private traders. The Consumers Supply Corporation, a state agency, will seek to provide some safeguards to the consumer by distribution of a few essential items. In the housing sector the Plan provides for a considerable expansion of the role of the State and the co-operatives whilst seeking to impose ceilings on urban property and limiting the windfall gains of property owners. In the transport sector the strategy is to place ownership of transport facilities with state agencies and co-operatives of drivers or operators.

1.13. The Role of Material Incentives

We have earlier spelt out the importance of increasing production through hard and efficient work. The Plan recognises that under the circumstances prevailing today the efficient functioning of the public sector will require material incentives to continue to play an important part in motivating those who manage and run the productive enterprises as well as the workers and the employees at all levels. It is only with the gradual development of social cohesion and a sense of solidarity with the masses as well as with an increasing ideological motivation of the people that material incentives and income differentials will become less important instruments for ensuring efficiency and enterprise.

In Bangladesh today skills in the various spheres are very scarce and they expect very high rewards. While restrictions on ownership of wealth and assets and income from property have been imposed and will be continued, any drastic limitation of remuneration from work and of income differentials arising out of differences, in skills and performance, may not only act as a disincentive against high levels of performance but may also adversely affect the flow of talents into fields which demand considerable training and acquisition of skills. In fact, in the early stages it will be necessary to provide high rewards in order to attract the flow of new entrants into areas where supply is short.

It is in this context that the recommendations of the Pay Commission and Wages Commission have to be viewed. Arbitrary cuts in income from work without reference to present supply of skills, level of responsibility and the social value of the productive functions performed, may create disequilibrium in the supply and demand for skills and jeopardise the fulfilment of the Plan target. Disparity in income from work and high rewards for exceptional performance should continue. What is necessary is to substantially reduce opportunities of earning income from unproductive activities and curbing ostentatious consumption. The elite, specially the political leadership may, however, voluntarily accept the need to share austerity in view of the prevailing scarcity and the need to promote social cohesion.

1.14 Public Participation in Planning Process

A Plan is not merely a technical and an economic document but also a socio-political document. It must be able to enthuse, mobilise and motivate people. It must provide a vision and perspective for the nation. Therefore, it is essential that people and their representatives should play a role in setting their socio-economic objectives and in its formulation. The Planning Commission is mainly involved and closely works with the political leaders in the Government, seeking their guidance and instructons on the one hand, and advising and making recommendations to them, on the other, on a day-to-day basis. It should, also be able to maintain contacts with the various groups in society such as members of Parliament, students, representatives of peasants and workers as well as other economic groups such as trade and industry. For this purpose it may be advisable to constitute regular advisory panels where the various interest groups and the Planning Commission can exchange views and experiences.

1.15 The Role of the Cadres and Political Leadership

Cadres have been identified as an essential element in the revolutionary transformation of society. A programme must, therefore, immediately be taken in hand to train up cadres during the initial phase of the development effort. Cadres will have to be carefully chosen for their motivation, personal integrity, courage and willingness to work and make sacrifices. They should be drawn from all those who share the commitment to social transformation and accept the policies of the State directed to this end. As far as possible, cadres must be drawn from areas in which they will serve. At the same time it will ensure a more direct contact with the people to be served by the cadres. Cadres must undergo a rigorous training process in ideology and policies to be implemented; their practical training must be directly applied for development work. An institutional machinery will need to be devised to ensure supervision and control over the cadres. They cannot afford to be divorced from the local political institutions but must at the same time constitute a pressure group on local leaders and administration to keep them committed to the policies of the Government.

The following functions of the cadre deserve consideration by the Government and by the party leadership. The major thrust should be towards their direct participation in the development work, educating and motivating people as to the aims and objectives

of the Plan as well as to the role of the people in the successful implementation of the Plan. They would help identify projects to be undertaken by the local government institutions, persuade people to contribute land and materials for projects, wherever necessary, ensure proper maintenance and prevent pilferage and wastage of public property and help remove, along with local agencies and offices, organisational bottlenecks. They may also cooperate with local officials, for example, in tht distribution of scarce commodities, in collecting revenues and taxes in areas where evasion is considerable, and in serving as watch dogs for preventing misappropriation of public funds and materials. They will inform and educate the peasants and workers about the programmes and policies of the Government and help organise various groups for collective and cooperative action, including formation of pump groups, cooperatives, etc.

It is essential that the Ministers and party leaders personally supervise the implementation of development projects in the field and educate and give guidance and leadership to the people, removing bottlenecks and coordinanting the activities of the various agencies and executive officers in the field. To accomplish the above objectives it is essential that people have confidence in the integrity and commitment of the political leadership to translate words into deeds. Economic development, in the context of acute poverty prevailing in Bangladesh requires sacrifices all around. This is particularly true for the elite so that the burden on those at the bottom does not appear intolerable.

It is specially relevant in the above context to ensure that people do not regard corruption as an endemic feature of our society. Corruption is basically an anti-social act. It is indulged in by those who have scant respect for society. It tends to misallocate resources and leads to maldistribution of income. Apart from the adverse moral consequences of corruption, there is an economic price which the society is required to pay. No society can make rapid progress if there is widespread belief in the prevalence of corrupt practices in the country, whether such beliefs have any foundation or not. Such a belief breeds resentment, cynicism, apathy and loss of faith in public activities. Where there is widespread suspicion of corruption and only half hearted attempts to root it out, even honest persons show unwillingness to take initiative and exercise independent judgment because no one is immune from suspicion. Thus everyone avoids taking personal responsibility and shares decision-making to the maximum extent possible to protect himself with resultant delay and inefficiencies. It is in this context that detection and punishment of offenders irrespective of their personal and political affiliations are necessary.

CHAPTER II

OBJECTIVE, SIZE AND STRATEGY OF THE PLAN

2·1 Objectives of the Plan

The basic objectives of the Plan are as follows :

(i) To reduce poverty. This is the foremost objective of the Plan. It requires an expansion of employment opportunities for the unemployed and under-employed. It also requires an acceleration in the rate of growth of national income, as well as effective fiscal and pricing policies for its equitable distribution.

(ii) To continue and complete the work of reconstruction, and to raise output in the major sectors of the economy, particularly in agriculture and industry, to the benchmark of 1969-70 as adjusted for expansion of capacity, by 1973-74.

(iii) To increase the rate of growth of G.D.P. to at least 5·5 per cent per annum, thus appreciably exceeding the rate of growth of population (which is estimated at present at about 3 per cent per annum). The target of increase in full time jobs is 41 lakh, just in excess of the projected increase in labour force. In addition, underemployment will be reduced. Efforts will be made, on a voluntary basis, to mobilize labour in the unorganized non-monetized sectors, with a view to expanding output and employment beyond the targets for income and employment set out above. It will be necessary in this context to strengthen the institutional framework at the local level in the form of viable, development oriented local governments for the purpose of mobilizing both human and financial resources.

(iv) To expand the output of essential consumption items with a view to provide the minimum consumption requirements of the masses. These items include, in particular, food, clothing, edible oil, kerosene and sugar. The expansion of employment and income for the poorer people is meaningful only if essential consumption goods are available in the market at reasonable and stable prices.

(v) To arrest the rising trend in the general price level, which has characterized the Bangladesh economy since last year and to stabilize, and reverse the rising trend in the prices of essential commodities.

(vi) To increase per capita income at the modest rate of 2·5 per cent per annum. The distribution policy will seek to ensure that the poorer sections of the people would enjoy a rise in per capita income and consumption greater than the average while the upper income groups would have to forego a rise in per capita income and consumption. This is to be attained by various direct measures such as putting ceilings on income and wealth as well as by redistributive fiscal measures.

(vii) To consolidate the gains made so far in the socialist transformation of Bangladesh; to extend by stages the sphere of State participation, consistently with the ability of the State to manage and organize efficiently ; to ensure a wider diffusion of economic opportunities in the self-employed sectors in the urban and rural areas ; and to change the institutional framework of the economy of Bangladesh at a pace consistent with concomitant changes in social and political attitudes, motivation, organization and mobilization of effort.

(viii) To reduce dependence on foreign aid over time through mobilisation of domestic resources and the promotion of self-reliance. Maximum efforts will be made to achieve the expansion and diversification of exports and an efficient pattern of import substitution to reduce the foreign exchange gap. Import substitution in the critical sector of intermediate goods, such as fertilizer, cement, and steel, will be pursued to the limits of efficiency with a view to reducing dependence on uncertain external supplies.

(ix) To transform the institutional and technological base of agriculture with a view to attaining self-sufficiency in foodgrains, widening employment opportunities in agriculture and stemming the flow of labour force to the cities.

(x) To lay the groundwork for an ambitious programme of population planning and control; to ensure the total commitment of the political leadership and social consciousness to this most critical bottleneck to development efforts in Bangladesh; to build up an appropriate institutional framework for population planning; to experiment with a wide variety of techniques of family planning while retaining flexibility of approach in the light of continuous and close evaluation and research. To attain a reduction in the growth rate of population from 3 to 2·8 per cent per annum.

(xi) To accelerate the rate of development expenditure and remedy the glaring deficiencies in the traditionally neglected fields of social and human resources development by improvement in education, health, rural housing and water supplies, etc., all of which will also help improve general capability and efficiency of work.

(xii) To ensure a wide and equitable diffusion of income and employment opportunities throughout Bangladesh by a suitable combination of projects and programmes designed to harmonize the requirement of economic efficiency with the considerations of spatial equity. To promote mobility of labour to the areas of expanding economic opportunities.

2.2 Size of the Plan : Aggregate Investment and Savings

The size of the Five Year Plan has been determined in the light of the above objectives as well as resource constraints, both internal and external. Firstly, a minimum consumption basket was determined in the light of (*a*) past levels in normal years, allowing for the increase in population, (*b*) a postulated rate of increase in consumption (this was made consistent with the income growth resulting from the production programmes) and (*c*) socially determined minimum acceptable "norms" in some areas. Secondly, the levels of the development programmes in the social sectors, like

education, health, family planning and social welfare etc., were set by socially determined targets (keeping in view the ability of the institutional and organisational infra-structure to implement such programmes). Investment in flood control was regarded as part of the agricultural programme and a means of providing a protection to life, income and property.

In view of the rapidly increasing population, a sizeable investment is required merely to keep the economy from sliding backwards. Per capita income has registered little or no increase for many years. To attain a level of per capita consumption by 1977-78 which is not much above that of 1969-70, the Plan provides for a financial investment of about Tk. 4455 crores in the Plan period. In addition, an investment of about Tk. 585 crores is expected to take place in the non-monetized or subsistence sector.

The progress envisaged over the Plan period is constrained by the amount of domestic resources available for development, given the low level of production and income. Bangladesh suffers from a vicious circle of low levels of income, production and investment inherited from the past decades of deprivation and under-development, coupled with the consequences of a rapidly rising population. This historical process has severely limited the possibilities of augmenting the rate of saving and capital accumulation. The country has to struggle against the cumulative consequences of missed opportunities in the past. Bangladesh today has an opportunity to break the vicious circle and to take the initial significant steps towards establishing an efficient pattern of domestic capital accumulation. Agriculture, the main source for the generation of a surplus for investment in Bangladesh, was subjected to a long period of exploitation in the form of forced savings realised through adverse terms of trade. Moreover, export surplus was mostly transferred out of Bangladesh. At present Bangladesh is not in a very favourable position to generate sufficient surplus for development, and it will remain so until it is put on a growth path through a carefully determined pattern of investment, financed through savings from both within and outside agriculture. There are unconventional ways of enabling a country even as poor as Bangladesh to develop a surplus for investment and development. But this would require a radical transformation of the social, political and institutional framework of rural Bangladesh. There is a large reservoir of unemployed and underemployed labour. To devise ways to put them to work productively, while minimising demands on resources of consumption goods and capital equipments, requires not only technological innovations on a scale unknown hitherto in Bangladesh, but also a degree of social engineering, mobilisation of effort and motivation that will require determined efforts and leadership at the grassroots level to develop in a significant way. The Five-Year Plan does take cognisance of these possibilities as described later; the initial but important steps in this direction must be taken during the First Plan Period so that substantial progress can be achieved in these directions in the succeeding Plans.

In the next five years a determined effort will have to be made so that Bangladesh could emerge out of the "soft state" inherited from the past. The challenge of development is very great indeed, specially since it is necessary to reconcile democratic institutions, to which Bangladesh is wedded, with the need of radically transforming the techniques and patterns of capital accumulation.

The general level of poverty, the small size of the organised trade and industry sectors and the predominance of subsistence activities in the overwhelmingly rural

economy, severely limit the rate of mobilisation of domestic savings, within the existing socio-political framework. Moreover in whatever way domestic savings are mobilised, large imports of capital equipment and intermediate goods will be required if they are to result in productive investment. Since the industrial sector is small and undiversified, import needs increase disproportionately with the scale of development effort. But exports with their heavy concentration on one commodity, can be increased only slowly, to pay for more imports. An increase in the size of the Plan, therefore, would disproportionately increase the required rate of foreign capital inflow.

There are constraints on the scale of foreign capital inflow, which Bangladesh can receive and absorb, from the point of view of both supply and demand; loans available on easy terms are not very abundant and for those on hard terms debt service burdens build up very fast. The latter provide short-term relief but the consequential repayment obligations substantially reduce the resources available for development in subsequent Five-Year Plans. Foreign loans are not committed for a Five-Year period. They are negotiated every year and the magnitude of such loans is subject to vicissitudes of a changing economic and political environment in the rich, developed countries. An overwhelming dependence on foreign capital inflow tends to create uncertainty in the implementation of a plan. A large plan, which is formulated on the basis of expectations of large inflow of foreign capital and can not be fully implemented due to shortfalls in foreign capital inflow is liable to create frustrations and threaten the credibility of planned economic development within the country. Moreover, a high degree of aid-dependence is not without constraints on the pursuit of independent domestic and foreign policies.

While the critical limits to the overall size of the development programme are the availability of resources, both external and internal, there are areas where the ability of existing organisations and institutions, both public and private, to undertake development programmes acts as a limiting factor specially in the short run. It is not possible to increase suddenly on a large scale the supply of trained teachers, doctors, engineers, health and family planning workers and village extension workers. The Plan suggests measures for significantly augmenting the domestic capacity for Plan implementation; a large variety of institutional reforms and administrative changes have been recommended.

The impact of a development programme on the increase of output and income, as well as employment, depends on the efficiency with which the Plan is implemented. An increase in the level of efficiency in the use of existing capital stock in the various sectors of the economy, specially in agriculture, industry and transport, could make a sizeable contribution to the increase in income, beyond the level postulated in the Plan; it would also expand employment if labour intensive ways of repairing, maintaining and utilising such capital stock were vigorously pursued. However, the plan assumes that progress in this direction will be limited in the first years of the Five-Year period; its major impact will be towards the end of the Plan Period and during the subsequent plans.

Viewed in the light of past levels of development expenditures the Plan size is not ambitious. It is certainly not so compared to our requirements. Before liberation, during the period 1965-70, development expenditures in Bangladesh, including both public and private sectors, were about Tk. 1,600 crores in terms of the prevailing prices during that period. If adjustments are made for increases in import cost, consequent on exchange rate adjustment and rise in world prices as well as for the subsequent rise

in domestic costs of materials and labour, the figure for past development expenditure in 1972-73 prices would be well over Tk. 3,000 crores. Moreover, population has increased by about 25 per cent between the two planning periods so that to ensure the same per capita development expenditure during the current Plan Period it would require an aggregate plan size of nearly Tk. 4,000 crores[1]. The corresponding financial outlay suggested in the Five-Year Plan period is Tk. 4,455 crores—an increase of some 10 to 15 per cent above the level of 1965-70 in real terms.

Investment towards the end of the sixties was increasing but very little increase in per capita income was recorded. The present Plan is intended to reassert and greatly augment the momentum of economic development in ways that are more fully discussed in later sections. There is considerable scope for improving efficiency and obtaining a much better distribution of investment expenditure than have been accomplished in the past. Improvements in these directions will help attain the increase of 30 per cent in GNP above the benchmark level that the Plan is designed to bring about.

The Plan provides for a total financial development outlay of Tk. 4,455 crores. It includes gross fixed investment and working capital requirements of Tk. 3,769 crores as well as non-investment development expenditures of Tk. 686 crores. Non-investment development expenditures] include such items as subsidy and distribution cost of fertilizer, pesticides and seeds, cost of land acquisition (which may be investment for the agency acquiring land but not for the society as a whole), wages, salaries and interest and payments during the period of construction. About eighty-nine per cent of the total financial outlay is in the public sector and the remainder is in the private sector. The preponderance of the public sector development expenditure is a reflection of the economic realities and social objectives of development planning in Bangladesh. The composition of the development outlay, domestic savings, investment and required net inflow of foreign capital are shown in the following table.

TABLE II-1

Development Outlay and its Financing

	Monetized	Non-monetized
A. In crores of Taka for Plan Period		
1. Development outlay:		
Public	**3,952**	..
Investment	3,298	..
Non-investment	654	..
Private	**503**	**585**
Investment	471	585
Non-investment	32	..
Total Development Outlay	**4,455**	**585**
Investment	3,769	..
Non-investment	686	..
2. Domestic Resources	**2,698**	**585**
Public Saving	1,618	..
Private savings and loans from the banking system	1,080	585
3. External capital inflow	**1,799**	..
Domestic resources equivalent of capital Inflow	1,757	..

[1]These figures relate to financial outlays excluding self-financed outlays in the unorganized sector and non-monetised investment in the traditional sector.

TABLE II-1—(*Contd.*)

B. Shares in percentages for selected years

	1973-74	1977-78
1. Gross financial development outlay as per cent of GDP ..	11·9	18·7
2. Gross domestic monetized saving as per cent of GDP ..	4·5	14·2
3. External capital inflow as per cent of GDP	7·4	5·1
4. External capital inflow as per cent of total financial development outlay.	62·2	27·0

The total amount of external capital inflow is estimated at about Tk. 1,800 crores or about 40 per cent of total financial development outlay. The annual inflow of aid will average Tk. 360 crores per year. The absolute amount of external capital inflow required is not expected to increase over the Plan Period ; as a percentage of total financial Plan outlay, external capital inflow is expected to decline from over 62 per cent in 1973-74 to as little as 27 per cent in 1977-78.

Domestic resource equivalent of external capital inflow will be less than the "c.i.f. value" of external capital inflow because some items of commodity aid will generate less net revenue in the hands of the Government than the import value of such goods. The difference is estimated to be Tk. 42 crores. Thus the domestic resource equivalent of external capital inflow will be Tk. 1,757 crores.

The planned growth and acceleration in development outlay must, therefore, be financed by additional domestic resource mobilization as the Plan proceeds. The average rate of domestic monetized saving for the Plan Period is about 9·2 per cent rising from 4·5 per cent in 1973-74 to 14·2 per cent in 1977-78. By comparison, the average rate of savings during the late sixties has been estimated variously from 8 per cent to 10 per cent. The low level of saving now estimated for 1973-74 reflects the need for some compensation for the extraordinary situation of unusually low levels of consumption for the past two years.

The acceleration in the rate of domestic resource mobilization has to be matched by sustained efforts to close the foreign exchange gap. This is predicated upon significant import substitution in some very important and large sectors, like agricultural inputs and textiles as well as on a large expansion in the exports of raw jute and jute textiles.

The problem of mobilizing domestic resources for the development effort is not only that the rate of saving has to be raised considerably, but also that a large part of total savings must be channeled into public investment. The policies for mobilizing development resources for the public sector are discussed in chapter III.

2·3 Strategy of the Plan

The Plan is designed to generate a rate and pattern of income growth which will not only meet a minimum consumption standard but also expand employment opportunities and ensure a socially desirable pattern of income distribution. With this end in view the basic strategy in the Plan is to concentrate on increasing output in those sectors of the economy which use large amounts of labour and to use methods of production which

are labour-intensive. Within this general strategy the overwhelming need to reduce dependence on imports of foodgrains and to improve the balance of payments by import substitution and export promotion have been major factors in determining the pattern of growth envisaged in the Plan.

A. Growth of Output and Income

The expected expansion of output in the main sectors of the economy is shown in the table below :

TABLE II-2

Gross Domestic Product and its Components (Crores Tk. at 1972-73 prices)

	Bench-mark GDP	Estimated Actual GDP 1972-73	Projected GDP 1977-78	Annual percentage Rate of Growth over Bench-mark GDP	Annual percentage Rate of Growth over Actual 1972-73 GDP
1. Agriculture, Livestock, Forestry and Fishery.	2,883 (57·6)	2,407 (56·1)	3,602 (55·1)	4·6	8·4
2. Manufacturing	520 (10·4)	358 (8·3)	731 (11·2)	7·1	15·4
3. Construction	184 (3·7)	171 (4·0)	326 (5·0)	12·1	13·7
4. Power and Gas	15 (0·3)	15 (0·3)	25 (0·4)	11·0	11·0
5. Housing	236 (4·7)	236 (5·5)	288 (4·4)	4·1	4·1
6. Trade, Transport and other Services.	1,165 (23·3)	1,107 (25·8)	1,570 (24·0)	6·2	7·2
	5,003	4,294	6,542	5·5	8·8
Per capita GDP (Taka)	676	580	766	2·5	5·7

Note—Figures in parenthesis are percentages of total. They need not exactly add up to 100 due to rounding.

The benchmark estimates are based upon but are not exactly the same as the levels of output reached in 1969-70, the last normal year before the war of liberation. They take into consideration the extension of capacity which occurred between 1969-70 and 1972-73 and assume that the existing capacity is "reasonably" utilised. The actual levels of production and income in 1972-73 are on the average about 14 per cent less than the benchmark estimates as judged by the performance of the first nine months of 1972-73. Therefore, while GDP is expected to grow at 5·5 per cent per annum, it will increase by nearly 9 per cent per annum over the level of 1972-73. It is important to remember that one-third of this rate of increase will be achieved by a recovery to the benchmark level of activity through a better utilisation of existing capacity; the other two-thirds of the planned increase require new investment and development programmes.

The Plan does not envisage any sharp structural change. It is not marked by rapid industrialisation. The share of manufacturing industry in GDP remains relatively small even at the end of the Plan Period, just over 11 per cent. A large part of this increase will take place in small scale and cottage industries. Thus the Plan avoids the pace and pattern of industrialisation based upon modern, borrowed capital intensive technology, except in areas where the choice is limited and import substitution is urgently needed. Throughout the Plan Period agriculture will continue to be the largest source not only of income and employment but also of foreign exchange earnings and savings. Expansion of agricultural output will reduce dependence on food imports; it will also provide raw materials needed by other sectors of the economy as well as provide expanding employment opportunities both directly and indirectly.

The expansion in the value added in the agricultural sector is indicated above. The value of agricultural output includes both value of agricultural inputs such as fertiliser, pesticides and seeds, etc., and the components of value added such as wages and profits. Since the value of inputs is expected to increase more rapidly than the value added by agriculture, total output of agricultural products will increase more rapidly.

The construction sector will record the highest rate of growth. Construction constitutes more than two-thirds of total investment expenditure and an acceleration in the rate of aggregate investment expenditure speeds up the rate of growth of this sector. Moreover, compared with the past, the composition of investment will be shifted towards more construction intensive activities like irrigation, drainage, minor flood control projects and housing. Even in the late sixties the rate of growth of this sector was high.

The power and gas sector will have the second highest rate of growth starting, as it does, from a very low base. Even though this is a very highly capital intensive sector with no significant direct employment or income effects, it must be expanded considerably to meet the need of other rapidly growing sectors of crucial importance. Fortunately, the growth of this sector can be based on the abundant supply of domestic natural gas.

Over the last quarter century the rate of growth of housing has been barely more than 1 per cent per year. It is planned to quadruple this historical rate of growth during the next five years. This will mean that for the first time in recent history this sector will have a rate of growth higher than that of population. The growth in the output of trade and ancillary services of about 6 per cent per annum is closely related to the rate of growth in agriculture and in the industrial sector. One quarter of GDP originates in this sector which has suffered from relative neglect in the past; it will now need to grow a little faster than GDP.

B. *Recovery of the Economy*

It is important to consider briefly what is involved in the transition from the actual levels of economic activities in 1972-73 to the benchmark levels. The first steps in putting the Plan into effect are to raise output from its present depressed levels in most sectors to the benchmarks laid down. This can be done without any significant new physical investment but what is entailed needs to be understood. The Plan indicates policy measures and organisational improvements, necessary for reaching the benchmark levels of output and income.

Two-thirds of the gap between the benchmark and actual GDP in 1972-73 is accounted for by the difference in agricultural output. This was almost entirely the result of unprecedented drought although it is possible that greater and better organized human effort could have compensated for part of the effect of unhelpful natural circumstances. If weather conditions are normal without the excessive drought of 1972 or cyclones like that of 1970, output is expected to recover to benchmark levels.

Nearly a quarter of the difference between benchmark and actual levels of activity is accounted for by the decline in the output of the manufacturing industries where value added in 1972-73 was 30 per cent below the benchmark. Recovery in this sector hinges on a number of interrelated factors. Outstanding among the measures required are: (a) improvement in the managerial and institutional structure; (b) successful adjustment to a new pattern of trade relations and to vastly altered sets of prices, both internal and external, as well as exchange rates; (c) resumption of regular and adequate supplies of imported raw materials and spares; (d) restoration of healthy labour management relations; and (e) provision of adequate incentives to management and workers at the enterprise level. These and other specific policy measures are dealt with in some detail in the chapter on the industrial sector.

The rest of the difference between the benchmark and actual 1972-73 GDP levels is made up of shortfalls in construction activity and in transport, trade and other services. Recovery in construction output will depend on the rate of implementation of the investment plan. It should also be reasonably easy to return to the benchmark levels for transport services once the repair of the last major damaged railway bridge is completed in September 1973 and the remaining disruptions in roadlinks removed. It will still be necessary, however, to ensure reasonably efficient use of the existing transport capacity. Trade and services should recover at the same rate as the growth of industrial output and imports.

To sum up, given favourable weather conditions it should be possible within the next year to make up two-thirds of the gap between benchmark GDP and estimated GDP in 1972-73 by bringing agricultural production back to a normal level. Given the fulfilment of the existing targets for the repair of railway bridges and road systems and the implementation of the development plan it should also be possible to attain full recovery in most other non-industrial sectors. It is much more difficult to predict recovery in manufacturing industries. That a good part of the 30 per cent decline in output will be made up during the next year can be predicted with confidence. But a complete recovery may take longer. Much, of course, will depend on the speed and imagination with which policies are implemented to ensure industrial recovery.

C. *Employment and Distribution of Income*

Foremost among the targets of the Five-Year Plan is that of increasing the level of employment. This is because an increase in employment not only creates additional output but also makes it available to the lowest of the income groups; it thus helps to ensure the achievement of the twin objectives of growth in the national product and its optimum distribution.

Unemployment and underemployment are widespread in Bangladesh today. While no reliable estimates are available, it is frequently suggested that on the average up to 30 per cent of the available labour is not used, although much of this is concealed by work-sharing and in underemployment. During the last two decades unemployment and underemployment in Bangladesh have increased. The economy failed to provide employment for the increase in labour force.

The Five-Year Plan is designed to create enough new employment to absorb all new entrants into the labour market, as well as to reduce some of the existing unemployment and underemployment.

The table below shows that the population is expected to increase by 1·14 crores, from 7·4 crores in 1972-73 to 8·54 crores in 1977-78. If the proportion of the total population available for work does not change, the increase in the labour force would be 39·3 lakhs. The Plan must aim to exceed this figure for employment by as much as possible.

TABLE II-3

Projection of Population and Labour Force

Year	Population in crores
1972-73	7·40
1973-74	7·62
1974-75	7·85
1975-76	8·09
1976-77	8·31
1977-78	8·54
Addition to population during the plan period.	1·14 crores
Increase in labour force	39·3 lakhs

To attain such an increase in employment, investment must be concentrated in sectors which require relatively small amounts of capital per unit of employment and output. Within a sector, advantage must be taken of alternative techniques by choosing those requiring small quantities of capital per unit of employment.

A large proportion of investment will take place in agriculture which is one of the low capital-intensive activities. Throughout the Plan emphasis will be on various small-scale activities using labour-intensive, traditional techniques. Thus cloth weaving will largely be done by handlooms, and small scale leather goods, metal products and miscellaneous manufactures will be promoted with all the incentives they deserve.

It would, however, be wrong to think that capital-intensive investment can be avoided altogether. Economic activities have to grow in a balanced and related fashion. For example the growth of output is dependent on power and transport services provided by domestic production. These are highly capital-intensive activities. Also, capital-intensive investment has to be undertaken to reduce existing import dependence on such items as fertilizers, cement and steel.

The creation of employment opportunities in the Plan Period is given in the following table:

TABLE II-4

Reduction in Underemployment and Increase in Employment in the Five-Year Plan

(Increase in 1977-78 over benchmark levels in lakhs of man-years)

Sector/Programme	Lakhs of man-years
1. Crop production, livestock, forestry and fishery including ancillary processing and marketing.	26·0
2. Works Programme, flood control, irrigation and related agricultural projects.	5·0
3. Construction and services	10·6
4. Industries, power and gas	6·5
5. Social sectors (Health, Education, etc.)	5·9
Total	54·0

It might be useful to explain the nature of the sectoral estimates of employment. Employment in a sector generally refers to the permanent employment which is created in a sector after the construction of the development project is over. Employment provided in course of construction of a project has been shown as occurring in the construction sector. Thus, the employment generated during the construction of a power plant is shown above as employment in the construction sector while employment in the power sector refers to the additional labour required to man the completed power plants. Exception to this principle has been made for the works programme, irrigation, flood control and similar "programmes" (as distinguished from sectors of production); here employment during construction has been shown against the relevant programmes themselves.

Extreme caution is needed in interpreting these figures. They show that the labour requirement of the economy will increase by 54 lakh man-years over the Plan Period. But this should not be interpreted to mean that 54 lakh additional jobs will be created. For example, much of the additional demand for 26 lakh man-years in agriculture will merely reduce underemployment of those who at present have to share work or are gainfully employed only for a fraction of the normal amount of working hours. Since work sharing results in extremely low income per head it is nearly as desirable to reduce underemployment as to increase employment in the sense of creating new jobs.

There is no way of ascertaining to what extent the additional demand for labour in agriculture will merely reduce underemployment. It will depend on a large number of institutional, locational and technological factors which cannot be predicted accurately with present knowledge. But on the reasonable assumption that the share of new jobs will be half of the additional labour requirement in agriculture, about 41 lakhs additional jobs would be created during the Plan Period. This would be just above the addition to the labour force which is estimated at 39·3 lakhs.

It may be noted that non-agricultural employment (quite a bit of it in rural areas) will increase by only about 28 lakhs. Urban employment will probably increase by less than 20 lakhs since many small industries and a good part of the provision of services, the works programme and flood control as well as irrigation projects will be located in the rural areas.

A tentative but illuminating way of looking at the employment position during the Plan Period is to conclude that of the estimated 39·3 lakh increase in labour force nearly a third will find new work in agriculture proper while the rest of the increased labour demand in agriculture will reduce existing underemployment. Nearly another 10 lakhs of the additional labour force will be retained in the rural areas through works programme, irrigation and flood control, cottage industries, ancillary services and social programmes. Thus only about 16 lakhs of the increased labour force will be found in urban areas where employment will expand by somewhat more (by about 18 lakhs) allowing some reduction in existing unemployment in these areas.

It must be understood that the location of job opportunities resolves only part of the problem. The movement of labour to the location of employment opportunities depends upon a number of factors such as wage differentials between areas, physical facilities and related matters.

One special aspect of the employment policy needs to be discussed. The objective is to maximise employment given the amount of capital investment which is postulated in the Plan. Therefore, additional employment has to be concentrated in sectors and techniques which are very highly labour-intensive. One of the consequences of such high labour intensity of incremental employment is low productivity per hour of work. Much of the incremental employment will be in traditional sectors using traditional techniques. An hour of labour will not achieve significantly more in these occupations at the end of the Plan than it did in the benchmark period.

In industry and services also there will be an attempt to promote less capital-intensive techniques than in the past. As a result, it will be unrealistic to expect much increase in output per labour hour.

Output per worker as distinguished from output per man-hour will, however, go up due to an increase in the effectiveness of employment, *i.e.*, reduction in the extent of underemployment per worker. About a quarter of the increase in demand for labour is expected to go to reduce underemployment. In the absence of any reliable estimate of the relative magnitude of underemployment and unemployment it is not possible for us to make precise quantitative projections. But on the assumption that about two-third of the existing total of underemployment and unemployment consists of the former, value added per worker is expected to increase by more than 10 per cent over the Plan Period [1].

The promotion of an equitable distribution of income is an important objective of the Plan. To achieve this a two-pronged attack on the inherited income structure will have to be made. First, it is necessary to raise as many as possible of the poorest people above the "poverty line" by providing essential consumer goods at reasonable prices. The priorities in the production programme are designed to achieve this objective. The production plan

1 Very roughly, the calculations are as follows: Benchmark "effective employment"=1 crore 80 lakhs, benchmark concealed underemployment=53 lakhs, total benchmark employment=2 crores 33 lakhs, benchmark value-added per worker 2,175 Taka. By the terminal year "effective employment"=2 crores 34 lakhs and underemployment=37 lakhs so that total employment=2 crores 71 lakhs and value-added per worker=2,414 Taka.

is also oriented towards the satisfaction of the demands of the low-income groups. The production of commodities and services which have high elasticity of demand with respect to the incomes of the poorer groups is planned to expand fast. Low-income housing, cheaper varieties of textiles and various kinds of inexpensive consumption goods are among these categories of goods. Special programmes for the improvement of nutritional standards have also been formulated. The details of such programmes are discussed in later chapters.

The large inputs programme in the rural areas are to be formulated within a broad institutional framework which will make a special effort to concentrate the benefits in the hands of the smaller farmers. In the past such programmes benefited the richer farmers more than the poorer ones. Conscious and effective policies will be adopted to avoid the repetition of the past experience.

Second, measures will have to be taken to discourage high individual incomes and consumption. This will be achieved by the economic and social policies of the Government, the groundwork of which has been laid by the Nationalization measures and the Industrial Policy and by preliminary steps towards land reforms and the limitation on private ownership in the transport and foreign trade sectors. During the Plan Period additional measures will have to be devised including fiscal measures to tax unearned and high incomes.

2.4 Physical Consumption and Production Targets

The Plan aims at attaining minimum consumption standards of essential consumer goods as well as at accelerating import substitution and export expansion in selected areas.

The following table indicates *per capita* consumption targets in the last year of the Plan compared with the levels in the immediate pre-Plan year, *i.e.*, 1972-73 and the most recent "normal year", *i.e.*, 1969-70.

TABLE II-5

Per Capita Consumption

	1969-70.	1972-73.	1977-78.
1. Rice (oz. per day)	15·41	12·91	15·61
2. Sugar (lb. per year)	4·22	3·00	4·48
3. Cigarettes (units per year)	265	139	280
4. Textiles (yards per year)[1]	7·5	4·96	8·14
5. Tea (lb. per year)	0·14	0·16	0·22
6. Electricity (KWH per year)	1·63	1·64	3·56
7. Gas (c. ft. per year)	5·27	4·93	21·37
8. Housing Service (Constant Taka per year)	..	35	38

1 1969-70 figure for textiles is a tentative estimate based on the average for late sixties.

Per capita rice consumption in 1977-78 will be about 11 per cent above that in 1972-73 but only marginally higher than the relatively high 1969-70 level.

Per capita consumption of most other food items will increase significantly over the current year's low level but compared to 1969-70 the increase will be less substantial.

Per capita consumption of textiles was drastically curtailed during 1972-73. In 1977-78 it is expected to be nearly two-thirds higher than in 1972-73. As compared to the year 1969-70 the increase will be more modest, that is, about 9 per cent.

Per capita household consumption of electricity will more than double and that of gas more than quadruple. It should, however, be noted that the consumption of both will have geographical concentration and the absolute levels of the national average will still remain low compared to other developing countries.

One final element of consumption, housing service, needs special mention. For decades this has been a lagging component and its *per capita* availability declined significantly. The Five-year Plan puts emphasis on the growth of housing. It is planned that housing service will increase faster than population.

A description of consumption will remain incomplete in the absence of some discussion of the so-called "social consumption". In this category will fall items like health and education. Radical improvements are expected in these areas. The number of hospital beds will increase by 80 per cent to 22·2 thousand with very significant decentralisation. Enrolment in primary schools will go up to 85·9 lakh which will be 73 per cent. of the children of the relevant age-group as compared to just over 60 per cent today.

There is no denying that the average consumption level in 1977-78 will still represent dismal poverty. But compared to the circumstances obtaining today in war-torn Bangladesh it will represent a qualitatively different situation and provide a minimum material basis for further social and economic development. To realise a higher level of consumption by the end of the Plan would have implied a higher rate of dependence on external borrowing because of the severe domestic resource constraint.

Table II-6 summarises information about the major physical targets of the Five-year Plan. Corresponding information about benchmark production is also shown wherever available. Benchmark in this context refers to the levels achieved in the late sixties and not to the generally low levels in 1972-73 (except in special cases like fertilizer and water transport in which capacity in 1972-73 has been higher than the late sixties). The table shows only the more important targets leaving the details to the sector plans below. With a few exceptions, the rate of growth for each good and service mentioned in the table will be higher than that of GDP, in many cases substantially higher than the rate of growth of GDP. This is because growth in output of most of these products is aimed at both increased consumption and import-substitution. In many cases import dependence has recently been increased due to the severance of what was regional trade with Pakistan. Rapid import substitution programmes have been planned in many such cases. Outstanding among such cases are textile yarn, cloth, oil-seeds, tobacco, engineering goods, fertilizer and steel. However, import-substitution of the final product will often mean increased import of raw material. Thus, for example, the import-substitution of steel will increase the import of pig and scrap iron.

Elsewhere high growth in output will be induced by export expansion. Raw jute and leather products are examples of such cases.

Some of the very high rates of growth are reflections of very small levels of output in the base year. Examples are wheat, raw cotton and, to a lesser extent, steel and engineering. Even after such rapid growth the size of such sectors will remain small.

As already indicated, social sectors like health and education will have very high rates of growth. So will be the case for many infra-structural facilities, *e. g.*, post and telephone.

Growth in water and road transport capacity will be higher than that of GDP while that of railway will be lower. It is believed that vast scope exists for improvement in capacity utilisation in transport. The Plan puts considerable emphasis on such improvement.

TABLE II-6

Major Physical Targets of the Five-Year Plan

1	Unit 2	Benchmark level 3	Terminal Year level 4	Percentage Increase 5
1. Rice	Lakh Tons	112·40	150·80	34
2. Wheat	Lakh Tons	0·90	3·60	300
3. Jute	Lakh Bales	66·60	91·00	37
4. Tea	Lakh Lbs.	630	810	29
5. Tobacco	Lakh Lbs.	870	1475	70
6. Sugarcane	Lakh Tons	60	74·20	24
7. Potato	Lakh Tons	7·80	11·10	42
8. Oil-seeds	Lakh Tons	2·00	4.00	100
9. Pulses	Lakh Tons	2·90	3·50	21
10. Cotton	Thousand Bales	13	63	385
11. Milk and milk products	Thousand Tons	N.A.	1005	..
12. Meat	Thousand Tons	N.A.	210	..
13. Eggs	Lakh Units	N.A.	5200	..
14. Fishery	Thousand Tons	N.A.	1021	..
15. Jute textiles	Thousand Tons	587	766	30
16. Textile yarn	Lakh Lbs.	863	1975	129
17. Cloth	Lakh Yards	2792	7530	170

TABLE II-6 (*Contd*)

1	Unit 2	Bench-mark level 3	Terminal Year level 4	Percent-age Increase 5
18. Engineering goods	Thousand Tons	112·2	425·1	279
19. Ship-building	Lakh Taka	245·50	810	230
20. Steel	Thousand Tons	80	450	463
21. Fertilizer	Thousand Tons	216	1032	378
22. Petro-chemical	Thousand Tons	—	493	—
23. Paper and Pulp	Thousand Tons	59·3	108·9	84
24. Sugar	Thousand Tons	106·5	148	39
25. Leather	Lakh sq. ft.	626	1694	171
26. Cinema House	Nos.	120	220	83
27. Telephone	Thousand Units	66	136	106
28. New Post Office	Nos.	6600	10325	56
29. Rural Health Centres (Thana level) ..	Nos.	160	356	123
30. Rural Health Sub-Centres (Union level)	Nos.	*Nil*	698	..
31. Hospital Beds	Thousand Units	12·3	22·2	81
32. Primary School Enrolment	Lakh Students	60	85·90	43
33. Secondary School Enrolment	Lakh Students	17	26·6	56
34. Railway : Passenger Miles	Lakh Miles	20610	25760	25
35. Railway : Ton Miles	Lakh Miles	9400	11990	28
36. Buses in operation	Nos.	7200	10030	39
37. Trucks in operation	Nos.	11100	14590	31
38. Inland Water Transport : Passenger Miles	Lakh Miles	5180	6810	31
39. Inland Water Transport : Ton Miles ..	Lakh Miles	3740	5280	41
40. Installed Generating Capacity ..	Megawatts	545	996	83
41. Power Transmission Lines	Miles	647	1210	87
42. Power Distribution Lines	Miles	5620	18130	223

2·5 Prices and Wages

The Five-Year Plan estimates are based on constant prices of 1972-73. The price movements during the Plan Period are of critical significance for the implementation of the Plan. A general rise in the price level would increase the monetary outlay required to achieve the planned investment in real terms. It will discourage private savings; furthermore, it will adversely affect domestic resource mobilisation, specially since the Plan so critically relies on the mobilisation of private savings in the form of financial assets. It will restrict exports and frustrate attempt to face the competition of synthetics in the case of the major export commodity, *i.e.* jute and jute products. The rise in prices of a few essential commodities like foodgrains, edible oil, sugar, and cloth pushes up the general price level. They raise wage costs as well as the prices of agricultural products which the agriculturists must sell in order to buy the essential consumer goods at higher prices. The adverse impact of inflation on landless labourers, small and deficit farmers in the agricultural sector and the casual workers and fixed income earners in the urban areas have highly destabilising social consequences. The Government is subjected to high pressure to provide relief, either in the form of outright grant or of test relief, which while involving employment in peripheral rural works do not yield output or increase productivity. The pressure for increases in wages is also intensified. All these lead to aggravation of the inflationary situation. There is no unutilised capacity in the economy which can be used to increase output without help of imported inputs or supplementary real domestic resources to offset the pressure of increased monetary demand. In view of the above circumstances, the Plan lays major emphasis on appropriate fiscal and monetary policies to contain inflation.

The abnormal rise in prices is the most striking feature of the current economic situation in Bangladesh. Prices have probably increased by over 80 per cent between the day of liberation and June 1973 if the seasonal factors can be eliminated although the prices of some essential consumables have increased by much more. Very briefly, the causes can be identified as: (a) the sharp decline in the level of production and supply caused particularly by the failure of four consecutive rice harvests and the disruption and slow recovery in industrial production; (b) structural adjustments due to cost increase resulting from exchange rate adjustment as well as change in the source of supply of some major inputs like raw cotton and wage increase; (c) increase in monetary demand as reflected in the sharp increase in money supply; (d) failure of the distribution system to cope with general shortage, and (e) a general rise in world prices of imports, which has particularly affected such essential items as food, edible oil, raw cotton and cotton yarn.

A few contributing factors are discussed below:

(i) *Fall in production*—Rice production in 1972-73 was about 15 per cent lower than that of 1969-70. Since in the meantime population has increased, the *per capita* rice output declined by more than 20 per cent. Even with a massive import of 28 lakh tons, there has remained a substantial gap between requirement and availability.

Industrial output in 1972-73 was about 30 per cent. lower than the normal output of 1969-70. In terms of 1969-70 output, the jute industry's output was 28 per cent lower, the output of cotton textile industry was 23 per cent lower in yarn and 3 per cent lower in cloth, and the output of sugar was only one-fifth. There was sharp decline in the output of most other industries, except fertilizer, steel and ship-building whose output surpassed 1969-70 level.

The two most important reasons for low industrial output are (a) inadequacy of management and (b) inability to motivate labour for disciplined and efficient work. In a sense, the two reasons are inter-related. Industries suffered from lack of experienced management. Other problems affecting industrial efficiency are power shortage, frequent power failures, insufficient supply of spares, transport bottlenecks, burden of inherited debt liabilities, etc.

(ii) *Transport bottleneck*—While damaged bridges, roads, etc., have curtailed the carrying capacity of the transport system, operation of transport services suffered badly due to lack of co-ordination. For lack of co-ordination and efficient management full use was not made of transport equipments. For example, barges and tugs carrying food within the country recorded much longer "turn around" period than before; there were large numbers of railway wagons which were ineffective for want of small repairs and spare parts.

(iii) *Distribution problems*—It has become evident that the prices charged by the wholesalers, sole-agents, and licence holders are far above the ex-factory costs of domestic products or the landed costs of imported goods. The big margins appropriated by the middlemen speak of the degree of imperfection of the market. While the Government has control over the prices charged by public sector industries and by the State Trading Corporation, it can do very little in controlling the prices charged by the middlemen. The large number of fair price shops set up by the Government could not meet the needs of the situation.

(iv) *Imports and exports*—At the time when there was very severe shortfalls in domestic production, imports were also much lower. Non-food imports in 1972-73 were about 30 per cent. less than what it should have been to meet the requirement. Apart from shortage of foreign exchange resource, import policies and the operation of the import trade failed to meet the challenge of the time.

(v) *Monetary management*—The limited supply of goods was the major cause of abnormal rise in the prices. But in addition the large borrowings by the nationalized enterprises from the commercial banks accentuated demand. Since liberation, money supply increased by 83 per cent. by the end of March 1973. Such a high rise in the money supply during the period in which the economy was experiencing severe shortfalls in the supply of goods led to an equivalent increase in average price levels.

One of the objectives of the Plan is to ensure that the level of prices in 1977-78 is at least slightly below what it is today. Forecasting future prices, particularly those as remote as five-year hence, is a hazardous occupation. Such forecasts should not be interpreted to mean anything more than the determination to follow certain policies with respect

to monetary demand and components of costs relative to expansion of output and productivity. Also such forecasts can be falsified by international factors even when domestic policies are consistent with the objective.

It is important to outline the time profile of the general price level between now and the terminal year. A good deal of the rise in prices in the last year has been due to structural factors. These factors have varied between industries. They have been of high significance for industries like cotton textiles which now have to pay much more in terms of take for the import of raw cotton which is the biggest component of cost. In other industries with less significant dependence on inputs which are foreign trade oriented the structural cost adjustment has been less important. As a very preliminary approximation it appears reasonable to suggest that the structural factors (such as rising world prices of imports, the opening up of new trade possibilities with India and the consequent need to allow adjustment in relative prices, would account for something like 60 per cent rise in prices) since liberation. The rest would mainly be accounted for by decline in supply and increase in monetary demand.

In principle, therefore, it would be possible to lower the general price level to not more than 60 per cent higher than the level obtaining immediately after liberation (adjusting for seasonality) once production recovers and sufficiently deflationary policies are adopted to curb monetary demand. The price objectives of the Plan for the near future are modest. The reasons should not be far to seek. While the recovery in output may be expected to be rapid provided nature is not too unkind, it may not be possible to adopt sufficiently deflationary policy in near future. To finance the required current and development expenditure consistent with the needs for economic recovery and growth, a certain amount of bank credit and monetary expansion will be required given the current ability of the Government to tax and raise revenue by curbing consumption. A realistic assessment of the possibilities along these lines shows that further growth in monetary demand may lag only a little behind the expansion in supply of goods and services.

It must be emphasised that the achievement of this modest objective would require a great deal of financial and fiscal discipline. Also, we must be able to ensure normal and steadily growing agricultural production. Finally, no clear reversal of the recent trend can be expected until and unless the next major rice harvest (aman in November-December, 1973) proves to be at least a normal one. The abnormal rise in the price of foodgrains is due to severe drought last year. If weather conditions in the latter part of 1973 are normal and implementation of the agricultural programme successful, then it is likely that the price of foodgrains will register greater decline than general prices. It should be noted that over the last one year, money incomes and wages have also considerably increased so that increased output can at best reverse the rising trend in general price to a limited extent. The need for stability in the prices of some essential items will require special measures like control of distribution.

It should be obvious that the above analysis is a very tentative one. The process of price changes in a predominantly subsistence economy can hardly be forecast with confidence. At the moment it is impossible to forecast the extent to which a bumper rice harvest through a sharp reduction in the price of rice can influence the general price level by initiating a reduction in the wage costs and in the "cost" in the large self-employed part of economy and causing a cumulative effect on the rest of the economy.

Although wages have increased less than cost of living the organised industries have witnessed a sharp rise in wage cost per unit of physical output due to inefficiency and declining productivity. A complete reversal of such trends is a necessary precondition of industrial recovery.

On the other hand, wage rates are due to be reviewed soon and there might be an upward revision. It is essential that such increases are kept to a minimum. There are important reasons why wage rates in modern industries should not be allowed to rise fast. Some of these industries, notably jute textiles, contribute an overwhelming share of the nation's exports. An increase in wages ahead of productivity in these industries will seriously jeopardise the competitive position of the relevant exports and necessitate change in the rate of exchange or adoption of equivalent measures.

In a more fundamental sense wages in modern industries need to be kept at a reasonable level even if average productivity is high. This is because of the special kind of industrialisation programme envisaged in the Plan. If small scale and cottage activities are to be promoted to ensure growth in employment it is important that the differential between wages in these enterprises and those in modern large-scale enterprises is not too high. Otherwise industrial dualism will emerge with consequent tensions. It should, therefore, be a major objective of Government policy to ensure that wages in the modern sector of the economy are not too far above the earnings elsewhere in the economy.

Within the general criteria outlined above, the structure of wages should aim at promoting incentive and efficiency. Differentials should be appropriately structured to maximise incentive to achieve higher productivity.

Given the shortage in critical supplies and inflationary situation, the Plan lays emphasis on (a) increased supply of essential items through domestic production or imports, (b) measures to contain domand and (c) institutional arrangements for more efficient physical movement of goods and a more equitable distribution thereof. The main focus of policy regarding stability of prices is to ensure adequate supply of a few items of consumption through special measures while the supply of the rest of the items will be regulated by means of overall economic and fiscal policies.

As the foregoing sections indicate, the Plan provides for an increase in the supply of foodgrains, edible oil, sugar, coarse cloth and kerosene, housing and transportation services. These constitute a very large proportion of the household budget of the poor sections of the population. Special provision has been made, in spite of an accelerated agricultural production programme, for emergency imports of foodgrains over the Plan period to meet the effects of adverse weather conditions. Long term arrangements are being made for the supply of yarn, crude oil and edible oil (oilseeds and refined) from abroad, so that interruptions in the supply of imports do not offset the domestic distribution programme.

Secondly, strict financial and fiscal discipline must be observed so that expansion of monetary demand is kept under control. The Plan envisages a high interest rate policy and considerable extension of the services of financial institutions for mobilising private savings. The excess liquidity in the hands of the public, which poses a constant threat to the stability of monetary demand, must be mopped up or immobilised.

Thirdly, the Plan emphasizes that while the organised groups of workers in the modern sector of the economy, including the public enterprises, such as industrial workers, low income government employees, teachers, health workers, etc., constitute a very vital and productive segment of society, they are nonetheless a small part of the entire population at the low stratum of the income level. The small farmers, landless labourers, the workers in the cottage industries in the rural areas, and the casual workers and self-employed in the trade and services sector in the urban areas constitute by far the largest segment of the toiling masses of Bangladesh. A disproportionate shift of real income in favour of the organised pressure groups in the urban areas, who are undoubtedly poor, would lower still further the real income of the poorer sections of the community who have inadequate bargaining power. An increase in wages of a particular group without an increase in productivity would aggravate inflation without increasing the real income of this group and add to the misery of all.

Fourthly, one of the important bottlenecks in the past has been the ineffective implementation of the import programme. The procedures of imports are being streamlined, so that delays in the distribution of import licenses as well as in the actual task of importation are minimised. The Trading Corporation of Bangladesh would restrict its operations to bulk items which yield economies of scale in handling and purchasing operations and would gradually build up expertise and market contacts in selected items. There will be greater decentralisation of the task of importation among the nationalised enterprises which are expected to make direct purchases of their import requirements of raw materials and spares so that delays could be reduced through direct contacts between domestic purchasers and overseas suppliers. The distribution of import licenses in the private sector would be so organised as to make the volume of imports by each individual importer economically worthwhile. A greater decentralisation of authority to public sector agencies in respect of purchases, which require spot decisions and which are unsuitable for the prevailing tender procedures, will be undertaken along with adequate checks and balances to prevent misuse of delegated authority. The institutional arrangements, including banking arrangements, when improved, are likely to reduce the long gap between the issuance of licenses and actual arrival of imports.

The coordination of transport facilities, starting from the ports down to major inland distribution centres is expected to improve greatly, with a more effective functioning of the transport co-ordination cell.

Lastly, it is recognised that so long as there is shortage and pressure of excess demand, there is no escape from relying upon rationing and distribution at controlled prices of the essential items. Already, foodgrains, sugar and edible oil are distributed through a rationing system. There is compulsory rationing in three cities, *i.e.*, Dacca-Narayanganj, Chittagong

and Khulna and in the rest of the country only a part of the population is covered. While in the small cities and rural areas, employees in the public sector, including industrial workers, are covered by the rationing system, the rest of the population get occasional supplies of these three essential items, and that also is limited to the lowest income groups. It is intended to expand the coverage of the rationing system gradually, consistent with the ability of the administration to organise distribution agencies and centres throughout the country. The Consumer's Supplies Corporation would gradually cover more than the 4,000 unions (a cluster of 10 villages) as it improves and expands physical facilities and trains up staff. It is easier to undertake a public distribution system so long as the bulk of the supplies is obtained from imports or when domestic output is procured from a few suppliers. As the sources of domestic procurement multiply, so also do the difficulties in management and administration. In one field, *i.e.*, food, the Government would need to undertake domestic procurement on an extensive scale. As domestic production of food replaces imports, the sources of supply for the rationing system will become dispersed all over the country side, among the surplus farmers. The Government would have to procure from surplus farmers and surplus areas, and distribute foodgrains in the deficit rural areas as well as in the urban areas. The existing system of transportation of foodgrains from the port to the consuming centres will need to be replaced by procurement and transportation of food over all the areas of the country.

The ration shops as well as the fair price shops under the Consumers' Supplies Corporation would need adequate quantities of supplies to be run economically and efficiently, considering high overhead costs in the publicly run distribution system. The problem of management and supervision of retail shops spread all over the country is quite considerable. The government distribution system is, therefore, to be limited to a very few items which are in short supply and which can be easily managed; it should in no case attempt to supplant the existing system before making sufficient preparatory arrangements and gaining necessary experience.

CHAPTER III

STRUCTURE OF THE PLAN

3·1 Sectoral Allocation

The Plan provides for public sector development expenditures of Tk.3952 crores, private financial development outlay of Tk.503 crores and investment in the private subsistence sector of Tk.585 crores. The structure and sectoral allocations of development outlays are shown in Table III-1. As much as one-third of the estimated Tk.503 crores of private financial development outlay would be in housing and various self-employing economic activities.[1] The rest would be in the organized modern sectors of industry, trade and transport, but subject to limitations placed on such investment by the Government's policy on private ownership of assets in various sectors.

A part of overall development outlays, particularly in the first year, relates to reconstruction following the destruction prior to and during the war of liberation; most of the Plan outlays are, however, for expansion of productive capacity and further development of economic and social infrastructure. The contributions of the planned development outlay to economic growth in the country is, therefore, best assessed by reference to growth during the five years beyond the level of the benchmark production levels rather than the total improvement from the depressed levels of 1972-73.

The sectoral allocations of planned development outlay have had to be made consistent with consumption targets, rates of growth of exports and of import substitution, as well as with the intersectoral relationships. Investment in industry necessitates related investment in the power and transportation sector as well as in trade and ancillary services. Investment in the social sectors such as health, education, and family planning, was determined primarily by the need to meet postulated social objectives. The main thrust of the Plan, however, is in the agricultural sector, in view of its overwhelming importance. The requirements of a high rate of growth in agriculture have been reflected in terms of interrelated investment in the rest of the economy.

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[1] The nature and composition of development outlays in the private subsistence sector is discussed in section 3.3 below in this chapter.

TABLE III-1

The Structure of Planned Development Outlay

(Taka in crore)

Sector	Financial Development Outlay					Non-financial Development Outlay:
	Investment	Non-Investment	Total	Public Sector Outlay	Private Sector Outlay	Private Subsistence Investment
1. Agriculture and Water	898	169	1067 (24·0)	1041 (26·3)	26 (5·1)	129 (22·1)
2. Industries	798	79	877 (19·7)	738 (18·7)	139 (27·7)	18 (3·1)
3. Power and Natural Resources.	415	107	522 (11·7)	522 (13·2)	—	—
4. Physical Planning and Housing.	299	152	451 (10·1)	315 (8·0)	136 (27·0)	242 (41·3)
5. Transport	469	125	594 (13·4)	528 (13·5)	66 (13·2)	—
6. Communications ..	—	—	114 (2·5)	114 (2·9)		
7. Education and Man-power	—	—	316 (7·1)	316 (8·0)	—	34 (5·8)
8. Health and Social Welfare	—	—	220 (4·7)	220 (5·6)	—	—
9. Family Planning ..	—	—	70 (1·6)	70 (1·8)	—	—
10. Government	—	—	26 (0·6)	26 (0·7)	—	—
11. Trade	—	—	170 (3·8)	62 (1·6)	108 (21·3)	101 (17·3)
12. Miscellaneous Service ..	—	—	28 (0·6)	—	28 (5·7)	61 (10·4)
	3769	686	4455	3952	503	585

1. For some sectors, distribution between investment and non-investment expenditures has not been made.

2. Figures in parenthesis indicate percentages of column totals.

Agriculture and water sector including rural institutions, irrigation and flood control has the highest share of resources, that is, about one quarter of the total. This sector includes crop production, livestock, forestry, fishery, irrigation, flood control and works programme, but excludes storage and marketing except of the rudimentary types taking place as ancillary activities. Ministry-wise allocations for Agricultural development during the First Plan Period have been shown in Table VIII-39. Storage and marketing activities are included in trade sector. Only a very small proportion of development outlay in this sector is accounted for by private monetised outlay. This is because of the inclusion in the sector of flood control and irrigation projects and works programme which are by nature public sector activities. Moreover, the small scale peasant agriculture of Bangladesh rules out large-scale projects like tube-wells and low-lift pumps to be financed by private savings alone. The public sector has to provide the initial capital for such investment, including the creation of workable institutional facilities for co-operative effort. The main function of the public sector would be to remove the difficulties standing in the way of private or co-operative effort by providing finance and technical assistance.

Industries have been allocated about 20 per cent of total financial outlay. These include the large scale, small scale and cottage industries. Petroleum refining is, however, excluded from this sector and is included in the natural resources sector. Industries also include cold storage and a telephone and cables factory which forms an integral part of the communications sector's programme. In industries, the private sector accounts for nearly one-sixth of the total outlay. This reflects the Industrial Policy as announced in January 1973. Any undertaking requiring more than Tk. 25 lakhs of fixed capital investment will have to be set up under public ownership. Since the Plan will be dominated by some very big projects in the Public sector (*e.g.*, in petrochemicals, cement and steel), the outlay in the private sector would be a small proportion of the total allocation to the industries sector, despite the heavy emphasis in the industrial programme on small scale enterprises in terms of number of projects.

It would, however, be wrong to think that private sector will not have a very important role to play. Apart from textile weaving which will be dominated by handloom and cottage weavers, the private sector, based on modern technology, will have a crucial role to play in industries like edible oils, food processing, textile garments and products, leather products, consumer chemicals, metal products, small scale engineering and repairs, furniture and various types of consumption goods. Industries like sugar, jute textiles, large-scale cotton mills, paper, fertilizer, petrochemical, cement and steel will, however, by their very requirement of heavy investment exclude any private activity.

The transport and communications sectors claim nearly 16 per cent of the total financial development expenditure, most of it in the public sector. Transport includes rail, road, water and airways. It also includes international shipping. Communications include post office, telegraph, telephone as well as meteorological survey, radio and television. The private sector, operating mainly in road transport and smaller watercrafts, would absorb about 11 per cent of the total allocation for the transport sector. The public share is large, since heavy investment oriented facilities like railways, road building, port facilities, civil aviation and international shipping are invariably in the public sector.

The sector of power and natural resources claims about 12 per cent of the financial development expenditure, all of it being in the public sector. Power and natural resources

include electricity, gas, petroleum refining, geological surveys and scientific and technical research. The main emphasis will be on transmission and distribution of electricity with relatively small investment in power generation. There will also be sharp expansion in the production of other kinds of energy, mainly gas and petroleum refining.

About ten per cent of the total financial development expenditure goes to the sector of physical planning and housing and as much as one-third of this is in the private sector. Physical planning and housing includes private dwellings, public buildings, ancillary facilities for housing including sewerage and water supplies. It also includes tourism and related facilities. The large allocation to this sector represents a reversal of past trend. This sector has lagged far behind other sectors and way behind population growth. The relatively small share of the public sector in this sector derives from the fact that most dwelling houses, especially those located in rural areas, will be built by private individuals and co-operatives.

The five sectors listed above would absorb more than three quarters of the total development expenditure. The remainder would be distributed among Education and Manpower (7 per cent), Health and Social Welfare (4·7 per cent), Family Planning (1·6 per cent), Government (0·6 per cent), Trade (3·8 per cent.) and Miscellaneous Services (0·6 per cent). While the definition of some of these sectors requires no elaboration, the last three items need some explanation. Usually the allocations for these sectors are not specified although a comprehensive plan must allocate resources to them. Thus under trade are included allocations for retail trade, wholesale trade, warehousing, etc. In the public sector, agencies like Jute Marketing and Trading Corporations, Consumer Supplies Corporation and Warehousing Corporation will need resources to undertake capital investment. These have been provided for under the sector heading of trade. Under Government (rather than under Education and Manpower) are allocations for agencies like the proposed Civil Services Academy, the National Institute of Public Administration and the Government Officers Training Academy. These and other Government agencies and institutions require resources for capital investment, provision for which has been included under Government.

The last category refers to Miscellaneous Services in the private sector. Public investment in such service facilities (hotels, etc.) has been merged with Physical Planning. There remains, however, provision for private investment in a wide variety of services, including professions and recreational facilities.

3.2. Phasing of the Plan

The annual phasing of the Five-Year Plan is a difficult exercise under the best of circumstances. The financial outlay of the Annual Plan for the first year, 1973-74 has been fixed at Tk. 595 crores, of which Tk.525 crores are in the public sector and Tk. 70 crores in the private sector. Another Tk. 80 crores of non-monetised investment will also take

place. To fulfil the Five-Year Plan targets with the starting point at this level will require a rapid growth in expenditure in the following years, almost doubling in four years (*see* Table III-2 below):

TABLE III-2

Phasing of Financial Development Outlay

(*Taka in crore*)

Year.	Total	Public Sector	Private Sector
1973-74 ..	595	.. 525	.. 70
1974-75 ..	725	.. 645	.. 80
1975-76 ..	870	.. 775	.. 95
1976-77 ..	1040	.. 925	.. 115
1977-78 ..	1225	.. 1082	.. 143

The phasing is to be treated as tentative and the possibility of annual revision is implied in the Plan. In fact, there is nothing particularly 'optimal' about the phasing outlined in the above table. Adjustment for short-term developments must be made in each annual plan to ensure flexibility.

Moreover, the Plan is formulated at today's prices. The growth of development outlays indicated will have to be in real terms. In other words, the annual programme each year will have to be increased further if the price level of development goods and services rise. In each year's annual Plan the sectoral shares of development outlay have to be determined with reference to what are the critical priorities and potentials over time. Thus much of agricultural investment in tube-wells and pumps will have to be completed by the fourth year of the Plan (although substantial provision will have to be made also in the terminal year if only for replacement) to ensure the objective of foodgrains self-sufficiency by the end of the Plan. Thus the programme in this sector will have to start at a relatively higher level and accelerate less sharply.

The Plan has been so formulated as to secure intersectoral consistency for the terminal year as well as for the plan period as a whole, but full year-by-year inter-temporal consistency has not been worked out. This must be done at the time of formulating the respective annual plans. It is unlikely, however, that the sectoral investment pattern could be allowed to deviate widely from that of the overall plan. Moreover, import programmes for the intermediate years will have to be designed so as to bear the burden of adjustments needed.

3.3. Non-monetised Development Outlay

The Plan includes an estimate of private saving and investment in kind called investment in the subsistence sector. These types of investment are self-financing and corresponding savings do not accrue in the form of organised financial investment. Moreover, they are based not only on self-employed labour but also on self-produced inputs, *i.e.*, they have a very low percentage of purchased inputs from the market. The required inputs are produced

either on the homestead or on the farms or are procured through informal barter or exchange from the neighbours in the village. In addition, much of subsistence investment has a large component of replacement and is short-lived.

In agriculture, non-monetised investment includes building of dykes, repair of wells, digging of small canals and making of traditional implements and their repairs. In the industrial sector, it consists of the repair and maintenance of owner operated handlooms and various rudimentary equipments for the cottage industries. The biggest component of subsistence investment is made up of construction and maintenance of rural housing. It has been assumed that about 60 per cent of the construction work in the building and repair of rural houses is traditionally undertaken in the form of subsistence investment.

The subsistence investment in education is the estimated contribution in kind received from local communities in support of new educational institutions. The other components of such investments are in trade (rural shops, improvised godowns within homesteads, etc.) and miscellaneous services (village carpenter, barbar, tailor, local entertainment facilities, community buildings, charitable institutions, etc.).

The subsistence investment programme as outlined above is by and large "autonomous" in nature. These activities normally take place in rural Bangladesh. The programmes may require some encouragement from the institutional network that is being set up for rural development. But no organised effort at mobilising labour for collective actions is implied in this kind of investment. Thus the subsistence investment programme should not be mistaken for the special voluntary labour mobilisation programme for capital construction.

In the Plan voluntary labour mobilisation will play a completely different role. To the extent such labour can be mobilised it will be possible to reduce financial saving requirement. Many public sector development programmes can partly be financed by saving in the form of mobilising voluntary labour receiving no (or less than market) wage. Examples are construction of small roads, local irrigation canals, village community centres and so on. For projects which are located in the rural areas, benefits of which are visibly available to the local community, it should be possible to require the local community to donate land and labour as a precondition to the inclusion of such projects in the Plan. The essential distinction between "subsistence investment" as defined above and voluntary mobilisation of labour is that the former is largely a private enterprise activity (though predominantly of non-capitalist type) while the latter is a public sector or co-operative activity.

The amount of non-monetised investment envisaged for the plan period is Tk.585 crores, *i.e.*, about Tk.115 crores per year on an average basis. Considering that there are about one crore rural families, the amount of average investment per family would not be more than Tk. 115 per family in a year. In 1973-74 this kind of investment is expected to be about Tk. 80 per family, *i.e.*, about Tk. 7 per month per family.

CHAPTER IV.

DOMESTIC RESOURCES FOR THE PLAN

4.1. Introduction

The Plan requires considerable efforts in mobilising domestic financial resources both in the public and private sectors. The required pattern of domestic resource mobilization is shown below:

TABLE IV-1.

Components of Domestic Resources for the Plan

	Taka in Crore	Percentage of Total
1. Government revenue surplus with 1972-73 taxes and tax rates. ..	537	20·0
2. New taxes and increased tax rates	625	23·1
3. Government domestic capital receipts (except from Private Sector).	350	13·0
4. Private saving (excluding "unmonetized saving" and Time Deposits)[1].	720	26·7
5. Long-term borrowing from the banking system[1] ..	360	13·3
6. Gap to be covered by additional measures	106	3·9
Total ..	2,698	100·0

Revenue surplus derived from existing taxes, additional taxes and capital receipts is expected to finance 56 per cent of the total development outlay. Private saving is the next biggest source of finance followed by borrowing from the banking system. There still remains a gap, which has to be met by additional measures to the extent of 4 per cent of the required domestic saving.

4.2. Revenue Surplus from Existing Taxes

Revenue surplus from existing taxes is expected to generate no less than 43 per cent of total domestic resources. As detailed in Table IV-2 revenue receipts of Tk. 2,340 crores for the Plan period are projected on the basis of taxes and tax rates prevailing in 1972-73.

[1] To avoid double counting, the accumulation of time deposits, whose effects are reflected in item 5, has been excluded from item 4. This is explained later.

TABLE IV-2.

Revenue Surplus with Existing Taxes and Tax Rates

(Taka in crore)

Customs Duty		757
Excise		626
Sales Tax		243
Income Tax		70
Land Revenue		23
Other Miscellaneous Receipts		237
Gross Receipts from nationalized sector (excluding Depreciation Fund) of which:		384
Industries	347	
Banks and Financial Institutions ..	37	
Revenue Receipts		2,340
Revenue Expenditure		1,803
Revenue Surplus		537

The receipts on account of major taxes, including customs duty, excise, sales tax, income tax and land revenue, are expected to be no more than about Tk. 1,700 crores on the basis of 1972-73 rates, *i.e.*, an annual average of about Tk. 340 crores. In the first year of the Five-Year Plan the receipts from these taxes, on the basis of 1972-73 rates, are estimated to be about Tk. 300 crores. The expected receipts for the Plan period imply, therefore, an average annual rate of growth of 5 per cent to 6 per cent, about the same rate at which Gross Domestic Product is expected to grow.

The most important items of tax receipts are taxes on imports, *i.e.*, import duty as well as sales tax on duty paid value of imports. The total value of dutiable imports is expected to increase during the Plan period by more than 25 per cent. The quantum of excisable commodities, *i.e.*, mainly industrial production, is expected to grow at a rate no less than 7 per cent whereas income from trade and other services including construction, is expected to grow between 6 per cent to 12 per cent per year. However, the receipts from taxes other than import duties are expected to grow at a slower pace than the sectors of the economy which contribute these taxes. This reflects the fact that the present structure of taxes is not very elastic. In particular the agricultural sector is going to enjoy increased output and income but the existing system of land revenue is not responsive to growth in agriculture.

Other Miscellaneous Receipts include various minor taxes such as wealth taxes, estate duty, capital gains tax, urban property tax as well as various fees including registration fees, stamp duty, etc. Receipts from various public utilities and enterprises, excluding nationalized industries and financial institutions, are also part of miscellaneous receipts.

In the first year of the Five-Year Plan, *i.e.*, 1973-74, the receipts from these various minor heads are estimated at about Taka 36 crores, or Taka 42 crores if interest receipts on various outstanding loans are included. The total of such other receipts grew rapidly in past years, but from a low level. It is now estimated that while interest receipts may register a slight decline during the Plan period the other receipts will increase at an annual rate of 6 per cent. The total yield from this source is conservatively estimated to average about Taka 47 crores a year.

The nationalized sector, *i.e.*, manufacturing industries and financial institutions, is expected to yield an average of Taka 77 crores a year, starting with Taka 44 crores in 1973-74. The nationalized sector is expected to generate surplus at a rate which, while higher than in the past two years, would still be lower in real terms than what these enterprises generated in the 1960's. The rate of increase of surplus from this sector has been set conservatively for the earlier years of the Plan but is expected to accelerate as improvement in operating efficiency starts yielding results.

The current replacement value of assets in 313 large and medium size public sector industrial enterprises is conservatively estimated to be Taka 900 crores as compared to an original purchase value of assets estimated at Taka 517 crores. During 1973-74 gross cash receipts from the nationalized enterprises are estimated as follows:

(Taka in crore)

Income tax	5
Interest on loan	12
Repayment of loan	5
Surplus or profits	22
Total cash surplus	44

Thus the expected total cash surplus in 1973-74 is projected to be about 5 per cent of the replacement value. In the terminal year of the Plan the target is an equivalent cash surplus of 12 per cent *plus* a depreciation fund of 4 per cent of the estimated replacement value of assets. Thus the gross cash surplus is projected to increase from 5 per cent in 1973-74 to reach 16 per cent in 1977-78 as shown below:

Year.	Percentage of Replacement Value of Assets.	Revenue in Crore Takas.
1973-74	5	44
1974-75	7·5	68
1975-76	10	90
1976-77	13	117
1977-78	16	144
Total ...		463
of which: Depreciation Fund	..	116
Tax, Debt Service and Profit ..	..	347

The surplus of Taka 347 crores from the nationalised industries must be added the surplus from the banks and insurance companies. The budget estimate for 1973-74 expects this item to yield about Taka 6 crores and a 10 per cent per annum increase is projected for later years of the Plan yielding a total revenue of Taka 37 crores for the Plan period as a whole.

Revenue expenditure is expected to register an increase of about 10 per cent per year over 1973-74. Between 1972-73 and 1973-74, however, there will be a sharp increase in revenue expenditure of no less than 31 per cent, *i.e.*, an increase from Taka 225 crores to Taka 295 crores. The increase in revenue expenditure in the first year of the Plan has been occasioned by the need to build up an administrative and institutional structure to meet the enlarged responsibilities of a new national government and to provide reasonable infrastructure for law-enforcing agencies, as well as to accommodate the increased expenditure arising out of the recommendations of the Pay Commission. The Plan provides for growth in revenue expenditures to be contained within a limit of 10 per cent per year. The composition of the revenue expenditure in the budget for 1973-74 is shown below:

Revenue Expenditure in 1973-74

(Taka in crore)

Direct demand on revenue	15
Civil administration	104
Defence	47
Education	58
Health	14
Civil works	9
Interest	10
Other non-development expenditure	30
Contingencies	8
Total ...	295

Total revenue expenditure for the whole Plan period projected on the above assumptions comes to Taka 1,803 crores. With revenue receipts projected on the basis of 1972-73 taxes and rates at Taka 2,340 crores, a revenue surplus of Taka 537 crores would be available for development without additional taxation.

4·3 New Taxes and Increased Tax Rates

Additional tax measures, including new taxes and upward revision in the rates of existing taxes, are expected to yield Taka 625 crores or about 23 per cent of the total domestic resources for development. It represents an increase in total revenue receipts by over one-third compared to the level of receipts projected from taxes and tax rates in 1972-73.

Altogether it is a considerable tax effort. However, it is not an unrealistic target in view of the experience of other developing countries, the potentials for intensification of the tax efforts through reforms in the structure of taxes and of the rate and pattern of economic growth which is envisaged in the Plan. The tax efforts will be phased in a progressive manner over the Plan period, as the tax system is reformed and the growth of the economy is accelerated. This will also reflect a declining contribution of foreign capital inflow.

An illustrative phasing of the yield over the Plan period from additional tax measures may be as follows:

Yield from Additional Taxes.

Fiscal Year.	(*Taka in crore*)
1973-74	25
1974-75	60
1975-76	110
1976-77	175
1977-78	255
Plan Period ...	625

In the immediate future the main focus will be on rationalization and increase in the rates of duty on imports and domestic excisable commodities. The entire range of existing rates of import duty will be reviewed with a view to bringing closer the present widely varying rates of effective protection, except where such variations are justified by special needs for infant industry protection, by reason of differential external economies, or by the need to meet socio-political objectives. The sales taxes which are related to imports have to be similarly rationalized.

Both the import duties and sales tax on imports can be selectively increased to mop up at least a part of the scarcity premia which imported goods earn in the local market. It will be necessary to devise the system in the light of domestic demand and availability so that the scarcity-premia are siphoned-off without being passed on to a significant extent to the final consumers. The adjustment of the import duties and sales tax on imports would involve corresponding upward adjustment in the domestic excise duty in order to ensure that the protective effect of the tax and import licencing measures do not merely result in windfall profits to the domestic producers of import substitutes or to the wholesale or retail distribution agencies.

Both in the case of excise duties and sales taxes, there are now exemptions and loopholes which do not stand rational scrutiny. For example, the standard rate of sales tax on imports is 20 per cent of the duty-paid C. and F. value of imports, but due to the many exemptions and loopholes, the revenue from this source has been barely 7·5 per cent

of the value of dutiable imports in the recent past. The rationalization of the inherited structure of taxes will be dealt with as a matter of urgency so that changes can be initiated in 1974-75.

In view of the preponderance of the public sector in modern industry and trade, a large part of the total income generated in the modern sector of the economy outside of agriculture originates in the public sector. The increased yield from the nationalized industrial and financial enterprises has already been taken into account. But the trading enterprises in the public sector must also yield profits. In the export and import sectors state enterprises have a large share. The profits which would have accrued to private traders will now accrue to public sector enterprises, if they are run efficiently. There is no escape from increasing their operating efficiency. If they are run efficiently on a no profit basis then the agents and distributors will realize larger profits. A share of such profits must be captured either by direct taxes, or by indirect fees and levies of other kinds.

The yield of income tax is very poor in Bangladesh because a large number of relatively small income earners who are self-employed or are engaged in professions and trades of various kinds can evade taxes. The net of direct income taxation does not extend with any degree of efficiency beyond corporate and salaried income. Effective methods will have to be devised to bring within the framework of direct taxation the activities in the small scale trade, industry and professions, especially since these are the sectors where private enterprise and hence the generation of private income will be concentrated.

Furthermore, agriculture which is the predominant sector of the economy largely escapes direct taxation. All holdings up to 25 bighas (about 8 acres) are exempted from land revenue. Moreover, compared to the past the terms of trade have moved in favour of agricultural producers through rising prices of agricultural output and subsidies on agricultural inputs like fertilizer and pesticides as well as on agricultural equipments like pumps and tubewells. The Plan provides for a large development programme for agricultural infrastructure, extension services and credit. Agriculture now accounts for more than half the Gross Domestic Product. As its rate of growth accelerates in response to the implementation of the development programme, agriculture must also contribute to the financing of development throughout the economy either by channelling its savings through financial institutions or by direct investment or by providing tax revenue on a much larger scale than it has done so far.

Moreover, most subsidies on agricultural inputs must be reduced and gradually eliminated and in some cases these inputs must be sold at a profit. The rentals of pumps and tube-wells are at present no higher than 5-6 per cent of the total annual value of capital cost *plus* operating costs. These rentals have to be considerably increased.

Consistently with the present policy of exempting land up to 25 bighas from land revenue, it may be possible to devise a progressive system of land taxation above this limit which would yield substantial revenues. While the initial rates could be low (perhaps a fraction of what would be the urban income tax rate on an equivalent income), these should be revised upwards gradually as agricultural growth gathers momentum. Moreover, the rates of land tax could be differentiated between more or less productive regions in the country, or between areas which would receive larger or smaller shares of modern inputs and technology in particular differentiating between irrigated and unirrigated land.

To siphon off increased income from agriculture for financing development it will be necessary to combine judiciously both direct methods of taxation and indirect methods of manipulation of terms of trade. These measures must, however, be so designed as to minimize disincentives to production.

The previous system of land revenue, as it used to be administered for the small land-owners below 25 bighas, was inefficient and unproductive of any significant revenue. In the future as incomes of small surplus farmers, especially in the irrigated areas, will rise it will be necessary to devise new systems of local rates and taxes; some of these, such as development and education cesses which are now in force, have to be revised upwards.

A new system of local government will be introduced in the near future. It will be opportune to delegate some of the developmental activities to the local Governments along with the responsibility for raising revenue by local taxes. These activities could relate to investment in the social sectors, local health and educational programmes as well as physical infrastructure including rural works programme.

The foregoing discussion relates to major tax receipts. There are wide varieties of fees and charges included in Other Miscellaneous Receipts in Table IV-2 which also offer scope for both increase in rates and considerable improvement in the efficiency of collection.

The magnitude of the tax effort as envisaged in the Plan is evident from the fact that while tax revenue as a share of GDP was only 4·75 per cent in 1972-73 and is budgeted at 6·5 per cent in 1973-74, it is projected to increase to about 10 per cent by the end of the Plan period in 1977-78. This is not an unrealistically high percentage, compared to the equivalent tax ratio in other developing countries. The present tax ratio in Bangladesh is lower than in most of the poor countries in the world even when account is taken of per capita income, rate of industrialisation and the proportion of foreign trade in national income.[1] The countries which have the poorest performance in terms of mobilizing domestic tax resources have a ratio of tax to GNP not lower than 8-9 per cent on the average. India had a tax ratio of 11·6 per cent in 1966-68 and Pakistan, 8·5 per cent.[2] It is in this perspective that the future tax efforts in Bangladesh need to be visualized.

4·4. Domestic Capital Receipts

Capital receipts include depreciation provisions both by public sector agencies (*see* page 39 above for nationalised industries) and in respect of development projects; the capital receipts item also includes an amount for interest payments charged to development projects during the period of construction, the estimate of which has been based on an analysis of a large sample of development projects. These gross receipts are, however, offset on the expenditure side by corresponding non-investment development expenditures.

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1 Ratio of tax receipts to GNP in samples of developing countries by region. Average in 1966-68 in percentages.

Middel East and North Africa	16·1
South America	14·6
Tropical Africa	14·9
Central America and the Caribbean	13·1
Asia and Far East	11·6
Average for the Sample	14·0

Source: I. M. F. Staff Papers, July 1971, pp. 254-329.

2 Even countries like Burundi and Upper Volta, which in capita terms are poorer than Bangladesh, generate a tax ratio of 8-9 per cent.

4·5 Private Savings

Gross private savings include savings invested in time deposits which are available to finance lending by the banks to investors in the public and private sectors of the economy. Private monetised savings are estimated at about 4 per cent of personal income, which is below the rate attained during the sixties. Total private savings, including both monetised and non-monetised savings, are expected to average about 6 per cent of personal income. Private saving, especially rural saving, is highly volatile from year to year, as it depends critically upon fluctuations in agricultural production as well as on the incidence of floods and cyclones which cause a loss in assets and output. Even though an acceleration in the rate of expansion of agricultural output and income is postulated in the Plan, in view of its variability a conservative estimate of private saving has been made.

With a considerable expansion of public investment in industry and in trade and services, the opportunity for private saving to finance private investment is going to be more limited than in a private enterprise economy. It will be necessary to take account of this and to develop policies and institutions that can both stimulate private saving and ensure that it is put to good use. There is scope for promoting privately financed investment in the field of agriculture. Given time, it should be possible to organise cooperatives in such a way that members will be able to make direct investments in pumps, tube-wells, power-tillers, etc. State agencies would be able to cooperate in this by providing training and repair facilities on a commercial basis. Such developments would be quite different in character from the establishment of large scale capitalistic farming ventures. With growth in rural incomes and an extension of private investment in cottage industries there will be new opportunities for the productive use of private savings.

The use to which private savings will be put is illustrated in the table below :

TABLE IV-3

Use of Gross Private Monetised Savings.

(Taka in crore)

1.	Direct non-subsistence investment	250
2.	Institutional saving in the existing programmes	97
3.	Accumulation of time deposits	247
4.	Purchase of Government bonds, debentures as well as prize bonds and additional institutional savings, including contribution to local development programmes	373
		967

Item (2) above, that is, institutional savings in the existing programmes, shows how the accrual of funds in the existing schemes of life insurance, postal savings and provident funds might develop, if these schemes are made more attractive and their scope widened, a great deal should be achieved. Part of the savings to be generated under item (4) above might be used in a

similar way ; for example, by bringing all wage earners, including labourers, in both the public and private organised sectors, into a pension scheme. A scheme based on a contribution of 5 per cent of the total wage and salary income earnings would raise about Tk. 4·5 crores per year from the industrial sector alone. Similar schemes could mop up a large amount of savings in the other sectors as well.

The successful mobilisation of private savings in the form of time deposits as well as in the purchase of bonds, debentures and saving certificates will require a radical transformation of the existing structure of interest rates. In recent years interest rates have not been high enough to compensate for the rise in prices that has taken place. As a result people lending money have lost in real terms and this was particularly marked last year when prices rose very rapidly. Such an increase in prices could only result from circumstances of unparallelled difficulty and will not be repeated, but a period of comparative price stability is necessary if a normal relationship between interest rates and price movements is to be re-established. In the present state of expectations, high interest rates are necessary both to convince people that they will gain by lending their savings and to make sure that savers will benefit from investing in such things as time deposits, life insurance and provident funds. If prices were expected by savers to increase at 7 per cent per annum, a rate of interest in money terms of 12 to 14 per cent would do no more than ensure a real rate of return of 5 to 7 per cent to savers.

An upward movement in interest rates will have to be substantial if speculative activity is to be prevented and if the unproductive investment of resources in real estate, the purchase of precious metals, and in hoarding stocks and other forms of inventories is to be discouraged.

The high rate of interest advocated would enable savings to be channeled towards productive investments which are specified in the Plan. In so far as high rates of interest tended to direct savings into financial forms of investment, greater stability will result.

At present there is a relative scarcity of credit in unorganised markets whether these are on the periphery of urban areas where the market is dominated by traders with money lending interests or in rural areas where the affluent farmer with financial resources to spare dominates the market. Some investment opportunities in the less organised sectors are very profitable and the diversion of capital resources to this sector from more organised markets might be highly advantageous.

Proposals for increases in rates of interest must be seen in relation to the fact that the rates of interest charged in organised markets at present are far below the social rate of return of investment that is obtainable in Bangladesh. The alternative to higher rates of interest is what presently prevails: a system of credit rationing in the organised sector of the economy in which the rate of interest is far below the rate that borrowers are prepared to pay. But the unorganised market is in an isolated position in which there is an inelastic supply of credit which is not supplemented from the organised market, and this results in a very high price to borrowers in unorganised markets. To link the two markets at higher rates of interest would result in more productive use of limited capital resources and a more efficient system of borrowing and lending. Thus the net effect of higher interest rates would not be to curtail investment but to redirect it into more productive channels. This is also

likely to increase employment opportunities because production would be increased by the more efficient use of capital. The higher price of capital (higher interest rates) would lead to a more economical use of it and to the substitution of labour for capital wherever such substitution is possible.

An increase in the price of capital is only one aspect of the efficient use of capital resources. Many would be borrowers with productive possibilities in front of them are unable to secure the capital that they need because of difficulties in making their needs for credit effective in relation to a banking organisation that is not geared to cater for their needs. In order to bring borrowers in touch with banking facilities on as large scale as possible there has to be an expansion in the number of branches of banks that are available as well as an increased confidence in banking institutions as reliable financial intermediaries offering security to lenders and productive services to borrowers.

It is unlikely that higher interest rates will have any adverse effects on the profitability of banking operations since both lending and borrowing rates will go up. But it is possible that some operations may be undesirably affected by the incidence of higher interest rates. Cottage and small scale industries may be so affected. If they are, a number of ways exist to ensure that they are protected from the adverse consequences. The factor of overriding importance is to ensure that the cost of capital bears a proper relationship to the social rate of return that it can earn in Bangladesh today.

Another important means of mobilising private savings is to organise the contribution of local resources to public sector projects. Many projects in road building, irrigation, flood control and social services will benefit specific localities. People in such localities could be asked to contribute a proportion of the total cost of the project. Such payment could be in cash or in kind (voluntary local labour, donation of land or building, etc.). The proposed local government network could be used to organise such participation.

4.6 Borrowing from the Banking System

About Tk. 360 crores are to be provided by the banking system for financing of development expenditures in the Plan. The implications of this for the expansion of monetary demand in the economy are explained below. In view of the large increase in money supply in the past year and a high rate of price inflation, future expansion in monetary demand must be kept within strict limits and carefully planned both in amount and phasing over the Plan Period as a whole.

TABLE IV-4

Expansion of Credit during the Plan Period (Key Indicators)

(Taka in crore)

Money Supply, June 1973	697
Money Supply, June 1978	1122
Change in Money Supply of which	425
Change in currency 151	
Change in demand deposits 274	

TABLE IV-4 (*Contd.*) (*Taka in crore*)

Increase in time deposits	247	
Increase in volume of currency and total bank deposits	672	
Requirement for increased liquidity	312	
Credit for long-term development finance—		
(a) Public Sector	157	360
(b) Private Sector	203	
Percentage increase in GDP over actual level, 1972-73	52%	
Percentage increase in Money Supply	61%	
Percentage increase in money requirement per unit of GDP	6%	

The increase in money supply is expected to be about Tk. 425 crores implying a 61 per cent increase over the actual level of money supply at the beginning of the Plan. The aggregate volume of liquidity will increase by about Tk. 672 crores, which will be offset to the extent of Tk. 247 crores by accumulation of time deposits. Of the total increase of Tk. 672 crores, Tk. 312 crores will be required for increased liquidity and other short-term purposes by industry and trade as well as by the agriculture sector as credit. The development outlay in the Plan includes the normal working capital needs of the development activities in terms of stocks of raw materials and inventories but it does not include the needs for monetary liquidity.

Of Tk. 312 crores set aside for short-term credit and liquidity requirements, about Tk. 195 crores are expected to be required by the agricultural sector. The details of the agricultural credit programme are given in the chapter on the sectoral plan. The credit facilities are intended to facilitate the vastly increased use of modern inputs in agriculture, as postulated in the Plan. The remainder of Tk. 117 crores are intended to meet the liquidity needs of trade and industry. This will also include some "working capital" needs of the trade sector, specially foreign trade sector, to the extent the working capital needs in the trade sector have not been fully reflected in the estimates of development outlay. While estimates of working capital needs in the productive and distributive activity are difficult enough to estimate accurately, it is far more difficult to estimate with any degree of precision the liquidity needs of trade and industry. This is specially so in view of the major change in the structure of ownership and operation of the industrial and trading enterprises in the post-liberation period. It is not only that data relating to the pre-liberation period on the liquidity needs of trade and industry for Bangladesh are not available but they are also not particularly relevant in view of the interlocking and intra-firm flow of funds between the branches of the enterprises located in both Bangladesh and Pakistan. The stipulated figure of Tk.117 crores must, therefore, be regarded as highly tentative and subject to revision in course of the implementation of annual plans. This implies annual increase of about Tk. 23 crores over the pre-plan level. Tentatively it is assumed that about Tk. 80 crores out of Tk. 117 crores would

be in the nationalised enterprises. From the point of view of the monetary policy to be followed by the Government, these figures should be treated more as a target for credit expansion for these purposes. Given the safe limits of deficit financing and competing sources of demand for credit, an expansion of credit for short-term liquidity purposes beyond this limit will be inconsistent with the objective of price stability.

The additional bank credit for financing Plan development outlay is estimated at about Tk. 360 crores of which Tk. 203 crores are expected to finance private development outlay. Thus deficit financing to meet public sector development expenditure is expected to be no more than Tk. 157 crores. This modest amount of deficit financing by the public sector postulated in the Plan assumes that the mobilisation of tax and non-tax receipts in the public sector will be implemented with all vigour. Moreover, borrowing by the public sector from the Bangladesh Bank has to be regulated carefully to prevent any unintended increase in the cash reserves, which might lead to excessive credit being given to the private sector by the banking system. Monetary discipline will have to be strict if the volume of bank credit is to be kept within the narrowly defined limits. In the recent past, the major factors contributing to the expansion of money supply have been the financial requirements of the nationalised enterprises in the field of trade and industry and deficit financing by the Government. Proper discipline must be strictly enforced in all public sector agencies not only to prevent long-term financing through the creation of bank credit but also to prevent excessive recourse to bank financing in lieu of the generation of a current cash flow to meet short-term credit requirements.

In view of the current inflationary situation, monetary discipline will be vitally necessary in the early years of the Plan period. The timing of credit creation is crucial to the maintenance of price stability and it will need to be related to the increase in output which is likely to be accelerated towards the end of the Plan period, when development projects start yielding the larger part of the increase in output. In a predominantly agricultural economy like Bangladesh, credit creation will have to be closely related to the seasonal and annual variations in food production and the movement of marketable surpluses. Furthermore, it will also have to be related to changes in the balance of payments. A Credit Plan will be formulated every year at the same time as the Annual Plan to work out in detail the supply and demand for credit, in the public and private sectors, and take account of relevant considerations at the time. Control of credit will be easier if restrictive income and wage policies are strictly followed. In the past year the upward pressure of the money supply has been partly caused by wage increase. The wage push in turn was caused by increasing demands of the labour unions, and by the desire of the Government to provide relief to low income groups in a situation of distress, when adequate supplies of goods were not available.

The implication of the expected increase in money supply for price movements cannot be forecast with any degree of reliability in a highly volatile agricultural economy, which is in the process of recovery from damages and dislocations caused by the war of liberation. It is assumed that the increase in money supply will be offset to some extent by an increase in the degree of monetisation of the economy at a rate of a little over 1 per cent. The increase in agricultural output which is to be realised, tax measures to mobilise increases in income from the agricultural sector, and an expanded output of saleable non-subsistence crops will contribute to a rise in the rate of monetisation of the economy. Some regression of prices from their present high levels is anticipated as output increases; if the financial plan is fully implemented, price increases in future years should be held within tolerable limits.

4·7 Closing the Gap

Even after all the measures indicated above have been taken, a gap of about Tk. 106 crores will still remain. There are a number of ways in which this can be closed. Improvement in the tax collecting machinery could make a greater contribution than has been allowed for, if it were pursued decisively; additional taxation sufficient to increase tax receipts by a further 4 per cent of domestic resources would suffice to close the gap. A variety of other measure designed to economise non-development expenditure, to increase savings or mobilise resources by unconventional means are available for consideration during the Plan period in the light of progress of its implementation.

4·8 Conclusions

The following table summarises the various methods of financing the public and private sector financial development programmes.

TABLE IV-5

Pattern of Financing Development Outlay.

	(*Taka in crore*)
Public Sector	
A. Planned outlay	3952
B. Financed by—	
1. Public saving (Revenue surplus, additional taxes, capital receipts and additional measures to close the gap).	1618
2. Counterpart resources of external borrowing and grant	1707
3. Borrowing from the banking system	157
4. Borrowing from the private sector	470
	3,952
Private Sector	
A. Planned outlay	503
B. Financed by—	
1. Direct financial investment	250
2. Borrowing from the banking system	203
3. Borrowing from abroad	50
	503

The public sector programme is to be financed by borrowing to the extent of 43 per cent from abroad, 12 per cent from the private sector and 4 per cent from the banking system. No more than 41 per cent will be financed by savings generated in the public sector. The private sector programme is to be financed to the extent of about 50 per cent from its own resources and 50 per cent by borrowing from the banking system and abroad. However, the private sector is expected to generate more gross savings than is to be

invested directly in this sector; it lends to other sectors, both to the Government and to the banks, and at the same time it also borrows from the banking system and abroad. On balance it is a net lender to the rest of the economy.

Out of gross savings of Taka 967 crores (inclusive of time deposits) the private sector will invest Taka 250 crores directly and lend about Taka 717 crores. The following table shows the intersectoral flow of funds between the private sector and the rest of the economy.

TABLE IV-6

Source and Use of Funds by the Private Sector.

(Taka in crore)

Sources of Investible Funds	
1. Saving	967
2. Borrowing	**253**
3 From banking system	203
4 From abroad	50
Total funds available ...	1,220
Use of Investible Funds	
1. Lending to banks by accumulating time deposits	247
2. Lending to Government—	
(i) Institutional saving (pension, contributions, etc.)	97
(ii) Purchase of Government bonds, etc.	373
3. Self financed investment	250
4. Investment financed by borrowing	253
Total use of funds	1,220

The private sector lends Tk. 717 crores to the rest of the economy and borrows Tk. 203 crores from the banking system and Tk. 50 crores from abroad ; on balance it is a net lender to the extent of Tk. 464 crores. About 25 per cent of its savings are lent to the public sector and about 25 per cent to the banking system. The rest is invested together with the amount borrowed from the banks and abroad which come to about 25 per cent also of private sector savings. Thus roughly 50 per cent of private sector investment is financed out of borrowed money.

CHAPTER V

BALANCE OF PAYMENTS AND EXTERNAL RESOURCES

5.1 Introduction

The Plan envisages a rapid expansion of export earnings to provide for the imports of consumer goods, capital goods and intermediate inputs. The production programmes in the various sectors have been devised to achieve this and to bring about an optimum pattern of import substitution. During the Plan period, the total visible imports (CIF basis) are expected to cost about Tk. 3787 crores and visible exports would be about Tk. 1988 crores (FOB basis), both at bench-mark prices.

5.2 Import Requirements of the Plan

Very few natural and mineral resources are known to exist in Bangladesh. Agriculture is relatively undeveloped and undiversified, being concentrated on a few crops. Intermediate and capital goods industries are few and very underdeveloped. In such circumstances, an increasing tempo of development activity leads to a rapid increase in the imports of raw materials, intermediate and capital goods. In 1973-74, on conservative estimate, requirements of a few basic raw materials, intermediate goods and essential consumer goods, excluding food, are expected to total about Tk. 200—250 crores, which is about 60-70 per cent of the total export earnings expected to be about Tk. 340 crores. These imports consist of consumer goods like sugar, edible oil and oil seeds, textiles, drugs, and medicines and raw materials and intermediate goods such as raw cotton, cotton yarn, tallow, cement, coal and C. I. sheets. This reveals how large a drain on foreign exchange earnings is caused by a limited number of essential items which barely enable Bangladesh to maintain the current level of economic activity and consumption. If imports of foodgrains are included, no surplus is left over foreign exchange earnings at present.

The intended increase in the import needs for raw materials and capital goods during the Plan period is a direct consequence of an acceleration in the rate of investment. The total value of non-foodgrain imports in 1969-70 measured at the current rate of exchange was about Tk. 400 crores. In 1973-74 they are likely to be about one-third higher. Most of this increase is a result of the rise in the average price of imports in the intervening years. The real volume of imports would hardly be 10 per cent higher than it was in the year 1969-70. The ratio of non-foodgrains imports to GDP at current prices was about 10·2 per cent. in 1969-70 and is expected to rise to about 10·8 per cent in 1973-74. It is, however, uncertain whether this implies a rise in the ratio of the real value of imports to real GDP, in the absence of information about the

relative movements of the prices of imports and domestic prices. The import requirements for the Plan period are shown below.

TABLE V-1

Imports during the Five-Year Plan

(Taka in crore)

Year.	Capital goods	Intermediate goods	Consumption goods except foodgrains	Invisibles	Total non-foodgrains imports	Foodgrains
1973-74	179	211	125	25	540	..
1974-75	237	247	151	26	661	..
1975-76	260	274	167	28	729	..
1976-77	273	309	190	30	802	..
1977-78	281	242	146	32	701	..
Shipping and Aviation (phasing not yet finalised).	45	..	..	..	45	..
Foodgrains (phasing uncertain)	..	..	..	..	..	350
Total ..	1275	1283	779	141	3478	350
Provision for delays, uncertainties and shortfalls in import substitution programme and export projections.	..	..	..	..	100	..
			Total	..	3578	

The total imports and their commodity composition in the terminal year of the Plan are consistent with the commodity composition of demand for consumption and output. Projections for the intermediate years take the following factors into account: (1) the time phasing of development programme over the Plan Period, (2) the time profile of the completion of the important import substitution projects and (3) the likely time path of growth in industrial production and GDP during the Plan. The total value of non-foodgrain imports is expected to increase above the level of 1973-74 at about 10 per cent per year, while GDP will grow at about 5·5 per cent per annum. By 1976-77 non-foodgrain imports will have risen to 12·5 per cent. of the GDP. But by the last year of the Plan Period, many import substituting projects are expected to be completed

and as a consequence import/GDP ratio could decline to about 10·7 per cent. The Plan, however, provides for the effect of unforeseen leads and lags, delays and shortfalls in import substitution activities. Many of these projects are to be financed through foreign loans. There may be delays in negotiations as well as delays in the implementation of projects. Imports will provide the mechanism for adjusting the unforeseen imbalance between domestic supply and demand. The economy of Bangladesh is operating on a narrow domestic resource base and at a time when new institutions are being devised and sources of imports and new markets for exports are being explored, uncertainties are bound to be great[1]. Even though impact of these uncertainties will be felt throughout the Plan, the effect of delays in import substituting activities will be felt mainly in the later years of the Plan. Consequently, it has been considered prudent to provide for Tk. 100 crores of import to meet contingencies. Even if the entire amount of additional imports were needed in the last year of the Plan, the ratio of non-foodgrains imports to GDP in the final year of the Plan would be 12·2 per cent. A decline in import dependence would, therefore, still take place by the end of the Plan.

An additional factor of uncertainty in estimating the total import bill relates to the imports of foodgrains. The annual phasing of domestic production of foodgrains and the annual import requirements given in the agricultural production plan is subject to uncertainties of weather. Therefore, an additional one million tons of foodgrains imports have been allowed for to offset any possible failure of crop and to build up additional stocks. Thus the total imports of foodgrains are expected to be about 32 lakh tons for the whole period.

TABLE V-2

Major Imports during the Plan Period

(Taka in crore)

Commodities.	1969-70		1977-78		Plan period.	
	Qty.	Value	Qty.	Value	Qty.	Value
1. Edible oil ..	..	26·5	..	38·5	..	161·6
2. Cement ..	4·39 lakh tons	8·1	7·90 lakh tons	17·0	52·88 lakh tons	113·9
3. Sugar ..	0·20 lakh tons	1·6	0·71 lakh tons	14·1	3·72 lakh tons	74·3
4. Raw cotton ..	3·66 lakh bales	16·0	2·68 lakh bales	29·0	22·09 lakh bales	134·0
5. Cotton yarn ..	0·91 lakh bales	10·4	0·56 lakh bales	8·0	16·18 lakh bales	230·6
6. Textiles ..		24·2	..	1·6	..	39·04
7. Tobacco ..	27086 tons	10·3	28214 tons	7·9	132857 tons	37·2
8. Machinery ..	..	84·3	..	232·9	..	722·8
9. Steel	..	28·7	4·26 lakh tons	42·6	21·25 lakh tons	212·5
10. Coal	..	4·5	7·6 lakh tons	7·6	33·8 lakh tons	33·8
11. Other Metals and Metal Products.	N.A.	N.A.	..	22·9	..	86·0
12. Transport Equipment		14·3	..	59·6	..	270·0
13. Pharmaceuticals		47·8	..	20·4	..	73·8
14. Other Chemicals ..		..	..	65·0	..	235·2
15. P.O.L. ..	N.A.	8·6	..	53·8	..	204·3
		285·3		620·9		2629·04

[1] Furthermore, in the present state of knowledge about the structural coefficients relating to the productive system as well as demand, they are invariably subject to wider degrees of error than usual. New statistical data relating to the structure of the economy of Bangladesh are in the process of being collected and, therefore, could not be fully incorporated in the Plan.

Of the total non-foodgrains imports roughly 37 per cent consists of capital goods and an equal percentage of intermediate goods. While all categories of imports rise during the early years of the Plan period, imports of both consumer goods and intermediate goods decline in the terminal year. This is because some of the important projects designed to substitute for the imports of intermediate and consumption goods such as petrochemical complex, and cement, etc., are expected to yield output in the last year of the Plan period[1]. The imports of non-foodgrain consumer goods and intermediate goods will be about 15 per cent higher in the last year of the Plan than in the first year, if investment activity is realised on schedule. This, however, marks a decline of about 22 per cent in the terminal year over the preceding year. In the terminal year the share of the capital goods in the total imports is the highest. A more detailed composition of imports during the Plan period as compared with 1969-70 is indicated in Table V-2. A few major items or categories of imports constitute about 70 per cent of the total import bill. The pattern of import substitution is also evident; in some cases, there is an absolute decline in the quantity or value of imports such as raw cotton (substituted by synthetics), cotton yarn, textiles, tobacco and pharmaceuticals, while in a few cases, a moderate increase is observed.

5.3 Projections of Foreign Exchange Earnings

Exports are projected to expand by about 43 per cent by the end of the Plan period as compared to the benchmark level of 1969-70. The rate of growth of exports is intended to be higher than the rate of growth of GDP during the Plan period. The planned rate of growth is higher than Bangladesh has ever achieved before. The main component of this major thrust in export is the promotion of exports of jute and jute goods. This will be done by exploiting the opportunity of a discontinuous upward shift in exports of raw jute to India and by aggressive price and marketing policy to arrest the declining trend in the world consumption of jute products. Past trends in exports and past policies must be radically transformed if the export earnings are to be increased sufficiently to meet the foreign exchange requirements of the Five-Year Plan, while at the same time keeping the total volume of foreign capital inflow within feasible and desirable limits.

Exports of raw jute and jute manufactures would continue to remain the mainstay of foreign exchange earnings for some years. These two exports are expected to provide about 80 per cent of the total exports by the end of the Plan period. The expansion in the export of raw jute and jute manufactures is predicated on an optimum pricing policy in the domestic and foreign market; this is discussed later. The establishment of a uniform rate of exchange for raw jute and jute goods after liberation ended the discrimination against raw jute which was practised during the twenty years of colonial rule and which acted as a disincentive towards improving the productivity of raw jute cultivation. Secondly, new prospects for the expansion of exports of raw jute have opened up with the normalisation of trade relations with India. During 1972-73, some significant advances have been made in this direction. India purchased a large volume of raw jute from Bangladesh in 1972-73 and is expected to increase its purchases in the future.

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[1] Foreign exchange component of the development outlay is not co-terminus with the imports of capital goods since a part of the foreign exchange component includes what is defined as intermediate goods and services.

Both in the eastern part of India and Bangladesh raw jute competes with rice as an alternative crop. Faced with the need for increasing food production the two countries need to devise, in the interest of efficient use of domestic resources, a pattern of production of raw jute and rice which would be consistent with their relative costs and demand. Indian demand for raw jute for meeting the requirements of her domestic jute manufacturing indutry is increasing; it is crucial to determine how much of her needs would be supplied by Bangladesh. The increase in the production of raw jute in India in the past twenty-five years resulted from the virtual suspension of trade relations between India and Pakistan. It is expected that India will find it profitable, given an assured supply of raw jute at competitive prices from Bangladesh, to restrict her jute growing in the marginal areas where cultivation of rice or other alternative crops may be more economical and to refrain from attempting to increase output of jute to meet her increasing domestic demand for jute goods. On the basis of current possibilities, Bangladesh may expect to sell by the end of the Plan Period around 13 lakh bales to India. This is only 20 per cent. of the current use of raw jute in India. The sale of raw jute to India must be seen in the context of a volume of total trade with India, much larger than in the past. Replacement of Indian domestic production of jute by imports from Bangladesh would be a part of a mutually beneficial expansion of trade as well as a more rational and efficient allocation of productive resources within each country.

Exports of raw jute by Bangladesh are expected to be about 50 lakh bales or 8·92 lakh tons by 1977-78. This constitutes an increase of about 13 lakh bales over the average quantity exported during the half decade ending June 1970. No increase in the aggregate purchases by the non-Indian buyers above the benchmark levels is assumed in this projection. Export of jute manufactures, as distinguished from raw jute, is expected to grow at about 4 per cent per year. This is much less than the rate of growth experienced in the sixties. The past rate of growth of jute manufactures was achieved by Bangladesh by cutting into the Indian share in the world trade of sacking and hessian, the relatively low-valued types of jute manufactures. The possibilities of expansion of exports in these types of jute manufactures are rather limited in the future. Bangladesh at the moment has limited production capacity for superior types of jute manufacture. The production plans in the jute manufacturing sector are, therefore, designed to shift the product mix in the direction of non-traditional, high-valued types of jute manufactures. The number of looms in the jute manufacturing sector is to be expanded and the share of carpet-backing in the total output and exports is expected to go up. However, in spite of the shift towards high-valued types of manufactures, the rate of growth of exports achieved in the past is unlikely to be attained.

The combined export targets for raw jute and jute goods assume that the past trends in the world demand for jute and jute manufactures can be arrested by aggressive price and marketing policies designed to combat the onslaught of synthetics. Export prices will have to be low enough to enable stipulated quantity of exports to be sold in the world market. For this reason, adequate allowances have been made for the appropriate pricing of exports.

The projections of exports indicated above are thus based upon a number of assumptions. First, the downward trend in the world consumption of raw jute and jute manufactures can be arrested by appropriate and timely pricing policy. It may be possible for jute to capture a share of the expanding market foreseen by the producers of synthetics, *i.e.*, mainly polypropylene, the major substitute for jute. Recent FAO projections indicate an increase in demand for this synthetic from 13·5 lakh tons in 1970 to 65 lakh tons in 1980. About a third of this increase in demand, that is, 17·1 lakh tons, relates to the uses for which jute and polypropylene are

(iii) Introduction of classes VI—VIII instructions in 1530 primary schools in the afternoon where there would be no double shift for primary education to accommodate additional 2·3 lakh students (Table XIV-4·2);

(iv) Consolidation of existing 4,000 junior and secondary schools to achieve an optimum class room size of 50, to accommodate an additional 2·0 lakh students.

In the upper level (classes IX-X), expansion would be relatively moderate. Compared to 66 per cent at the middle level only 36 per cent increase is envisaged at the upper level. An additional enrolment of 1·9 lakh will raise the enrolment level from 5·3 lakh to 7·2 lakh. The thrust would be on science and diversified education. Enrolment in science would increase by 70 per cent, agriculture by 355 per cent, home management/nursing by 275 per cent, industrial arts by 150 per cent and commerce by 36 per cent in the plan period (Table XIV-4·2).

During the Plan about 127,500 places will be created to meet the needs of science and diversified education. Of these, 64,000 will be for science, 19,500 for agriculture, 22,000 for home management/nursing, 3,000 for industrial arts and 19,000 for commerce. In order to meet the targets of enrolment, central laboratories (200) and community workshops (200) will be established in growth centres. Science teaching units will be provided in schools which does not have access to central laboratories. Wireless receiving sets will be supplied to all high schools of Bangladesh. Television will also be provided to schools with electricity.

A sum of Tk. 59·880 crore which constitutes about 18·58 per cent of the amount allocated to the Education Sector has been earmarked for the development of secondary education (Tables XIV-2). The local communities are also expected to contribute to this development, the value of which has been estimated to be about 3·407 crore. Fifty per cent of all the lands required for building new schools are expected to be donated by the villagers themselves. As in the case of the primary schools, they are also expected to donate materials and labour for reconstruction of old schools and building of new schools.

rather than by increasing output per acre, thus reducting cost per unit of tea. The domestic price of tea in the protected market was twice the world market price. However, during the Plan period the emphasis must be on increasing output per acre and on improving the quality of tea and reducing cost of production so that production and exports of tea become more remunerative. Given the anticipated increase in output which is relatively modest in view of the factors stated above, and assuming a certain increase in domestic demand, it seems unlikely that the exportable surplus would be very much more than 6 crore lbs. This is higher than the average level of exports during the sixties, which was about 5 crore lbs. This export target could be exceeded only if production increases at a faster rate than foreseen as a result of technological innovations and organisational improvements and if the export quota under the International Tea Agreement is revised upward and prospects of tea exports under the barter trade agreements improve.

Export of leather and leather products including hides and skins are expected to be more than double compared to the benchmark quantity. Exports in this sector are primarily limited by supply considerations including the capacity of the domestic tanning industry and possibilities of increasing the supply of livestock. Projections of world demand and supply suggest that there are good prospects for increasing exports, specially since Bangladesh exports are small in relation to world trade. The projection of export value is, however, conservative since it is based upon the prevailing export price. The unit price is likely to be higher because the composition of exports is expected to change in the direction of products of high value. Already by 1969-70, raw hides and skins constituted about one per cent of the total value of the hides and skins and leather taken together. It is expected to eliminate the export of hides and to move progressively into the higher stages of tanned leather processing. An overwhelming proportion of exports today consists of wet blue leather which is prepared in the first preliminary stages of tanning and is really to be regarded as only semi-tanned leather. The objective is to move towards exporting fully tanned leather and leather goods. The current surplus capacity in the tanning industry which relates mainly to semi-tanned leather has been caused by the limited supply of hides and skins. The livestock sector has barely registered an increase in output and productivity over the years. While the agricultural Plan provides for an increase in the supply of livestock, the industrial plan provides for an expansion of capacity to alter the composition of production and export mix in the direction of 'crust' and "ready to finish" forms.

Fish is expected to constitute an important item of exports; this will consist of exports of fresh water fish, predominantly to India, and marine fish, mainly to overseas markets. Market surveys indicate a possible export demand for frozen shrimp and prawns at about 70 thousand metric tons, yielding around Tk.15 crores out of a total exports of fish of Tk. 19 crores planned for 1977-78. The rest will include exports of fresh water fish to India. The target for increase in fish production is very much higher than the export target. This is because domestic consumption is expected to increase very considerably, which is highly desirable in view of the serious protein deficiency in the average diet in Bangladesh.

Before liberation, Bangladesh exported to Pakistan a large number of miscellaneous items including such manufactured products as paper, newsprint, matches, etc. These exports amounted to about Tk. 60 crores during 1969-70. They are expected to reach no more than Tk. 26 crores or so by the end of the Plan period. This is partly due to a rapid increase in domestic absorption as projected in the Plan period, specially of paper and newsprint owing to a considerable increase in the use of text books and paper in the educational sector. In some other cases like matches, the quality of exports is not high enough for a headway to be made in the international market during the Plan period. In all these cases, it is assumed that high prices secured for these items in the protected Pakistan market will not be received until improvement in quality of products is achieved in a significant way.

The composition of the export projection in terms of some major exports during the Plan period are shown in Table V-3.

TABLE V-3

Export in 1969-70 and 1977-78

(Taka in crore)

	1969-70		1977-78	
	Quantity	Value[1]	Quantity	Value
Raw Jute	6·26 lakh tons	128	8·92 lakh tons	193
Jute goods	5·72 lakh tons	145	6·94 ,,	225
Fish	N.A.	3	N.A.	19
Leather and Leather products.	N.A.	9	N.A.	20
Tea	...	24	6 crore lbs.	12
Miscellaneous Exports..	N.A.	60	N.A.	26
Invisibles	N.A.	...	N.A.	34
		369		529

Total export earnings over the Plan period as a whole would amount to about Tk. 2055 crores without making any adjustment on account of terms of trade losses. As suggested earlier, the unit prices used in the projections have been generally lower than the current levels. In addition, further flexibility in the pursuit of an optimal export price policy has been assured by incorporating a terms of trade loss in the projection. Although it is difficult to make a reliable forecast of the required changes in the terms of trade, allowances have been made for a possible decline to the extent of 2 per cent of the value of exports during 1974-75, and thereafter a decline by an additional 1 per cent per year has been assumed so that in the last year of the Plan there will be a total decline equal to 5 per cent of the export earnings. The phasing of the rate of decline in terms of trade is arbitrary but the total magnitude appears to be reasonable. Bangladesh has to pursue an appropriate price policy for exports of jute and jute goods, if the trend of her declining share in the world market is to be reversed. For a large number of new products, it will be necessary to find new outlet in world markets even in the face of established trade channels and consumer preferences of long standing. The annual phasing of exports is shown in Table V-4.

TABLE V-4

Exports during the Plan Period[2]

(Taka in crore)

Year	Merchandise Exports	Invisibles	Loss of earnings due to decline in terms of trade	Total Foreign Exchange Earnings
1973-74	315	25	..	340
1974-75	376	26	8	394
1975-76	413	28	13	428
1976-77	453	30	19	464
1977-78	498	32	27	503
Total	2055	141	67	2129

[1]Exports in 1969-70 are evaluated at Tk. 8 per $ except for exports to Pakistan.

[2]All exports are shown at F.O.B. prices.

5.4 Institutions and Policies in Foreign Trade

In the post-liberation period, there have been important changes in the institutional framework of foreign trade in Bangladesh. The direct participation by the public sector agencies in the conduct of foreign trade has greatly expanded. By now between 80 and 90 per cent of foreign trade is conducted by the public sector agencies. The extension of state participation in foreign trade has been partly due to the direct consequence of expanded state participation in the ownership of industrial enterprises. The industrial enterprises directly import their requirements of raw materials and spare parts under a system of industrial licencing. Since more than 80 per cent of the industrial assets in the large scale sector are owned by the state, an overwhelmingly large part of imports of industrial raw materials is undertaken by the state enterprises. The imports of consumer goods, raw materials and miscellaneous capital goods required by the private industrial sector are now shared between state trading agency, private industry and private commercial importers. It is the role of the last category which has significantly declined in the post-liberation period. The Trading Corporation of Bangladesh is the State agency which undertakes imports of both industrial raw materials, consumer goods and some miscellaneous equipments. The expanded role of the T.C.B. in import trade has been due partly to the disappearance after liberation of the established importers who were of Pakistani origin. In addition, the vacuum was also sought to be met to some extent by inducting new private traders in the import sector. A large number of small importers emerged, many of whom had little experience in import trade and functioned inefficiently. Consequently in 1973-74, attempts are being made to reduce the number of importers and to leave private participation in import trade in the hands of established importers. The additional reasons for the expanded role of the Trading Corporation of Bangladesh are as follows:

Firstly, there are items of import for which bulk purchase as well as bulk shipment yield economies of scale. Consequently the importation of these items by one State agency rather than by a large number of private importers is more efficient. To some extent, however, over centralisation of imports may lead to delays and bottlenecks. Therefore, the nationalised industrial sector corporations who are capable of handling the import requirements of the enterprises under them have been allowed to import directly in the interest of efficiency and speed. In short, in the case of industrial raw materials, the sector corporations import for the nationalised industries, while the T.C.B. undertakes imports for the private industries.

Secondly, in the case of barter trade where monopoly sellers abroad confront purchasers in Bangladesh, import by T.C.B. is likely to yield advantages in terms of better terms of trade. However, the volume of trade which is to be handled by T.C.B. has to be restricted to the limit of its organisational ability and expertise. For those commodities in which close contact between ultimate user and sellers is important and where knowledge of detailed product specifications cannot be easily obtained except through constant negotiations between sellers and importers, it has been thought desirable to leave the responsibility for importing to the actual user or industrial enterprises.

In the case of commodities which were previously bought from Pakistan, Bangladesh has been engaged in finding new sources of supply. It is intended to build up expertise in the T.C.B. to handle international trade in commodities which have relatively few sources of supply and in case where supply limitations make it necessary to forecast and follow short-term movements in prices closely.

The prevailing system of implementing the annual import programme is through a system of import policies covering periods of six months each. An allocation of foreign exchange for capital goods for public sector enterprises is made directly by the Government as laid down in the Annual Development Programme incorporated in the Annual Budget. For private sector enterprises, import requirements are indicated in the investment schedules prepared by the Governments and funds are allocated by the specialised credit institutions after an examination of individutl applications. The allocation of raw materials for industrial enterprises, both public and private, is made through a system of import licensing, which idicates the requirements of raw materials and spares for each individual enterprise. This is based on a survey of requirements of raw materials and spares undertaken by the Ministry of Industry. The requirements are based on one shift capacity and they are specified in detail. However, the process of specification can never be complete and the survey is necessarily imperfect. Periodic revisions are made as requirements change with changes in the product-mix and in import prices. This is all the more necessary because requirements of imports are identified in terms of quantity as well as of value; the licences are usable for imports of a specific list of items in predetermined quantities. This system has created some bottlenecks and delays, but in a situation of acute scarcity of foreign exchange a system of rationing such as this can be relaxed only in the context of a more effective system of macro-economic controls to be operated by fiscal and monetary policies.

In the sphere of export trade, state participation has also been considerably enlarged. The export of raw jute has been centralised in the hands of one State enterprise called the Jute Export Corporation. There are three agencies which are engaged in the internal marketing of jute, in addition to private traders. Both private traders and internal marketing agencies channel their export through the Jute Export Corporation. The direct contact between the foreign buyers and individual private exporters no longer takes place. The offers of purchase from overseas customers are received by the Jute Export Corporation which then allocates amongst the marketing agencies and the private shippers their individual shares of exports. While the actual arrangements for physical movement and shipment of exports as well as their documentation are made by the private traders and marketing agencies, all exports are made in the name of the Jute Export Corporation at prices agreed by it. This has helped mitigate dangers of under invoicing. In the remaining export trade, private traders are engaged in exporting products originating in the private sector whereas public sector enterprises export their own outputs directly.

During the Plan Period, Bangladesh will strive to explore new markets and forge new trading links; this is made all the more necessary by the disruption of pre-liberation trade links. The expansion of trading relationship with India is one of the important new links which are being forged. Similarly, in the past one year, Bangladesh has entered into a number of bilateral trade agreements with a number of socialist countries. At present, about 10 per cent of the export trade of Bangladesh proceeds through barter agreements. Bangladesh needs to find new markets for tea, leather and leather goods, fish and miscellaneous manufactured goods in both the free market and centrally planned economies. The entry of the UK into the EEC will also affect the exports of Bangladesh. Steps will be taken to negotiate an agreement with EEC to liberalise the flow of exports from Bangladesh into EEC. The overwhelming dependence of the country on a few limited exports, specially jute and jute goods, which are exported in large volume to UK and EEC makes it all the more imperative to obtain liberal and concessional access to these markets. In the next few years, in view of the highly underdeveloped state of the economy, lack of diversification, low *per capita* income and the poverty of physical and socio-economic infra-structure, Bangladesh will remain one of the "least developed countries" of the world, as defined by the UN, and will, therefore, be eligible for special concessions in trade negotiations giving access to the markets of the developed countries.

Exploration for export markets is only partly a matter of trade negotiations and the establishment of an appropriate national and multinational framework of trade; it is also a function of appropriate pricing and export promotion policies. In view of a rise in domestic costs, wages and prices in the last year or so, the majority of the exports of Bangladesh have tended to become non-competitive in the world market. This is particularly and immediately relevant in the case of the most important exports of Bangladesh, *i.e.*, raw jute and jute exports.

In order to combat effectively the threat of synthetic substitutes, it is necessary to make downward adjustments in the price of raw jute. This is also necessary to recover the markets lost during the disturbances of 1971 and 1972. While, on the one hand, it is necessary to make a downward adjustment in export price, it is essential to ensure on the other hand that the domestic purchase price at which the state marketing agencies and private traders purchase raw jute from the farmers provide adequate incentives for the cultivation of raw jute in competition with rice and other crops. Jute is grown on about 8 per cent of the cultivated area; since a large part of this area could also be used for growing rice, the relative prices of rice and jute are most important in determining the output and supply of raw jute. In the post-liberation period the international price of rice has increased much more than that of jute with a resultant fall in the relative price of jute; this has discouraged the production of raw jute. Traditionally, jute has competed with *Aus* crop but with the new high yielding variety of rice, late *Boro* is also a competitor which has increased the opportunity cost of growing jute. The need to change the internal purchase price of raw jute in accordance with the increasing returns obtained from growing other crops can be reconciled with the need to lower the export price only by raising the effective rate of exchange for jute exports by some means.

The case of a higher effective exchange rate for jute goods is no different and, in fact, much stronger. On the one hand, the costs of production of jute manufactures have gone up due to a rise in wages and increased cost of raw jute and on the other hand, the jute industry has lost the subsidy which was derived from the export bonus scheme and which was withdrawn in the post-liberation period. The loss of managerial and entrepreneural talent in the jute manufacturing industry after the biggest and most important units were abandoned by the Pakistanis has further eroded the profitability of this export industry. It is urgently in need of export subsidies, in addition to a considerable improvement in organisational and managerial efficiency to attain the export targets indicated in the Plan. The future of exports of jute manufactures also depends upon improvement of the product and on the successful development of new uses of jute. The importance of both technological and market research can hardly be exaggerated. The role of the proposed Jute International with its technical research centre in Bangladesh is critical in this respect. Bangladesh has already accepted this scheme and committed itself to its future development. In this respect India and Bangladesh must coordinate their efforts, both financially and organisationally, and persuade the importing countries as well as other jute producing countries such as Thailand, Nepal and Burma to participate in this international effort.

In the past, one of the important obstacles in the way of expansion of jute exports has been the lack of an assured supply as well as frequent interruptions in exports and delivery schedules. It is one of the prime objectives of the state trading agencies to remedy these deficiencies.

The manufacturing exports of Bangladesh, other than jute goods, have suffered from even a greater fall in the effective exchange rate in the post-liberation period, following the withdrawal of the export bonus scheme. They have also been subject to rises in wage and raw material

costs in this period. Consequently, they also are in need of a higher effective exchange rate. An improvement in the effective exchange rate is all the more necessary to enable them to incur additional selling costs to effect a successful entry into new markets.

The techniques of marketing, including appropriate shipping arrangements, are also important in the promotion of new exports and in the expansion of old exports in the new markets. The Export Promotion Bureau with its regional branches is being strengthened. The Bureau is charged with responsibility of promotional activities in the overseas markets. It is guided by the recommendations of an Export Promotion Council which has inter-ministerial as well as private sector representation. There are a large number of national export promotion committees which are concerned with the promotion of specific Bangladesh exports. Promotional activities including specific market studies as well as preparation of appropriate design for export products are specifically relevant in the case of the products of cottage industries. Moreover, an Export Market Development Fund has been created to promote the participation of Bangladesh in international trade fairs and to intensify other sales promotion activities in export markets abroad. Assistance will be sought from such bodies as UNCTAD and the International Trade Centre for the identification of new market possibilities and for advice on promotional activities. Finally, serious attention will be paid to quality control and the enforcement of international standards for exports.

5.5 Foreign Capital Inflow

The gap between exchange earnings and import requirements has to be met by capital inflow which includes grants, loans and private foreign investment. The foreign capital requirements are estimated at about 1800 crores for the five years. This requirement is estimated net of debt service payments. No estimate of required debt service payments has been made; most of the loans contracted in the post-liberation period would not involve any significant debt service payments in the next five years. All the ongoing aided projects, some of which have been reactivated in the past one year and the rest of which would also be reactivated, would involve debt service payments within the Plan period. Requirements of gross capital inflow would, therefore, be higher than the net inflow. The composition of net foreign capital inflow is shown in Table V-5:

TABLE V-5

Foreign Capital Inflow during the Plan

(Taka in crore)

1.	Payments (excluding debt service payments)	3928
2.	Net receipts from Exports	2129
3.	Required Net Capital Inflow of which :	1799
	(a) Project Credit and Aid (including project related technical assistance) ..	832
	(b) Commodity credit and Aid (including food and services under technical assistance)	967
4.	Estimated Counterpart Fund equivalent of Capital Inflow	1757

The allocation of the net foreign capital inflow between project and commodity assistance depends upon the extent to which project loans include local cost of financing. It also depends upon how a commodity loan is defined, *i.e.*, whether it includes to some extent the supply of equipment and machinery. In some cases, project assistance may not be available in time for the execution of the development projects as scheduled in the Plan. Foreign exchange earnings of Bangladesh may have to be spent on the import of machinery and equipment in a few cases which are otherwise financed from project loans but delay in negotiating project loan may upset the fulfilment of the Plan. Project assistance takes a particularly long time involving long drawn out negotiations with the creditors; some of the delay being inherent in the procedures and systems laid down for the negotiation of project aid by many creditor countries. It is unlikely that more than two-thirds of the investment projects will be eligible for project loan. This makes it all the more important for either the component of commodity credit to be enlarged or for project loans to include liberal financing of the local cost component of the development projects.

Project and commodity loans indicated above include technical assistance. Technical assistance in the form of services of experts and consultants as well as training facilities for Bangladesh citizens is partly tied to the projects which are financed under specific project loans. Experts are often needed for the installation of plant and machinery as well as for on the job training of the local personnel in connection with the operation and maintenance of specific foreign aided development projects. Both kinds of assistance will be needed in substantial amounts in connection with the foreign aided projects during the Plan period.

In addition, there is need for technical assistance not as a part of project loans but for projects which are financed from domestic resources as well as for foreign financed projects for which training facility and services of consultants are not available as a part of a total package of project loans and technical assistance. The choice of fields of training, number of trainees as well as the number and specialities of experts are negotiated independently. This kind of "untied" technical assistance is included above in the estimates of commodity loans. It is estimated that during the Plan period, services of experts and consultants as well as training facilities for Bangalees abroad would cost about Tk. 35 crores.

In addition, there would be need for technical assistance for preparation of feasibility studies and reports for new development projects. The domestic capacity for undertaking such studies is limited. The services of foreign, specialised consulting firms would be required for undertaking detailed studies as well as preparing project reports. The amount estimated for this purpose is about Tk. 15 crores. Thus the total amount of technical assistance required would be about Tk. 50 crores.

The guiding principles for the use of technical assistance, as indicated above, would be as follows:

(1) Maximum emphasis would be placed on the development of institutions within the country for training facilities, excepting where the field of training is highly specialised, numbers involved are small and cost is high. For manning the technical training institutions in the early years, services of experts should be secured while Bangladesh citizens are at the same time trained abroad to take over the training functions on their return. In short, emphasis should be placed on building up domestic institutions.

(2) Manpower requirements in the various sectors of the economy have been worked out as part of the sectoral plans; training facilities and services of experts should be consistent with the requirements of the Plan. A proper balance should be maintained between specialisation in narrowly defined skills and that in the broad categories of skills. This is necessary for two reasons. First, it is difficult at the initial stage of development to forecast the requirements of very narrowly defined skills. Second, there must be room for flexibility and adjustment so that imbalances between supply and demand of narrowly defined skills can be rectified by mobility between skills which is facilitated if training is imparted in broad categories of skills.

(3) There is a critical limit on the speed of absorption of foreign technical experts and advice. This is determined by the availability of local counterparts who are able to work alongside the expatriate experts to be eventually replaced. Moreover, the use of foreign consulting firms for feasibility studies or for direct involvement in the execution of development projects should, whenever possible, be combined with the use of local consulting firms or, in their absence, individual consultants. The ability to use foreign consulting firms is as critically important as the quality of foreign consulting firms; terms of reference of their work as well as adequate methods of evaluation of foreign consultants must be properly worked out, if maximum use is to be made of the foreign consulting firms.

The requirements of capital inflow are indicated in terms of disbursement or actual utilisation of capital inflow. There is a lag between commitment in the sense of signing loan or credit agreements and the actual flow of commodities or equipment under the credit agreements. This lag is very large in the case of project assistance—much larger than in the case of commodity assistance. In view of a substantial lag in the disbursement of project loans, it is necessary to build up a portfolio of projects as fast and early as possible in the Plan period so that the desired rate of disbursement can be assured for the new projects included in the Plan. Many of the ongoing projects are covered by existing credit agreements and disbursements under them will need to be expedited. Previous experience indicates that about one-third of the opening pipeline of project loans is likely to be utilised each year, whereas about 90 per cent of the opening pipeline of commodity loan is disbursed each year. From the new commitments of loans made each year no more than 55 per cent of commodity loans and 15 per cent of project loans are likely to be disbursed within the same year. With an opening pipeline of about Tk. 414 crores on June 30th, 1973, additional commitments of loans during the Plan period will need to be not less than about Tk. 1900 crores in order to ensure the required disbursement of foreign loans. This figure includes new commitment of about Tk. 1000 crores of project loan and Tk. 900 crores of commodity loans.

TABLE V-6

Time Phasing of Foreign Exchange Receipts and Payments and Required Foreign Capital Inflow

(Taka in crore)

Year	Receipts	Payments	Capital Inflow
1973-74	340	710	370
1974-75	394	742	348
1975-76	428	794	366
1976-77	464	848	384
1977-78	503	834	331

The time profile of payments and receipts of foreign exchange has been based on certain arbitrary, but plausible, phasing of payments for food imports and payments for civil aviation and shipping equipment. The requirements of emergency food imports are expected to be high during 1973-74, partly because of the seasonal nature of the shortage resulting from the fact that *Aman* crop is not available until the end of 1973, and partly from the need to build up stocks. The foreign exchange expenditure on shipping and civil aviation is distributed over the last four years of the Plan period. The provision of Tk. 100 crores of foreign capital inflow for meeting uncertainty and delays in the implementation of import substituting projects is put in the last year of the Plan period.

There is an absolute decline in the requirements of capital inflow in the second year of the Plan period owing to a decline in the requirements of food imports. Thereafter there is a steady increase in capital inflow linked to the increasing tempo of development activity. However, in the last year of the Plan period there is again an absolute decline in capital inflow on the assumption that large numbers of import substituting projects would be completed. Because of the various uncertainties mentioned above and arbitrary assumptions involved in the phasing of a few important imports, the time phasing of the capital inflow is to be regarded as highly tentative. At the time of the preparation of each subsequent Annual Plan, the requirements will be revised in the light of the prevailing circumstances and the state of the balance of payments and domestic resource availability.

The cost of capital inflow must be kept as low as possible by subjecting aid offers to constant social profitability analysis. The diversification of aid-sources will also permit flexibility in the choice of projects and policies.

CHAPTER VI

MOBILISATION OF LABOUR FOR DEVELOPMENT

6.1 The Problem

In the preceding chapters the programme of mobilising resources has been outlined. The main components of this programme are public saving, private monetised saving and some autonomous parts of private non-monetised saving. The last item consists of activities undertaken by private individuals and households more or less regularly in small forms of capital construction which have been described in detail in Chapter 3.

The above programme will enable the economy to absorb 54 lakh man-years of labour force, quite a bit of it in subsistence activities of a self-employing variety. There will still remain a vast reservoir of idle man-power which cannot be provided with gainful employment because of a shortage of complementary inputs. In Bangladesh a casual observer will continue to see "a lot of work needed to be done all over the country and a lot of people going around without work". This dilemma arises from the fact that the employment of additional labour usually requires material and capital inputs, in addition to labour itself. These inputs are very scarce. Furthermore, employment also involves the payment of wages which requires the generation of saving somewhere in the economy.

Today those who are unemployed and underemployed are able to meet their "subsistence" partly by intermittent earning and partly by dependence on their families. It may, therefore, be argued that since these people are somehow able to obtain a subsistence income, they could use their idle skill and/or labour power if they had sufficient motive and opportunity to do so. Such voluntary contributions of labour would presume that there are projects where complementary capital and resource requirements are negligible. While in many areas of conventional development activity such projects are rare, one can easily identify a good many activities for which the assumption would be valid. For example, an educated young man can teach the children of his own village even if there is no conventional school. He can teach the villagers how to improve sanitary conditions in homes and villages. Youth and student labour could build a great many things, like ancillary roads and small dams, with voluntary labour and little equipment. A student engineer can participate in skill-intensive development projects during vacations.

But this cannot happen unless there is motivation to perform any of these functions without adequate direct remuneration. The potential beneficiaries are unable or unwilling to pay for these services or perform these functions themselves because the benefits of these activities are likely to accrue to the society as a whole and not exclusively to some individuals who could and were willing to pay for them.

There are several other important problems that need to be taken into account in understanding the implications of mobilising labour. Firstly, those who are underemployed or unemployed and work only casually and live off their friends and relatives may require an additional intake of consumption goods when they are put on more intensive employment. At subsistence levels of consumption the demand for food is usually directly related to the volume of physical labour. This generates additional demand for wage goods. Secondly, families who are presently meeting the consumption needs of the underemployed or unemployed members may be unwilling to bear the burden of consumption once the latter find "employment". Thirdly, location of the development projects and that of unemployed labour may not always

coincide. If those who volunteer for work are to be transported and arrangements have to be made for their food and shelter, their employment is not only not costless but may also involve costs higher than the prevailing wage rate. As a rule, therefore, voluntary activity needs to be undertaken in and around the normal place of residence. Fourthly, there is normally a need for some implements and tools which workers themselves supply and which are not usually in the conventional cost estimates of development projects since workers usually have these tools. The unemployed or underemployed who have not been engaged previously in this kind of work would need to be supplied with these tools. In formulating the programmes for the mobilisation of labour due consideration must be given to the above problems.

Mobilisation of labour need not be restricted to the unemployed or underemployed labour force; those who are employed can also be pressed into service for productive work during their leisure hours or holidays. To this group belong teachers, students, self-employed persons as well as those employed in public and private enterprises. The present educational curricula do not keep the students busy throughout the year. More than four months in a year are holidays. It is possible to reschedule the holidays in such a manner so as to coincide with peak seasons in agriculture and the construction season in the winter months.

One of the by-products of the use of students for productive work would be to establish the dignity of labour and to demonstrate that preference for white-collar work is not socially desirable or covetable. It will bring the urban elite in touch with the rural poor and may arrest the process of alienation between the rural and urban areas as well as between those who work with their hands and those who work in offices.

However, there are a few considerations which need to be kept in mind before productive utilisation of student labour can be organised. First, their employment has to be near their places of residence so that when they return home during vacations, they can be maintained by their families. Secondly, to the extent that colleges and schools are located near to the rural areas, they can also work in and around the campuses during the academic year. Thirdly, this type of employment should be so devised as not to compete with unemployed or underemployed labour. This would create social tensions because the unemployed or underemployed would tend to believe that these employment opportunities would otherwise have been available to them.

Important fields in which students and youth can be employed would be to meet labour shortage during peak seasons and to provide services which require skill but for which available resources do not permit the employment of sufficient manpower. In addition, student labour may be used for work in the utilisation of unused land in college and school campuses. The students may also act as watch-dogs for the speedy implementation of the projects in their areas, ensure that supplies of materials and inputs arrive in time, and that malpractices by the executing agencies in the field are avoided. They can also serve, after a crash programme of training, as extension agents for disseminating knowledge of new agricultural techniques. The use of students as watch-dogs over the performance of the implementing agencies, however, has to be carefully coordinated so that no conflicts and contradictions may emerge. It is evident that a planned inflow of educated manpower even without experience will substantially improve the quality and productivity of village life, whilst equiping the students with a range of practical experience which would make their formal education much more relevant to the nation's needs.

One important obstacle in the ways of using the unemployed or the underemployed among the small farmers and landless labour, either on a voluntary or on a compulsory basis, is the unequal distribution of economic and political power in the villages. If the benefits of the projects are not directly related to the daily lives of those offering unpaid labour, this type of

mobilisation of manpower is unlikely to be widespread and sustained. Even if road building or dyke construction helps the entire community, it is likely to be more helpful to the surplus farmers or bigger land-owners.

In a situation of unequal distribution of land and economic power the first step, short of drastic land reforms, is to require all economic groups in the village to provide labour services for common benefit. One way of organising such work is to require all land-owners to donate labour proportionate to his land holding, for example, one day per bigha. Part of this labour obligation may be commuted by monetary contribution instead, but it is important that some labour is given, subject to constraints of age and health, by everybody irrespective of wealth or social status in order to establish a sense of social solidarity. Over and above the obligatory labour, any amount of voluntary labour will be welcomed.

Notwithstanding the difficulties mentioned above, it will be possible to mobilise the idle labour force of the country if our elite groups participate in the nation-building activities in their areas. Already, there are instances of groups being formed in the wake of the liberation war with these ends in view. Such groups need active encouragement. Their actions are bound to exert a powerful impact on all those who profess to hold socialist and egalitarian beliefs. The mass media must give wide publicity to the activities of these groups including the difficulties which are being faced by them. The new volunteers will thus not only be motivated but will also be able to learn from the experiences of the pioneers.

6.2 A Programme for Labour Mobilisation

Keeping these problems in view, a programme for labour mobilisation in rural Bangladesh centred around the institutions of local self-Government may be based on the following lines:

(i) All males of working age in the area will be required to donate a given amount of labour in a calendar year. It may be considered whether the landless and/or destitutes be exempted from donation of labour.

(ii) A person may get a part of his labour obligation commuted by payment of an agreed sum for every day he wishes commuted. This fund accumulated from commuted labour will be used to give employment to the destitutes and landless as a wage.

(iii) All colleges and Universities will programme their vacations to coincide with the peak demand season for labour. During these vacations students will have to return for a minimum period in a year to their village homes. Urban based students may be organised for work in their respective campuses or localities.

(iv) Everyone will be free to volunteer labour over and above the stipulated minimum.

(v) As far as possible special skills of students should be used when they visit the rural areas. Whilst they must certainly undertake manual work, their comparative advantage, however, lies in utilising this higher education to the service of the farmers. For example, agricultural students can serve as extension workers, medical students can work as "barefoot" doctors and female students as family planning motivators.

(vi) In urban areas, colleges and Universities could, in addition to the labour donated for work in villages, undertake routine volunteer work throughout the year. In these urban-based projects, there are more opportunities for using their educational skill.

(vii) The educational curricula would have to provide special courses for equipping the students to play their new role.

6.3 Organisation

This programme for mobilising under-utilised labour and voluntary labour is a radical departure from traditional methods based on monetary incentives. A major organisational and political effort will be required to make such a programme an integral part of the development process rather than a short-lived gesture. The following steps are proposed to set up such a programme:

(i) A Labour Mobilisation Committee should be immediately constituted under the Prime Minister. This committee will set up the institutional framework, formulate regulations and laws to implement it and work out the programme for deploying labour and the phasing of the programme.

(ii) The institutional arrangements will have to be related to the proposals for local institutions now under consideration. The local institution will have to be the basic unit for organising the use of this labour. The proposed Committee must, in the light of experience and what is feasible, define the tasks of the various institutions.

The programme for mobilising labour will be incorporated in the projects included in the Plan. This will finance part of the labour component of such projects. The projects which are particularly suitable for this purpose are normaly in such sectors as road construction and works programme, education, health, rural sanitation, irrigation and drainage, etc. In respect of the projects in the Plan the local authorities will receive certain resources in cash and kind from the national budget. Most projects will pay for cement, steel, skilled and even unskilled labour. Mobilised labour will provide for only that part of the labour costs which have not been budgeted for. In addition to the projects included in the Plan the local authority will also work out a series of additional projects to utilise the mobilised labour. These may be local projects which do not require use of any resources budgeted for in the Plan and require no material input component or very limited amounts which can be locally produced and financed.

Once the idea has been accepted and local Governments are organised to perform budgeting and planning tasks the local labour budgets will be made available to the planner at the time the annual plan is prepared for inclusion in the national resource budget.

Programming the available labour into productive projects must be carefully done or such labour services will be wasted. To this end, local authorities must set up planning cells which will draw up and programme the manpower budgets in consultation with local leaders.

It has not been possible to quantify this labour input into the resource budget of the First Five-Year Plan. Much depends on the development of political motivation, the transformation of social attitudes and the emergence of local institutions without which actual quantification can only be purely conjectural. The Five Year Plan does enumerate a resource gap. This gap

can be filled in part or whole by resources generated from the labour mobilisation programme. To the extent that the programme is successful it may be possible not only to cover the resource gap but increase the size of the investment programme. As experience is gathered over the next year or two a more quantitatively precise estimate may be incorporated in the mid-term revision of the Plan.

Organising a nation-wide labour mobilisation programme will take time particularly since newly elected local government institutions have yet to assume their responsibilities. It will, therefore, be necessary to initiate the programme on an interim basis through the organised student community who have already given the lead in some voluntary labour mobilisation projects. The Prime Minister may immediately set up an autonomous body to organise and programme student labour initially on a voluntary basis. Experience derived from this interim programme will provide a basis for drawing up the full fledged programme for labour mobilisation discussed earlier.

In this perspective the task for the political leadership remains the most demanding. To lead, organize and inspire such a radical programme on a sustained basis will only be possible if the leadership itself takes the lead in mobilising labour at the village level. They will have to activate local organisations by their presence and participation in local projects and will have to inspire students by leadership on the ground rather than by mere exhortations to hard work. They will have to ensure both at the national and local levels that these programmes are not diverted to promote parochial interests or that individuals or groups are not exempted from their obligations due to use of local influence or pressure from above. The leadership, students and nation will need to respond to this challenge for mobilising our abundant human energy in order to expand the frontiers of our development possibilities beyond the limits of a conventional monetised plan to accelerate the pace of social transformation in Bangladesh.

CHAPTER VII

THE IMPLEMENTATION OF THE PLAN

7.1. Planned Development and Administrative Machinery

A Plan, however well designed, is only as good as the seriousness with which its discipline and policy prescriptions are observed, the extent of political commitment behind it and the efficiency with which it is implemented. History of planning in many countries indicates that a Plan easily degenerates into an academic exercise if political leadership and administrative machinery are not seriously committed to its implementation. Plan targets will remain pious hopes if this happens which, in turn, will generate frustrations. This necessitates that Bangladesh must devise necessary institutions and policies consistent with the priorities and allocations suggested in the Plan. It will require considerable administrative, social and institutional changes if the modernisation of the economy that we are striving to bring about is to be achieved. In this chapter we are not concerned with the political aspects of such a transformation but with its administrative aspects in relation to the implementation of the Plan.

The Administrative Reorganisation Committee is at present engaged in deliberating on the present administrative structure and developing a system that will be both efficient and consistent with the country's aspirations. In the public sector of the economy implementation depends essentially on administrative actions while in the private sector of the economy the Plan must be directed more by indirect means through the application of suitable fiscal, commercial, and monetary measures rather than by direct administrative action. Heavy demands will be made on the administrative capacities of government, whether it is concerned with organising its own activities or overseeing the private sector of the economy. In each of the sectoral programmes, the appropriate institutional framework has been discussed in detail. In Bangladesh this is specially important because before liberation many of the required institutions were either absent or inadequately developed. Moreover, in several important sectors such as manufacturing industry, external and internal trade, and banking and financial institutions, there has been a major transformation in the pattern of ownership and management.

An important pre-requisite for plan implementation is the presence of a speedy decision making process. This basic need relates to the optimum degree of centralisation under the circumstances prevailing in Bangladesh today, specially when the various administrative agencies or ministries are not adequately equipped. In the day to day decision-making process which is specially relevant for the execution of development programmes, the focus of decision-making must be clearly defined. While initial inexperience and desire to avoid mistakes may have contributed to the state of over-centralisation, its continuance is not desirable. The individual ministries need to demonstrate initiative and enterprise in identifying the problems in their sectors and in taking quick remedial action. The delegation of authority and fixation of clear-cut responsibility are recognised to be the best method of ensuring the growth of initiative and responsibility. The risks involved in decentralisation are, in the long run, much less than those inherent in a system of over-centralisation. This is because the range and complexity of issues requiring quick decision are far too great to be handled by a single decision-making unit. It will involve either delay or inefficiency since adequate thought and attention cannot be given to each individual issue. Over-centralisation often makes it impossible to distinguish between more and less important issues.

The cost of a delayed decision is not less than that of a wrong decision. Decision making ability improves through a process of learning by doing as one is involved in decision-making. To minimise the risk of wrong decisions and to develop collective responsibility it is necessary to evolve inter-ministerial consultation procedures. Therefore, the next important pre-requisite for an improvement in the efficiency of development administration is inter-ministerial co-ordination and consultation on important policy issues as well as on the implementation of development programmes and projects. Inadequate co-ordination between different Ministries adversely affects the execution of development projects and smooth functioning of the economy. Inter-ministerial consultation is not easy even under the best of circumstances; it requires effective leadership for the successful operation of each of the inter-ministerial committees.

There are at present several obstacles to effective co-ordination. One is the distribution of the closely related subjects amongst a number of separate Ministries which prevents a more rational grouping of subjects which are cognate and closely related. Splitting up of related subjects into separate ministries is not necessarily an insurmountable problem if institutional arrangements are made for co-ordination at all levels. But the difficulties of co-ordination increase in proportion to the number of Ministries which need to be co-ordinated. Moreover, if passionate and aggressive promotion of individual identity of each ministry is combined with relative administrative inexperience, the adverse consequences of division into separate ministries of the closely related subjects are aggravated.

7.2. Machinery for Economic Planning and Policy Making

The Planning Commission is entrusted with the functions of preparing annual, five-year and perspective plans as well as formulating policies for the implementation of the plans. In addition, it has the responsibility of evaluating plan performance and monitoring of the progress of plan implementation on a continuous basis. The Planning Commission also determines external aid requirements and negotiates aid with foreign countries. The Planning Commission also has the responsibility for recommending policy measures on important economic issues. Finally, the Commission assists the various Ministries in project formulation and advise on the nature of machinery for efficient execution of plans, programmes and policies. The Planning Commission, as the above functions would suggest, should play a critical role in economic policy making as well as in advising on the appropriate institutions and administrative machinery, and the policies for the execution of plans and programmes. It must not only allocate resources on the basis of priorities in the Plan, but also evaluate and review the progress of implementation of the Plan including that of individual major projects.

The Planning Commission also has to play a key role in the technical and economic evaluation of development projects. This is specially so at the present stage when the individual ministries are not properly equipped to perform this function. As individual ministries become better equipped it may be desirable to encourage a greater decentralisation of this function. In Bangladesh, there is an acute scarcity of technical personnel for project appraisal. Given this scarcity, there is a need for the centralisation of the task of evaluation of development projects. There are additional reasons why this task should be performed by the Planning Commission. First, it is necessary to establish uniform standards for the evaluation of all schemes in all ministries. Secondly, it is absolutely essential to provide

an evaluation of a project by a body which is not involved in its initial sponsorship nor will be involved in its execution. This may contribute towards greater objectivity. Thirdly, and perhaps the most important reason why the evaluation of projects has to be centralised is that projects of one Ministry or sector are inter-related with those of another Ministry or sector. No individual Ministry can, therefore, have a comprehensive view of the worthwhileness or desirability of an individual project except with reference to the projects in other sectors and its effects on overall economic development.

Under the present arrangement projects worth Tk. 25 lakhs are to be evaluated by the individual ministries and then sent to the Planning Commission for comments. In case of Planning Commission's adverse comments, the relevant Minister is to take the final decision. For projects worth above Tk. 25 lakhs, the Planning Commission is to undertake the preliminary evaluation as to whether a project is technically and economically feasible and viable. The National Economic Council is entrusted with the function of taking the ultimate decision on the basis of the recommendations of the Planning Commission.

When the annual development programme is presented to the Cabinet, each individual project included in the Annual Plan is examined by them. The Cabinet has the final authority to select from the list of viable projects for inclusion in the budget; at that time, they also examine the total list of projects including those which are not found technically and economically viable.

The fulfilment of the targets of a Plan depends upon the discipline of a Plan being strictly observed as well as upon the policies and institutions being consistent with the priorities and requirements of the Plan. The enforcement of the discipline of a Plan would imply that there should be no deviation from the inter-sectoral and intra-sectoral allocations which are made in the plan. It is necessary to ensure that once the cabinet and the Parliament approve a Plan, *ad hoc* reallocations are not made within a sector by the individual Ministries.

However, the need for flexibility has to be provided for especially in an agricultural economy, dependent to a large extent on weather conditions where actual agricultural output and exports may deviate from the assumptions or projections made in the Plan. It is also possible that world prices as well as supply and demand of important exports and imports may undergo unforeseen changes. Also the assumptions regarding the availability of foreign assistance are subject to the greatest degree of uncertainty. All these parameters should be subject to continuous examination and study. In this context, readjustments in the Plan may be occasionally required during the Plan period. The Planning Commission will continuously evaluate all those parameters which affect the assumptions made in the Plan.

The principal instrument for ensuring flexibility in the process of formulation and implementation of a Five-Year Plan is the Annual Plan. Each Annual Plan, covering both public and private sectors should be based on an evaluation of the preceding Annual Plan. The forecasts of resources and expenditures will be reassessed every year at the time of the preparation of the Annual Plan, keeping in view the targets and projections of resources for the Five-year Plan. The Annual Plan is the means by which the Five-year Plan is made operational because expenditure decisions, fiscal, monetary and aid policies, need to be formulated each year.

Apart from preventing ad-hoc inter-sectoral reallocations, it is important to ensure not only that the development projects are properly phased over time, but also that in each year there is a consistency between sectoral and sub-sectoral programmes. The phasing of the programme of one sector is not unrelated to the phasing of another sector's programme. A perfect balancing is unlikely and, therefore, it is possible that there will be a deficit in one sector and surplus in another in a given year. The objective would be to keep the imbalances to the minimum and take necessary corrective measures. The annual planning exercise is intended to eliminate or at least minimise the possibility of imbalances between supply and demand in the case of essential commodities and critical and basic inputs which are common to many sectors like cement, steel, chemicals, transport equipment and power, and inputs to top priority sectors like agriculture. The imbalances in the course of a year between domestic supply and demand can only be corrected through adjustments in the import policy and foreign exchange budgeting.

As stated above, the development expenditures have to be co-ordinated and planned on an annual and five yearly basis with the list of resources and priorities. Similarly, corresponding policies in the sphere of price, tax, subsidy, imports and exports as well as the wide range of prevailing controls over production and trade have to be coordinated. The two most important areas of co-ordination are the tax and price policy, and foreign trade policy. The economic policies must be consistent with the targets and postulates made in the Plan. For example, if export targets are set at a level it will be necessary to pursue appropriate price and exchange rate policies to achieve that level. Similarly tax assumptions made in the Plan must be made operative by the enforcement of concrete tax proposals. To neglect the task of economic co-ordination in a complex interdependent world is to encourage misuse of resources. There will also be no sense of priorities and direction in economic affairs. If the task of economic co-ordination is done independently of the task of preparation of a Plan, then the tasks of economic co-ordination would be without any sense of direction and priorities.

In the light of the above functions of the planning machinery, there needs to be a close relationship between the planning machinery as the central co-ordinating mechanism and the highest policy making body of the country *i.e.*, the Cabinet. The link between the Cabinet and the Planning Commission is the National Economic Council. The latter is conceived as a standing Committee of the Cabinet for deliberation and decision-making on the allocation of economic resources and on all major economic policy issues. The National Economic Council is responsible for examining all policy recommendations and plans prior to their presentation before the Cabinet. Its principal functions are as follows:

(1) To approve:
  (a) The Five-year Plan, and
  (b) The Annual Development Programme.
(2) To approve economic policies recommended by the Planning Commission.
(3) To allow changes in the Plan and sectoral readjustment within the overall Plan allocation.
(4) To review implementation of economic plans.
(5) To appoint such committees or bodies of experts as may be necessary to assist the Council in the performance of its functions.

In a parliamentary democracy, there could be a problem of reconciliation between the commitments or obligations of each individual Minister to his constituency or a group of Ministers to their region for a claim on scarce resources, and the collective responsibility of the Cabinet for ensuring an efficient use of national resources in the context of overall priorities which cut across the special needs of constituencies or districts. The potential conflicts can be resolved only in a political forum. In this context, the functions of the Planning Commission, as the central advisory organ of the Cabinet, can be best performed only if it is treated as such. Unless the Cabinet uses the Planning Commission as its own secretariat for analysing, advising and monitoring all development policies and programmes and performance, its utility is limited.

7·3. Revision of the Financial Procedures

There are two inter-related sets of issues which affect the speedy implementation of the Plan. One relates to the necessity of a continuous watch on the flow of resources and expenditures. The other issue is the need to ensure correspondence between financial expenditures and physical implementation of projects. It is essential to streamline the administrative procedures for the release of funds for development projects and for periodic reviews of the release of funds in the light of the assessment of the flow of resoures and the progress of expenditures.

In order to resolve these issues it is necessary to devise an appropriate information system on the flow of resources and expenditures.

It is essential to generate a continuous flow of data on (a) tax resources and non-tax resources, (b) export earnings, including invisibles, and (c) commitment and utilisation of foreign assistance, including project and commodity assistance. The information on the flow of expenditures should include not only allocations from the Ministry of Finance to the administrative Ministries and agencies but also actual expenditures incurred by them. Delays in this regard would jeoprardise the short term adjustment in the Annual and the Five-Year Plan.

The present financial accounting system is outmoded and unsuited to the needs of development planning as it does not meet the requirements of modern cost analysis and managerial control. A modernisation cell needs to be established in the Auditor-General's Office to reform the accounting system with a view to eliminating "suspense accounts", speeding up the processing and publication of aggregative accounts, and making accounting records consistent with an economic classification of the budgets. It is necessary to simplify classification of expenditures shown in budget documents whilst accounts for all Ministries and autonomous bodies should be made consistent. A uniform classification system of resources and expenditures in the budget should be worked out through consultation among the Ministry of Finance, the Planning Commission, the Central Statistical Agency and the operating agencies. The classification of budget estimates, revisions and actuals, needs to be integrated with the national accounts framework. Apart from the Government accounts, it is necessary to generate more comprehensive and adequate data on public sector operations as a whole in order to provide an overall view of financial relations between this sector and the rest of the economy; this is important both for annual budgeting and for longer-term economic planning. It is not enough that the Government accounts include the financial transactions of autonomous public entities only

to the extent that they directly affect the financial position of the Government, e. g., on the revenue side, interest and amortization payments, profit remittances to Government and on the expenditure side, loans and grants from Government out of budgeted funds. To enable a proper assessment of the role of the public sector as a whole, the receipts and outlays of autonomous public entities have to be covered more fully and should be consolidated with Government budget data.

The financial procedures for the release of funds according to Plan priorities is crucial in determining the speed with which a Plan is implemented. Once the Annual Plan including the specific projects and programmes is approved by the Cabinet, the Finance Ministry should release funds on a quarterly basis. As the information system becomes more efficient and projections become more reliable, the release of funds could be made on a half-yearly basis. During the middle of the financial year, a revision of the Plan needs to be undertaken on the basis of performance of the last six months and revised projections of resources and expenditures for the next six months. The revision of the Annual Plan is based upon the revision of the estimates of internal and external resources. It is imperative that the foreign exchange budget is prepared simultaneously with the annual budget. There is at the moment a Foreign Exchange Allocation Committee consisting of the Planning Commission and Finance Ministry to scrutinise the competing claims for foreign exchange by different sectors for both development and non-development purposes.

7·4. Project Preparation and Implementation

In the past one of the obstacles in the way of accelerating the pace of economic development has been the failure to devise and implement suitable projects. This problem still remains and must be eliminated as quickly as possible. The Planning Commission intends to strengthen its section concerned with monitoring the development performance. It also intends to review the progress in projects preparation as well as implementation at regular intervals. Time-tables will be laid down for the completion of project preparation and will be linked to the need for technical assistance where appropriate. Each Ministry or agency responsible for the preparation of projects will be asked to submit such a time-table to the Planning Commission stating the date when preparation of projects is expected to be completed. This will form the basis of verifying the progress that has been made.

In a similar way a detailed schedule will be drawn up for each project showing the progress that is expected to be accomplished by certain date. The amount of detail needed for this will vary from project to project. It is intended to start with a fairly simple system of reporting which will indicate primarily when major steps in the execution of a project are expected to be completed. Such dates will be agreed upon between the agency responsible for the project and the Planning Commission before the project starts. Failure to complete projects according to schedule will require explanation, and verification of progress will be an important part of ensuring the discipline needed for the timely execution of plans.

As soon as experience is gained with the application of a simple system of control a more sophisticated and effective system of plan preparation and reporting such as critical path analysis will be introduced. This will enable a much more detailed schedule for execution to be drawn up and will call for much closer supervision to be exercised over the execution of projects. The implication of the adoption of such a system of project control

is far-reaching. In a refined system the method of execution of projects can be improved as a consequence of attempting to reduce construction paths to a minimum by adopting an improved ordering of the execution of the work and by changing construction methods with the intention of saving time. In all cases shortening of the time taken for construction has the effect of reducing costs. This is all the more important when the cost of capital is high, as it is in Bangladesh.

All plans for the systematic execution of projects are subject to the possibility of unforeseen delay. Because of adverse weather conditions or natural disasters execution of projects may be delayed, particularly those involving earth moving or a large amount of construction. Allowances would thus have to be made for the effect of such unpredictable events on construction times. Delays in execution, however, are not always caused by natural factors or methods of execution. The availability of imported goods, the provisions of licenses when these are required and failures on the part of sub-contractors are also factors which affect execution.

In some cases a simple way of monitoring the progress of a project is to compare the rate of disbursements taking place with that which was planned. This method can generally be used to detect excessively slow implementation but it is subject to difficulties if disbursements are irregular. The monitoring system should be designed to eliminate such irregularities. The exercise of full budgetary control over the execution of projects needs to be both financial, in order to verify that expenditures are rightly made and to identify increases in costs, and physical to ensure that construction has taken place on time and at the cost budgeted for. This kind of surveillance is known as performance budgeting.

It will be the responsibility of the Planning Commission to see that pressures are applied to ensure a vast improvement in performance. It will be the responsibility of the Planning Commission to ensure that in the preparation and execution of projects a properly phased programme is prepared. In every case, quarterly report will be sent by all implementing agencies to the Planning Commission indicating how project preparation or implementation is proceeding in relation to the programmes laid down. The Commission will then examine these reports and prepare a brief report for submission to the National Economic Council drawing attention to any failure to attain targets and the reasons thereof. It will also be the duty of the Planning Commission to draw the attention of the Cabinet to instances where major changes in procedures are needed. To do its task more effectively the officers of the Projects Section of the Planning Commission will spend a considerable time in the field spot-checking on the accuracy of reports on project implementation, identifying bottlenecks and directly monitoring the impact of the development plan on the performance of the economy.

7·5 Administration of Local Activities

The question of people's participation in the development effort needs also to be considered in this connection. Paternalism of the government functionaries which was the dominant feature for over two centuries prior to liberation cannot work in a democratic society where

the masses are becoming increasingly politicised. Unless government operations are within their reach and comprehension, people cannot feel involved. The only way we can ensure their participation is by decentralising development activities. Small projects and various development programmes particularly in the rural areas must be implemented through the local government institutions. Such decentralization may lead to some inefficiencies in implementation at the early stages until local expertise in planning and executing development programmes has been gained. But this is unavoidable if participation of the people is to be secured. While formulating a fairly comprehensive plan for the country, the details in many areas have to be worked out by local government agencies. The National Plan must be explicated into District, Thana and Union programmes and targets, wherever possible. Local Government officers should be responsible for drawing up detailed district and thana plans under the guidance of the local government representative. Some of the issues relating to the implementation of agriculture, water and rural development programmes have been discussed in the sectoral plans. Here we would like to emphasize the need to combine technical and institutional planning at the local government level. The Zilla and the Thana Parishads will be able to act as co-ordinating authorities only if the services of the officials of the various ministries and agencies working at District/Thana levels are placed under the operational control of the Parishads. The primary role of the concerned ministries will be servicing, back-stopping and monitoring of performance.

There is an implicit assumption in the Plan that the resources made available by the National Government through the annual development plan will be augmented by the community with its own resources. The community participation and financial contributions will be realised only if the local governments can show in their plans the kind of work they will undertake out of their own resources. If a community finds that it is not only expected to implement a programme but also draw it up and where necessary and feasible make a contribution to the effort by using their own resources, they will gain confidence in their own abilities and also be more enthusiastic about the work. The responsible Ministry must be prepared to transfer funds from projects and areas which have a poor performance record to those which are doing well. However, if monitoring means a mere preparation and submission of progress reports but no follow-up action as suggested above, then we cannot hope to achieve much. To be able to encourage those who are performing well there must be enough flexibility in the Plan. Government must also be prepared to withstand undue political pressure even at the cost of becoming unpopular with those who would wish to get a share of national resources in spite of their poor performance record.

7.6 Control of the Private Sector of the Economy

The Government is in a position to control many aspects of the operation of this sector by administrative means. But it will have to be assured that the efficient operation of the private sector of the economy is not hampered by administrative controls. The Government has resolved that the private sector is to be given the fullest opportunity to contribute to the development of Bangladesh provided that the principles laid down for its operation are observed and that any outcome inimical to socialistic development is avoided.

The influence of the Government is exercised on the private sector through fiscal policy which effects the costs and revenues of businesses, through monetary policy which affects the cost and availability of funds for investment, and through commercial policy which affects the nature and volume of imports and exports. These are powerful means of controlling and influencing the actions of the private sector. But the Government recognises that the private

sector of the economy must not be forced by excessive control into a position where it loses all initiative and can survive only behind high tariff walls or strict exchange control.

The private sector can play its assigned role provided the resources needed can be made available. Considerable stringency in the availability of means to pay for imports limits the extent to which the private sector can implement its share of the Plan. The private sector may be permitted certain flexibility in terms of allocations of resources so that moderate deviations from Plan projections are not necessarily penalised. Admittedly the projection of supply and demand implicit in the Plan is subject to uncertainties.

The Government will also be able to influence the actions of the private sector and bring them into conformity with Plan objectives in a variety of other ways. Locational aspects of private sector operation will be influenced by the development of industrial estates; the provision of infrastructure by the public sector will also exert a considerable influence. The demands of the nationalised sector for products of the private sector will also be an influence helping to keep private sector operations in line with the Plan. So too will be the operations of Small Industries Corporation. Many small scale activities such as handloom weaving and cottage industries will be highly dependent on Government support which will help to ensure that the former carry out the functions laid down for them in the Plan. The concept of Industrial Associations is also proposed as an institutionalised format for interrelating the public and private sector.

7·7 Structure of Services and Development Planning

The Services Reorganisation Committee established in March, 1972 has explored at length the role of the structure of services for planned economic development. A few relevant and tentative recommendations which deserve close scrutiny are as follows :

(a) Development is a specialized task and needs specialists. Administrators should choose an area of specialization and each should receive intensive specialized training in that area ; each should also stay in the chosen area sufficiently long to acquire relevant experience while at senior levels where inter-disciplinary approach is necessary, move among linked areas only. The present system of generalist officers who are transferred frequently from one Ministry to another should be changed.

(b) Merit and not seniority should dominate in the determination of promotion, and contact of administration officials with field level workers must be encouraged. Unless they spend a significant portion of their time at periodic intervals in the field they will not be able to clearly comprehend the problems which the people and the field level officers face in performing their activities. It is necessary to grade officers' work and to introduce strict examination system for promotion.

(c) The responsibility of officers and chain of command in decision making must be clearly outlined. An officer cannot work effectively unless his powers, functions, and responsibilities are clearly stated. Once these are stated, he should be allowed to operate without any undue interference. The smooth functioning of the Government is greatly hampered and delayed by the outdated and cumbersome office procedure currently in force. Unless these are simplified and streamlined, the system of office work cannot be changed and it will be difficult to improve efficiency. The administrative Reorganisation Committee will lay down detailed rules and procedures for speedy disposal of work in the Government office.

(d) The Ministries concerned with development activities must be so reorganised that they are able to perform the following three functions efficiently : (i) policy formulation, planning and evaluation of development projects, (ii) personnel management, and (iii) financial management.

(e) The existing system of having Departments, Directorates and Corporations in addition to Ministries to carry out executive functions and responsibilities should be seriously re-examined. In such Ministries the secretariat staff should be cut down in size and serve as staff officers to the Minister rather than as a tier in the line of command.

7·8 Strengthening of the Statistical System of Bangladesh

The quality of statistics in Bangladesh is poor. Statistical operation has so far been conceived of as clerical compilation of whatever data are available, rather than scientific estimation of economic concepts to be used for planning and policies. There is a need for improvement in the quality of statistics and for developing a statistical system which would provide quantitative guides for planning and policies at national or sectoral levels.

The statistical system cannot be significantly improved without a thorough reorganisation of the statistical institutions. Organisationally, the present system is very much decentralised and unco-ordinated; there are as many as 18 agencies with over 2,000 employees. The main permanent agencies are two : (1) the Bangladesh Bureau of Statistics under the Ministry of Planning employing 670 employees, and (2) the Bureau of Agricultural Statistics under the Ministry of Agriculture employing 578 employees. In addition, there are two temporary organisations, namely the Population Census Commission under the Ministry of Home and the Agricultural Census Commission under the Ministry of Agriculture which are also required to produce basic statistics. The other 14 agencies are primarily engaged in processing data mostly needed for the current operation of their parent organisations.

It is proposed that the statistical system of Bangladesh should be reorganised : (a) to integrate the present decentralised statistical agencies into one statistical organisation capable of discharging its functions to produce reliable statistics needed for analysis, planning and policies; (b) to strengthen the statistical organisation by raising its status and by making provisions for appointment of an adequate number of highly qualified statisticians, economists and administrators and (c) to design the system of statistical information into a co-ordinated frame-work shifting emphasis from mere clerical compilation to scientific estimation and research.

The four principal organisations, namely (a) the Bangladesh Bureau of Statistics, (b) the Bureau of Agricultural Statistics, (c) the Population Census Commission and (d) the Agricultural Census Commission, should be integrated into one central organisation. The remaining statistical cells in various Ministries and Departments may continue to function to meet their internal requirements.

CHAPTER VIII

AGRICULTURE, WATER RESOURCES AND RURAL INSTITUTIONS

8·1 AGRICULTURE

8.1.1 Introduction

A. *Role of Agriculture*

The economy of Bangladesh is predominantly agricultural. Of the 7·4 crore population about 90 per cent live in rural areas and over 75 per cent are engaged in agricultural activities. With a rate of population growth around 3 per cent, high initial unemployment, and limited non-agricultural employment opportunities, it is likely that for decades agriculture will have to provide the bulk of productive work opportunities to the population. This is particularly so because employment-capital ratio is low in the non-agricultural sectors.

The predominance of agriculture in our economic life also becomes evident if we look at the magnitude of its contribution to the GDP of the country. Agricutural output in recent years accounts for about 55 to 58 per cent of GDP at current prices. Approximately 40 per cent of GDP is derived from the major crops and 28 per cent from rice alone. Fishery and Livestock each contributes around 5 to 6 per cent of the GDP and Forestry about one per cent. The rate of growth in agriculture, and more particularly crops is, therefore, of crucial importance for the economic development of Bangladesh. Labour productivity and income per head in agriculture are relatively low and cannot be raised without increasing capital investment in agriculture.

B. *Structure of Agriculture*

Crop production dominates agriculture in Bangladesh. Rice covers about 78 per cent of the cropped area. Other important crops are Jute, Sugarcane, Tea, Tobacco, Oilseeds, Potato and Pulses. By world standard the yield per acre for all these crops is very low. Table VIII-1 shows the acreage, production and yield of major crops (average of 1965-66 to 1969-70).

TABLE VIII-1.

Acreage, Production and Yield Rates of Major Crops in Bangladesh (Average of Years from 1965-66 to 1969-70).

Crops.	Acreage (lakh acres).	Production (lakh tons).	Yield (Tons per acre).
Rice	239·00	107·20	0·447
Wheat	2·15	0·69	0·320
Potato	1·80	6·55	3·640
Sugarcane	4·21	75·25	18·000
Oil seeds	8·15	2·61	0·320
Pulses	8·68	2·61	0·300
Jute	23·00	11·90	0·517
Tobacco	1·12	0·33	0·296
Tea	0·99	0·29	0·293
Others	18·88	..	..
Total area of all Crops ..	307·98	..	..
Net cropped area including current fallow ..	224·28	..	..

Total agricultural land (including current fallow) in Bangladesh is about 2·24 crore acres. Total cropped area in 1969-70 was estimated to be 3·284 crore acres. Aggregate cropping intensity thus works out at 146 per cent though it varies from district to district. Almost all cultivable land is now under plough and there is hardly any scope for further extension of land area.

According to the Master Survey of Agriculture of 1966, Bangladesh had about 68·7 lakh farms as against 61·4 lakh in 1960 of which 61 per cent are owner-operated and 37 per cent are owner-*cum*-tenant farms. Pure tenant farms are rather an insignificant proportion of the total. Approximately, 83 per cent of the farm area is cultivated by the owners themselves while 17 per cent is cultivated by the tenants mainly on the basis of sharing the crops. About 20 per cent of the rural household do not possess any land, and this number is increasing. The average size of farm in Bangladesh in 1973 is estimated to be 3·2 acres as against 3·5 acres in 1960. Approximately, 92 per cent of the farms in Bangladesh are below 7·5 acres and cover about 70 per cent of the total farm area. Almost all farms including small holdings are fragmented.

C. *Review of Past Agricultural Development*

Agriculture in Bangladesh experienced a modest growth of about 2·5 per cent per annum from 1960-61 to 1969-70 which was less than the rate of growth of population. Growth in rice production, by and large, remained stagnant until 1958. It, however, fluctuated periodically mainly due to weather. Annual average growth rate in the fifties was 0·7 per cent as against that of population of about 2·9 per cent. As a result, there was a steady rise in foodgrain deficit in the country. Even though the average growth rate in rice output was 2·45 per cent per year in the sixties, Bangladesh had to depend on foodgrain imports on a much larger scale than in the fifties. During the period 1960-65, the annual average import of foodgrains was about 8·5 lakh tons. This went up to about 11 lakh tons during 1966-70. The actual import in 1969-70 was 15 lakh tons. The annual import requirement of foodgrains in 1972 and 1973 amounted to more than 25 lakh tons because of the war of liberation and the consequent dislocation in the economy and the unprecedented drought in 1972.

Production of jute, the major export crop, declined in the fifties but registered some increase in the late sixties. The average annual production for the period 1955-56 to 1959-60 was 57·5 lakh bales as against 65·7 lakh bales during the period 1965-66 to 1969-70. Production in 1969-70 was as high as 72 lakh bales, mainly due to the increase in acreage. The area under jute crop from 14·6 lakh acres in 1955-56/1959-60 to 22·8 lakh acres in 1965-66/1969-70. Jute acreage reached an all-time high of 24·6 lakh acres in 1969-70. The present yield rate of jute is about 3 bales per acre; it should be possible to increase this to 5 —6 bales per acre. Despite the increase in production, the share of Bangladesh in the world export market of jute and allied fibres declined in the sixties. Jute has been under threat from synthetics. The external market situation requires that the export price of jute be kept at a competitive level. At the same time it is necessary to maintain the domestic price at a level relative to rice which will provide incentive for growing jute. To resolve this dilemma, the yield per acre must be increased sharply and/or the effective exchange rate for jute exports made more favourable.

Production trends of some important crops from the early sixties (1960-61 to 1964-65) to the late sixties (1965-66 to 1969-70) are shown in Table VIII-2. Production of wheat and potatoes has registered a significant increase which has been contributed by both

higher acreage and increase in yield. Wheat, however, constitutes a very small proportion of cereal acreage and production. With the exception of tobacco and oilseeds increase in the production of other crops has been contributed mostly by acreage increase. Production of pulses, fruits and vegetables has not shown any significant increase during the last decade. Production and acreage of short staple cotton declined.

Fishery, forestry and livestock sectors made very little contribution to the growth. Per capita consumption of fish has declined. The value of livestock output, *e.g.*, milk and milk products, meat, eggs and poultry has declined from Tk. 81·8 crore in 1964-65 to Tk. 80·2 crore in 1969-70. Timber and fire-wood extraction has declined considerably.

TABLE VIII-2.

Percentage Change in Acreage, Production and Yield Rates of Crops.

Crops.	Acreage.	Production.	Yield.
Rice	+ 9·1	+10·3	+ 1·1
Jute*	+32·9	+10·6	- 18·1
Wheat	+45·2	+96·5	+28·0
Potatoes	+30·4	+90·9	+46·8
Sugarcane	+32·4	+53·0	+16·1
Tea	+19·3	+14·0	—4·3
Tobacco	+ 8·7	+32·9	+20·7
Oilseeds	+ 1·8	+34·5	+32·2

Note—The changes relate to the average of 1965-66/1969-70 over 1950-61/1964-65.

*In the early sixties the acreage was under reported. The change may not, therefore, reflect the actual trend.

D. *Causes of Slow Growth in Agriculture*

The poor growth in agriculture in Bangladesh during the last decade can be attributed to a number of inter-related factors. These are: (i) lack of appropriate development strategies in agriculture, (ii) lack of incentive, (iii) lack of right technology, (iv) low level of investment, (v) low absorption of high productivity inputs, (vi) ineffective implementation of the development programme and (vii) inadequate physical and institutional infrastructure.

Natural hazards caused considerable fluctuations in production of crops particularly Aus, Aman, and Jute. Development efforts were, by and large, oriented towards traditional agriculture. For example, high yielding varieties (HYV) of rice were not introduced on a wide scale until the late sixties. Their large-scale expansion was dependent upon the availability of controlled irrigation water. Water resources development, particularly irrigation coverage which accounted for about 7 per cent of the cultivated area and quickly maturing development projects received much less attention than they deserved. As a result production remained based on traditionally low yielding varieties.

Gross annual investment in agriculture during the last decade has been extremely inadequate. The use of modern inputs was very small. Though fertilizer consumption increased from 66,000 tons in 1960-61 to 2,65,000 tons in 1969-70, the quantities used were substantially less than the amount of fertilizers that could be profitably used in Bangladesh. Necessary incentives to invest in modern inputs were lacking among the farmers. The area covered under plant protection increased substantially towards the end of the sixties. It went up from 6 lakh spray acres in 1960-61 to 98 lakh spray acres in 1969-70. But the total plant protection coverage was only around 12 to 15 per cent of the cultivated land. One hundred per cent subsidy coupled with ineffective distribution arrangements resulted in wastage of both human and material resources. Consequently, the expanded plant protection work contributed very little to crop production. Distribution of improved seeds did not make much headway in the sixties and local improved seeds did not win the confidence of farmers. Low-lift pump irrigation programme which brought substantial areas under irrigation in the late sixties (6·4 lakh acres in 1969-70) was the major contributory factor in increasing boro rice output. Neither the tube-well nor the canal irrigation programme made any significant contribution. Credit-flow from public sponsored institutions to agriculture during the last decade was also quite inadequate relative to the volume of credit needed. Institutional credit sources in 1969-70 did not meet even 10 per cent of the credit needs of the farmers.

High yielding varieties of rice which were introduced in the mid sixties covered only about 6·5 lakh acres in 1969-70 as against the total rice area of 25·5 lakh acres. The impact on rice output was not, therefore, very significant. There has been rapid increase in the area under HYV in 1970-71 and 1971-72 but this still accounts for less than 5 per cent of the total rice acreage. Only small amounts of resources were allocated in the past for the development of crops other than rice. No appropriate policy was adopted to encourage their expansion. An effective extension programme for introducing improved varieties and an intensive research programme for evolving improved varieties for all these crops were lacking. Since relative price moved in favour of rice, farmers did not have sufficient incentive to increase production of other crops.

8.1.2 Objectives and General Strategy

A. *Objectives*

For the next one or two decades the objective of the agricultural development programme of Bangladesh must be to gradually replace the traditional and greatly unstable agriculture by a modern agriculture capable of sustained growth. This can be attained not only by exploiting all the opportunities currently available for increasing agricultural production within the present structure of the agricultural industry, but also by gradual structural transformation within agriculture, so that each individual area of the country succeeds in realising its growth potential.

While primary emphasis is to be laid on creating a modern agriculture, other important objectives of agricultural planning, should be:

1. To increase agricultural incomes.

2. To provide productive employment to the growing rural labour force, for whom prospects of non-agricultural employment will remain small for many years to come. Labour intensive methods of production as applied to the new high-yielding cereal varieties can greatly contribute to this end.

3. To reduce rural poverty and promote equality of income distribution. This is particularly relevant to Bangladesh where agriculture is dominated by small farmers and landless labourers. It is possible for agricultural growth to be accompanied by a continuation of acute poverty. This happens when technological innovations flow only to a relatively small number of big farmers and some specific regions, as exemplified by 'green revolution' in many contemporary societies. Increase in agricultural production has, in fact, made rural incomes more unequal in many countries than they were before. This cannot be allowed to happen in Bangladesh. Rising rural incomes, must therefore, be accompanied by improved income distribution, which then will reduce rural poverty, consistent with our social philosophy.

4. To contribute to the improvement of the foreign exchange situation by increasing exports and substituting imports by domestic production of agricultural and forestry products wherever it is efficient to do so. This is indeed essential for Bangladesh because of the huge import needs in terms of foodgrains, oilseeds, tobacco, cotton and forest products as well as raw materials and machinery.

5. To improve nutritional standards through increased supplies of cheap calories and proteinous food including fish, animal products, fruits, vegetables and sugar.

6. To increase the contribution of forest resources to the development of the country through an improvement in the efficiency of forest management and utilization.

B. *Specific Aims of the Plan*

It is against this background of relatively long-term objectives that the agricultural development programme for the Five-Year Plan (1973-78) aims at:

1. Self-sufficiency in the production of foodgrains;

2. Creating employment opportunities for the rural unemployed and under-employed so as to enable them to attain a basic minimum level of consumption.

Self-sufficiency in foodgrain production will refer to the level of foodgrain production which will eliminate our dependence on the level of foodgrain import by the terminal year of the plan, 1977-78. Thus defined, self-sufficiency as an objective is considered desirable and justifiable because the drive for foodgrain production promises high and quick returns on capital and would bring an end to dependence on foreign sources of food.

The recommended package of improved practices in connection with the self-sufficiency drive will create employment opportunities for the rural unemployed. If for example, agricultural output grows at 5 per cent yearly, farm employment is expected to grow at 3½ per cent provided labour displacing mechanization is avoided. In addition, the Rural Works Programme

will have an important employment component. To the extent efforts are concentrated in given areas in the interest of the self-sufficiency drive, inter-regional disparities will result. Rural Works Programme will, therefore, have to be directed to balance the situation.

Achievement of a basic minimum nutritional standard is a key objective implicit in the search for grain self-sufficiency; yet paradoxically that search may pose a short run nutritional threat. Replacement of wheat imports by domestic rice output will somewhat reduce protein availability (wheat contains 10 per cent protein, while local and standard H. Y. V. rice 7 per cent) and create supply problems for deficit areas now fed substantially from grain imports. It will therefore, be necessary to:

(i) arrange supply of domestically produced rice to the consumers of wheat hitherto imported;

(ii) identify particular areas at risk, and risk groups of consumers, *e.g.*, pregnant and lactating women, pre-school children in large families, households with no male heads, who are likely to be more deficient nutritionally, and devise schemes to help them;

(iii) concentrate attention on improved pulse cultivation and extend and improve groundnut cultivation;

(iv) increase the protein content of cereals (which provide 70 per cent of all protein in Bangladesh) by varietal development at Bangladesh Rice Research Institute (BRRI);

(v) avoid a high degree of rice polishing, which can induce goitre and beri-beri;

(vi) raise fish yields; and

(vii) raise animals, *e.g.*, dairy cows, beef cattle, poultry birds, sheep, etc., in areas where there are natural advantages in doing so.

C. *The Strategy for Equitable Rural Income Distribution*

The distribution of operational farm holdings suggests that rural inequality in Bangladesh is relatively less than in other developing countries. However, there has been an increase in the number of landless labourers during the last decade. Although the strategy of seed-based technology adopted in the Five Year Plan is designed to have the widest possible application and thus benefit to some extent a large number of farmers, however, it may add to the trend of increased inequality if the large farmers continue to have greater access to inputs, credit, information and power than the small farmers.

In order to counteract the adverse effects of the new technology on income distribution, a number of specific measures are incorporated in the Plan. Thus, the agricultural plan on the whole will significantly contribute towards realisation of a socialist economic order in Bangladesh. Some of the specific measures are:

1. The agricultural plan envisages concentration of the new seed-based technology in certain areas on account of technical, institutional and financial constraints. But

the area of concentration will be distributed over almost all the districts covering approximately one-third of the total cultivated area. Such large, widely distributed "areas of concentration" together with normal "diffusion effects" will promote the sharing of benefits from the technology by a vast section of the rural population.

2. Special attention will be paid to developing rural institutions at a rapid rate. The small farmers, tenants, share-croppers and landless agricultural workers will be drawn into all credit and co-operative organizations by providing incentives and carrying out intensive promotional work. They will be given special representation in the management of such bodies. This depressed class of people will be allowed to save and repay loans in kind and by contributing labour. The credit organizations will build storage facilities so that they can accept crops for payment of debt and security for new loans.

3. A Rural Works Programme will undertake a large number of labour intensive projects all around the country. It is expected that this programme will generate a substantial volume of employment during the plan period. This programme will equally benefit the large and small landowners by ensuring better drainage, irrigation and transportation facilities.

4. Significant changes in the cropping pattern, and labour intensive techniques in farming, will raise employment in farm-work and in many areas will make work available during traditionally slack seasons.

5. A policy of withdrawing subsidies on all inputs will have a favourable effect on income distribution. It will eliminate the unjust practice of benefit being monopolised by the more influencial and privileged people and regions. The elite class will not be allowed to exert their authority and influence in getting benefits from subsidies by depriving the poorer and less privileged class. Instead, they will have to pay attention to improving the efficiency of their farms.

6. The co-operative institutions will assist by organising landless labourers and involving them in decision making. Such organized labour-force will facilitate implementation of Rural Works Programme schemes and help the workers to systematically migrate towards new jobs seasonally.

7. Rural industries will be located in a dispersed manner. This will be done specially in regions outside the intensive agricultural areas, perhaps somewhat more than would be justified in terms of costs and benefits. Many of the rural industries will be co-operative based so as to ensure benefits to a large number of rural families.

8. The people in areas of special nutritional risk will be helped by encouraging consumption of groundnut protein and fish protein concentrate.

The measures suggested above are necessary but not sufficient to significantly increase rural equality and lead Bangladesh towards the cherished goal of a socialist economic order. Radical land reform measures will have to be implemented because distribution and tenure systems are the fundamental factors determining rural employment and income distribution in a predominantly agricultural society.

8.1.3. Physical Output Targets and Programmes

Crops

In order to achieve the objectives outlined in Section 8.2 the targets for crop production during the plan period have been fixed as shown in Table VIII-3.

TABLE VIII-3

Target of Production of Important Crops during the Plan Period

Crops.	Unit of measurement.	Bench-mark Production.	Target in 1977-78.	Percentage increase over bench-mark.
Rice	Lakh tons	112·4	150·8	34·0
Wheat	"	·9	3·6	300·0
Jute	"	66·6 (72·0)	91·0	37·0 (26·0)
Sugarcane	"	60·0	74·2	24·0
Potato	"	7·8	11·0	41·0
Oilseeds	"	2·0	4·0	100·0
Pulses	"	2·9	3·5	21·0
Tobacco	Lakh pounds	870	1,475·0	69·0
Fruits and Vegetables ..	Lakh tons	42	47·0	12·0
Cotton	Thousand bales	13·00	63·00	38·4

Note -Bench-mark Production relates to the average of the 3 years from 1968-69. For Jute, the output excludes Mesta. The figures in parentheses refers to output in 1969-70 which was the peak output of jute.

The general strategy for achieving the crop production targets is to focus attention on increasing yield per acre by the introduction of high yielding varieties of seed, application of chemical fertilizers, control of pests and diseases, adoption of improved intercultural practices, and controlled irrigation. This intensive agriculture approach will be adopted in areas of concentration with a view to fully utilizing growth potential of different regions.

1. Rice and Wheat

In spite of a large rice acreage, the overall foodgrain production has not kept pace with population growth. An intensive foodgrain production programme was launched during the late sixties but achievement fell far short of expectation due to a number of contributing factors already mentioned. The annual growth rate in the production of rice during the sixties was only 2.45 per cent. Production of foodgrains as well as other crops suffered a serious setback during the War of Liberation. The preparation of the present Plan had to be undertaken keeping in view the adverse effect of the War on the whole economy.

(a) **Targets**

Foodgrains production is planned to increase from the benchmark level of 113 lakh tons (achieved in the late sixties) to 154 lakh tons. This indicates an increase of 36 per cent over the plan period and 6·4 per cent per year annually compounded. The target production is planned to ensure self-sufficiency in foodgrains by 1977-78 thereby making costly imports unnecessary in the terminal year of the plan.

TABLE VIII-4.

Annual Requirement and Projected Production of Foodgrain during the Plan Period

Year.	Population (in crore).	Foodgrain consumption requirement (in lakh tons).	Gross Productionof foodgrains (in lakh tons).	Foodgrain available for consumption (in lakh tons).*	Deficeit/surplus (in lakh tons).
1973-74 ..	7·62	120·4	120·5	108·4	—12·0
1974-75 ..	7·85	123·9	132·2	119·0	—4·9
1975-76 ..	8·09	127·5	137·9	124·1	—3·4
1976-77 ..	8·31	131·1	144·1	129·7	—1·4
1977-78 ..	8·54	139·0	154·4	139·0	Nil

*After deducting 10 per cent from the gross production for seed, feed and wastage.

A number of issues need to be discussed to make some of the concepts and implications clear. First, the meaning of self-sufficiency needs to be understood. If the production plan succeeds then in 1977-78 *per capita* availability for consumption from domestic production will roughly be 16 oz. per day. Thus by implication self-sufficiency is being defined as 16 oz. daily consumption per head.

Such definition, without reference to the standard determinants of *per capita* consumption, would appear too rigid. Questions will naturally be raised as to whether such a consumption target is consistent with the postulated rate of income generation, the target of tolerable food prices and a great many other factors.

Implicit in the target is the recognition that active policies will have to be pursued with respect to many of these factors. The target *per capita* consumption has not been derived from the usual kind of projections based on observed income elasticities. A more important determinant has been the production possibility. The sequence of steps involved in arriving at the estimates was as follows: First, it was estimated by how much output could be increased if a determined effort was made. This estimate was based on detailed area and specific analysis of production possibilities for each crop. Next, it was asked whether the output level, thus determined, would be enough, given certain policies regarding distribution, to feed the population. It was found that after allowances for seed, waste, etc., *per capita* daily availability would be about 16 oz. This is a reasonable average level and can be accepted once it is ensured that the standard

deviation of consumption would be low. Finally, it was asked what policies would be necessary to keep the standard deviation low. If distribution is left entirely to the market, the objective will not be achieved. The Government must be prepared to have distribution programmes aimed at ensuring reasonable consumption for the low income groups.

At this stage it is not easy to forecast the grain price in relation to that of other goods in the context of the target of keeping consumption within the stipulated limits during the period of rising incomes, particularly in rural areas. It is possible that consumption demand will be so much higher than availability that the resulting market price will be unacceptably high, *i.e.*, inconsistent with the permissible standard deviation even after the available Government distribution system has been fully used.

To cope with this possibility, additional provision has been made in the Plan. As can be seen from Table VIII-4 total foodgrains imports will have to be only 21·8 lakh tons for the five years if the consumption targets are adhered to and production targets are exactly achieved. In the import programming an additional provision for about 10 lakh tons has been kept to cope with the possible need to liberalise consumption beyond stipulated limits and the possible failure of some crops. If distributed over the five years, these additional imports will raise *per capita* daily consumption by ½ oz.

The uncertainty of agricultural production also needs to be taken into account to ensure sufficient flexibility. The plan shows target output for each year under assumptions of normal weather and natural conditions. It is quite possible that some crops will turn out to be worse while others will prove better than projected. In the past, standard deviation was roughly 6 per cent of mean production of rice. With the increased share of boro (which is a far less uncertain crop than others) such standard deviation should go down in future, but some variability from the projected trend would be inevitable. The additional imports are partly designed to offset such possibility. Roughly a million tons of additional imports will be needed to cover the deficit in the mid-year if the standard deviation is 4 per cent of the mean output and the crop failure is of an intensity which is no greater than one can expect to happen, on past evidence, more than once in twenty years.

(b) **Strategy**

Two broad strategies will be employed to increase production of foodgrains: (i) increase in yield rates and (ii) increase in cropped area by multiple cropping, made possible by irrigation.

The increase in yield will be achieved by introducing HYV in irrigated areas, selected rainfed areas, and in traditionally irrigated Boro areas. Supplemental irrigation will be provided to protect areas under HYV of Aus and Aman, if affected by drought. The expansion of the HYV under rainfed conditions will be at an accelerated rate in the initial years of the Plan. This is mainly because of the fact that the irrigation capacity will take some time to expand to accommodate a larger area under HYV.

Distribution of inputs, credit and technical information necessary for a successful foodgrain programme will be specifically directed to the areas under irrigation and HYV. For this, appropriate policies will be formulated and necessary transport and institutional arrangements will be made.

Keeping in view the objectives of achieving self-sufficiency in foodgrain production during the plan period, a programme has been prepared by which the present bench-mark foodgrain production level of 113 lakh tons will be raised to a total of 154 lakh tons at the end of the plan period (Table VIII-5).

As the existing deficiencies in communication, transport, organisation and institutional facilities cannot be eliminated quickly, foodgrain production is not expected to increase initially as fast as it could by mere introduction of HYVs in the rainfed areas. With increasingly efficient infra-structural supports, the production is expected to gain momentum from the third year onward.

The three major rice crops which will receive emphasis during the first Plan period with seed-based technology will be transplanted Aman, Aus and Boro. These three classes of rice constitute about 81 per cent of the total rice crop.

TABLE VIII-5

Contribution of the Rice Varieties to Production during the Plan Period.

(In lakh acres and tons)

	Bench-mark.		First year (1973-74).		Final year (1977-78).	
	Acreage.	Production.	Acreage.	Production.	Acreage.	Production.
I. Irrigated HYVs :						
Aus	·22	·16	·30	·22	4·40	3·52
Aman	..	..	4·00	3·20	26·50	25·51
Boro	9·90	10·89	16·00	18·40	30·60	38·25
Sub-Total ..	10·12	11·05	20·30	21·82	61·50	67·28
II. Rainfed HYVs :						
Aus	..	..	3·00	1·35	11·00	5·50
Aman	12·50	6·25	21·00	11·76	22·00	13·20
Boro (with traditional irrigation).	3·42	2·25	3·48	2·33	5·70	4·05
Sub-Total ..	15·92	8·50	27·48	15·44	38·70	22·75
III. Local :						
Aus	79·79	28·72	75·55	26·44	51·20	16·90
Aman	83·05	39·68	72·00	33·84	58·90	25·33
Boro (with traditional irrigation).	11·00	5·50	7·52	3·68	5·00	2·30
Sub-Total ..	173·84	73·90	155·07	63·96	115·10	44·53
B-Aman	48·00	18·72	47·00	18·33	44·00	16·28
Wheat	3·00	·90	3·00	1·00	6·00	3·60
Total ..	250·88	113·07	252·85	120·55	265·30	154·44

Transplanted Aman

Transplanted Aman constitutes about 38 per cent of the area sown and contributes about 41 per cent of the total rice production. The increase in production of this crop is contemplated through the replacement of local varieties by IRRI-20 (or IR-5 for irrigated areas) which can be safely grown in areas which are not flooded and are also more or less free from droughts. The Planning Commission estimate that it would be safe to grow IR-20 in an area of about 30 lakhs acres which will have assured rainfall and which are relatively free from floods or standing rain water. The first thrust with IRRI-20 was made in 1970-71 with an area of one lakh sixty-seven thousand acres. This went up to 12·5 lakh acres by 1972-73. During the First Plan Period the area is expected to rise from 25 lakh acres during 1973-74 to 40 lakh acres by 1975-76. The area under rainfed HYV Aman may start showing some decline from that year as some of the Aman areas may go under supplementary irrigation (deep tubewell or low lift). The area under supplementary irrigation on the other hand will increase from 4 lakh acres in 1973-74 to 26 lakh acres by 1977-78. The area under HYV T. Aman (irrigated and rainfed) will show an increased of 288 per cent over 1972-73 acreage.

There is every likelihood that there would be some increase over the estimated production of both rainfed and irrigated high yielding varieties of T. Aman due to increased experience in cultural techniques, spill over effect and also increased efficiency in the utilisation of supplementary irrigation.

Aus

Aus constitutes about 32 per cent of the total rice acreage and contributes about 25 per cent of the production. Experience with seed-based technology in Aus crop has not been very encouraging as suitable HYVs for growing in the Aus season had not been adequately tested. The three new varieties 'Chandina', 'Mala' and 'Purbachi' have recently been released and have proved their superiority over the local varieties and have been readily accepted by the growers. These varieties are of short duration and will be suitable for Aus season both under transplanted and broadcast conditions.

Under rainfed conditions, HYV Aus varieties will be grown in an area of 1·7 lakh acres in 1973-74. The area will gradually increase to 11 lakh acres in 1977-78, a substantial portion of which will be grown under transplanted condition in areas with assured pre-monsoon showers.

The irrigated Aus will be confined to deep tubewells and gravity irrigation areas. The area under irrigated Aus will increase from 22,000 acres in 1972-73 to 30,000 acres during 1973-74 and to 4·40 lakh acres by the terminal year of the plan period.

The traditional Aus area will consequently show some decline from about 80 lakh acres to about 51 lakh by the terminal year.

Boro

Boro which constitutes about 9 per cent of the total rice acreage and contributes about 16 per cent of the total rice production will receive the greatest emphasis during the Plan period as it has the highest yield potential and is grown during the most stable season of the year. The new strategy will, therefore, place greater emphasis on irrigated Boro. The area under irrigated Boro will increase from about 10 lakh acres during 1972-73 to 16 lakh acres in 1973-74 and to 30·6 lakh acres by the terminal year. The traditional irrigated areas

with local varieties, on the other hand, will decline from 11 lakh acres to 5 lakh by the terminal year, as more of such areas will go either under HYVs with traditional irrigation or under modern controlled irrigation. The HYVs under traditional irrigation, at present cover about 3·4 lakh acres (1972-73) which will increase to 5·7 lakh acres by the terminal year of the Plan. The areas under HYV Boro (modern and traditional irrigation) will show an increase of about 300 per cent over the 1972-73 average.

Broadcast Aman

Broadcast Aman accounts for 20 per cent of the total rice acreage and contributes about 17 per cent of the total production. HYVs suitable for growing under highly flooded conditions of broadcast Aman have not yet been evolved. The new seed-based technology, therefore, will not have much impact on Broadcast Aman production, the acreage and production of which, in fact, will decline from the current 48·0 lakh acres with a production of 18·7 lakh tons to 44·0 lakh acres with a production of 16·3 lakh tons (1977-78). The decrease in acreage is estimated mainly due to conversion of B. Aman land into Boro land.

The principal cropping pattern on the irrigated land during the First Plan period will, therefore, be HYV Boro followed by HYV Aman, secondly, and to a lesser extent, HYV Aus (Chandina, Mala and Purbachi) followed by HYV Aman. In the terminal year of the Plan, Boro will contribute 29·6 per cent, T. Aman 42·4 per cent, Aus 17·2 per cent and B. Aman 10 per cent of the estimated total rice production. This is in contrast with the current pattern of producion, in which Aus contributes 25·8 per cent, T. Aman 40·9 per cent, B. Aman 16·7 per cent and Boro 16·6 per cent of the total rice production. The new strategy places greater reliance on irrigated rather than on rain-fed rice culture, as this is expected to substantially reduce the extent of annual fluctuation in production caused by droughts and floods. The estimated rice area under modern irrigation at the terminal year will be 61·5 lakh acres or 23·7 per cent of the total rice acreage and will contribute about 67·3 lakh tons or about 44 per cent of the estimated total foodgrain production. This contrasts with the current rice acreage under modern irrigation of only about 4 per cent of the total rice area practically all of which under Boro, contributing about 9·8 per cent of the total foodgrain production.

Considering land development units, soil characteristics, hydrological conditions and climatic factors, 38·7 lakh acres have been earmarked for growing HYV rice crops under rainfed conditions and under traditional irrigation. This is expected to contribute about 22·75 lakh tons or 14 per cent of the total foodgrain target by 1977-78. Local varieties of rice will still be grown in about 160 lakh acres and will contribute about 41 per cent of the total foodgrain production.

Production and consumption of wheat in Bangladesh have been increasing though in comparison with rice, wheat still constitutes a small proportion of total foodgrain. With acceleration of rice production some marginal substitution of wheat consumption by rice is expected. At present a major proportion of wheat supply is met by imports. In the Plan, wheat production is proposed to be increased from the bench-mark level of ·9 lakh tons to 3·6 lakh tons in 1977-78. This increase in production is envisaged through gradual replacement of the local varieties of wheat by improved high yielding varieties and increasing area under wheat from the present 3 lakh acres to 6 lakh acres in the terminal year of the Plan.

The foodgrain production programme will be greatly dependent on irrigation by the terminal year of the Plan; keeping to the irrigation schedule will, therefore, be one of the important pre-requisites. Some of the large-scale Irrigation Projects (LSP) and 'Deep' tube-wells (DTW) will be used for double cropping with HYVs. All the low-lift Pumps (LLP) will be used for Boro while a certain percentage will also be used for supplemental irrigation in the Aman season. In calculating the area under irrigation for rice and wheat, requirements of water for other crops, insufficient water availability, mechanical failures, and other factors have been taken into consideration. Effect of such factors is expected to be felt more acutely in the initial years of the plan period but with increasing organisational and technical efficiencies the situation is expected to improve towards the final years of the plan period.

Full advantage of irrigation facilities and the HYVs will not be obtained unless adequate supply of fertilizers is assured. Considering various factors, different levels of fertilizer combinations have been suggested for the rice and wheat crops. Highest doses have been suggested for HYVs grown under irrigated conditions followed by rainfed HYVs and local varieties and none has been recommended for the broadcast Aman crops. The dose suggested for HYV Boro for the irrigated area is 90 lbs. of Urea, 46 lbs. of T.S.P. and 14 lbs. of M. P. in the final year against the bench-mark figures of 60 lbs. of Urea, 27 lbs. of TSP and 2 lbs. of M.P. per acre. The doses for the HYV Aus and Aman have been recommended to be 75 lbs., 40 lbs. and 14 lbs. of Urea, TSP and M.P. respectively against a very low benchmark of about 13 lbs. of Urea, 8 lbs. of T.S.P. and 2 lbs. of M.P. for local Aus and 15 lbs. of Urea, 4 lbs. of T.S.P. and 2 lbs. of M.P. per acre for local T. Aman. For the traditionally irrigated HYV Boro a lower dose of 50 lbs. of Urea, 23 lbs. of T.S.P. and 7 lbs. of M.P. per acre has been suggested for the terminal year.

On the basis of suggested doses, the use of commercial fertilizer for foodgrains is expected to increase three fold over the benchmark figure of 233 thousand tons (Table VIII-6). Periodical review of the programme will be necessary.

TABLE VIII-6

Annual Input Requirement for the Foodgrain Crops during the Plan Period.

(In thousand tons).

Inputs.	Bench-mark.	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.
Commercial Fertilizer ..	233·000	340·000	385·000	473·000	581·000	732·000
Pesticides	10·800	13·400	15·200	16·100	17·000	18·000
Seeds	12·631	42·187	23·920	11·316	14·155	18·360

With regard to availability of seeds of IR-8 and IR-20, which will form the bulk of the HYVs in the initial years, no serious problem is expected since sufficient area is already covered by these crops. It can be reasonably assumed that considerable quantities of seeds will be exchanged by

the farmers themselves. Nevertheless, the executing agencies will have to take necessary steps for assuring the purity of seeds. In addition, varieties (Purbachi, Mala, Chandina, etc.) developed by BRRI and multiplied in the BADC farms and through registered growers will be made available to the farmers as certified seeds. The annual requirement of seeds for the Plan period has been shown in Table VIII-6.

It is estimated that 10 to 15 per cent of food crops are affected by pests and diseases annually. In order to prevent production losses, an extensive programme is envisaged to provide complete plant protection coverage in the areas with HYV. Rest of the area will receive 30 per cent coverage by the end of the Plan period. Plant protection services will be re-organised and strengthened in order to achieve the desired targets. Annual requirement of pesticides may be seen in Table VIII-6.

2. Jute

Jute plays a dominant role in the economy of Bangladesh. In 1947, production of jute was 12·1 lakh tons which was 80 per cent of world production of jute and allied fibres. Although world production increased from 18 lakh tons in 1949-50 to 36 lakh tons in 1969-70 the share of Bangladesh, however, declined to only about 35 per cent of the total.

There was a steady decline in the acreage and production of jute in Bangladesh during the fifties. This trend was reversed in the sixties when there was some increase in production. Jute planting was restricted in Bangladesh up to 1960 to stabilize the price of jute. This resulted in rapid extension of jute and kenaf cultivation in India, China, Thailand and other countries. Uncertainity in the supply of jute from Bangladesh together with high world prices also encouraged the growth of synthetics in developed countries posing a serious threat to jute. The yield per acre of jute remained essentially stagnant. In fact, some official statistics show that the yield declined from 4·1 bales per acre in the late fifties to 2·9 bales per acre in the late sixties. The divergence between the two figures is, however, open to question since the methods of arriving at the estimates were quite different. Formerly, the yield figures were obtained based on subjective eye estimation method, which was later replaced by scientific sample survey method. Furthermore, the acreage figures of jute were under-reported during the fifties when the Jute Regulation Act was in operation The effect of this continued to be reflected in the official statistics until the mid sixties. Modern inputs like improved seeds, fertilizers, etc., were not applied in the previous decade and this had been one of the major factors for the poor performance of jute. During the year 1970, a pilot project on intensive cultivation of jute was launched in 54,000 acres of package-deal area and 3,03,000 acres of non-package deal area. It was clearly demonstrated that as a result of the use of improved seed, cultural practices, plant protection measures and fertilizer jute yield increased to about 4·5 bales per acre in the package-deal area and about 4·0 bales per acre in the non-package deal areas, as against 2·9 bales per acre in the non-project areas.

Bangladesh must adopt a strategy of increasing per acre yield of jute and reducing cost per unit of product. The price policy should be declared before the beginning of the sowing season. Jute production target is fixed at 91 lakh bales (excluding Mesta) by 1977-78 from the level of 72 lakh bales (excluding Mesta) in 1969-70. This means that the production

will increase by 26 per cent. Year-wise targets during the plan period is indicated in the following table:

TABLE VIII-7

Projection of Production of Raw Jute during the Plan Period.

[*Lakh bales*]

Seasons.	Production.		
	Jute.	Mesta.	Total.
1972-73 (Actual)	65·1	1·1	66·2
1973-74	73.0	2·0	75·0
1974-75	78·0	2·0	80·0
1975-76	82·0	3·0	85·0
1976-77	87·0	4·0	91·0
1977-78	91·0	7·0	98·0

The production targets take into consideration requirements of domestic mills, village consumption and exports. While the village consumption level is assumed to increase from 2·5 lakh to 3·7 lakh bales, consumption of mills will depend on productive efficiency of the existing mills, installation of additional capacities and exports demand for jute goods. The mill consumption is estimated to grow at an annual compound rate of 5·6 per cent rising from the current 28 lakh bales to about 40 lakh bales by 1977-78. Export figures are based on the assumption that with a more reasonable export price, vigorous marketing and stable supply, the demand will increase at an annual rate of about one per cent. This does not take into consideration any special off-take beyond the present level of 2 lakh bales by India. Indian purchases of Bangladesh raw jute may increase as a result of special trade agreements between the two countries. Deducting the quantity for internal consumption by mills and farmers, the supply of raw jute for export from Bangladesh by 1977-78 will be about 50 lakh bales.

Bangladesh has about 45 lakh acres of potential jute growing area of which nearly half is suitable for production of high quality jute. Besides, in actual practice growers have wide choice of growing either jute or rice in the same area. The acreage during the last decade varied from 15 lakh to 24 lakh. Jute occupies about 9 per cent of the total cultivated area as against 78 per cent by rice in the same growing season.

In order to attain the phased target laid down in the Plan, the development programme of jute has been designed to increase per acre yield and reduce cost of production. By using high yielding varieties as evolved by the Jute Research Institute, together with improved cultural practices, it is possible to increase per acre yield from existing 2·9 bales to about 5 bales per acre. The factors which contribute towards increased yield are: (i) improved seed, (ii) chemical fertilizer, (iii) improved cultural practices, and (iv) plant protection. The strategy would, therefore, be to bring progressively 17 lakh acres under improved method of cultivation over

a period of 5 years, leaving 5 lakh acres under traditional method of cultivation as these would be too scattered and situated mostly in the low-lying areas for a suitable package programme approach. The areas which will receive all inputs except improved seed would be considered as 'non package deal' areas. Such areas will also be brought under the package deal within the first plan period. Production from the project areas during the plan period is indicated in the following table :

TABLE VIII-8

Jute Production Programme for Plan Period.

Sources.	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.
1. **Area** (*Lakh acres*).					
Package-deal area	4·0	5·0	8·0	12·0	17·0
Non-package deal area	6·0	6·0	6·0	4·0	Nil.
Traditional area	11·0	11·0	8·0	6·0	5·0
Total ...	21·0	22·0	22·0	22·0	22·0
2. **Production** (*Lakh Bales*).					
Package-deal area	18·0	22·5	16·0	54·0	76·5
Non-package deal area	24·0	24·0	24·0	16·0	Nil.
Traditional area	31·9	31·9	23·2	27·4	14·5
Total ...	73·9	78·4	83·2	87·4	91·0

Though it is visualised at this stage that the jute acreage will be maintained at 22 lakh acres, this is not a rigid policy. If production targets are not met by increasing yield, attempts will be made to divert more areas to jute from other crops through appropriate price policies.

Varieties evolved at the Jute Research Institute have demonstrated potentiality of higher yield up to 10 to 20 per cent over local varieties. These varieties promise higher returns at low investment. The high yielding varieties which would be used for the development programme are D-154 and C-6 in Capsularis and O-4 in Olitorius. The requirement of seeds has been based on the following assumptions :

- The total area under jute has been estimated at 22 lakh acres of which 17 lakh will be put under the package programme by 1977-78.
- Seed rate has been assumed to be 4 seers per acre.
- Replacement of seed would be at the end of five years. It is assumed that 25 per cent of the growers in the package deal areas will not keep their own seed and will require fresh supply from Government.

On the basis of these assumptions, the total annual requirement of improved seed is estimated at 43,500 maunds by 1977-78. Nucleus seeds and foundation seeds will be multiplied in the seed farms of Bangladesh Central Jute Committee (BCJC) and through registered growers who will produce certified seeds which would be distributed amongst the jute farmers of the package deal areas. The quality of seed will be checked by an independent seed certification agency to be set up under the Ministry of Agriculture.

The general recommended dose of fertilizer per acre is 45 seers urea, 22·5 seers TSP and 22·5 seers Murate of potash. The requirements will vary somewhat depending on the soil types. It would be necessary to formulate recommendations based on soil fertility tests for each broad soil tracts separately. Available indications are that the response to TSP is only marginal and the actual recommended dose could be reduced to maintain reasonable phosphatic nutrient level in the soil. The requirement of potash for jute is, however, well demonstrated, and more active extension efforts will be necessary to push the application of potash fertilizers in jute as it improves the quality of jute and increase resistance against diseases.

Jute is subject to attack by pests and diseases. Plant protection measures will have to cover the entire jute crop. Unless pests of jute crops in all the areas are simultaneously controlled, infestation may spread from one area to another. The requirement of pesticides has been calculated on the assumption that if at least 60 per cent of the area is covered on the basis of three sprays per acre, protection to 100 per cent area can be expected. Requirements of pesticides and sprayers for the project areas have been calculated on the basis of 3 pounds of pesticides for three sprays per acre.

Both yield and quality of jute depend greatly on the agronomical practices that are followed, *i.e.*, timely sowing, optimum plant protection, time of harvest, weeding operation, etc. One of the important measures to reduce cost as evolved by the Jute Research Institute is to sow jute in line and use mechanical implements (Wheel-hoe) for weeding which constitute a substantial item in the cultivation cost. Line sowing of jute during the optimum period as recommended by the Jute Research Institute assures maximum yield with all the inputs. In certain areas in North Bengal provision of irrigation water will enable farmers to sow in time and thereby maximize yield, as in these areas drought causes delay in sowing and drastically reduces yield.

The success of the jute programme will depend to a large extent on the scale and intensity of training of jute growers in the adoption of improved practices. Not only supply of inputs will have to be adequate and timely but also the farmers must know how to use the inputs effectively. The existing agricultural extension organisation will be strengthened by appointment of additional jute staff. Some staff appointed under the pilot scheme are already in position. The extension staff will check and support village level staff who will be trained from among the progressive farmers. A number of these progressive farmers have already been trained for this purpose during the last three years. The extension staff at the thana level and district level will be trained at the Jute Research Institute and they, in turn, will train the farmers. The operation of the jute workers will be constantly supervised by the special jute extension staff at the thana and district level. The programme will be evaluated annually to assure effective implementation. The major jute districts will be taken under the jute development programme. The selection of area under each thana for development programmes will be based on the intensity of jute cultivation.

For successful implementation of the jute production programme an amount of Tk. 10·0 crores has been earmarked for supply of credit to jute growers through Jatio Samabaya Bank, Thana Central Co-operative Associations and Scheduled Banks. The credit will be linked with guaranteed purchase operations by state trading agencies as this will ensure better realization of loans.

Government should fix a statutory minimum price every year taking into consideration the cost of cultivation, price of rice, internal and external demand for jute and other relevant factors. Since state trading agencies operate at the secondary markets, the minimum price is rarely available to jute growers as most of them (70 per cent) sell their jute in their homesteads or the primary markets. Besides, growers sell unassorted jute and thus are deprived of the higher price for quality jute. The requirements for the growers to get minimum price will involve; (i) formation of jute growers' co-operative linked with warehousing Corporation-cum-Kutcha presses, (ii) opening of many purchasing centres at primary markets by state agencies which will have adequate financial support, (iii) making purchases on the basis of assorted grades and setting up of regulated markets for controlling moisture and weights, etc.

It would be necessary to evolve higher yielding and higher fertilizer responsive varieties which will also have higher fibre percentage. Similarly, varieties that are photoneutral and of short duration are required in multiple cropping areas. To carry out research more intensively and effectively it would be necessary to strengthen the Jute Research Institute with competent staff, laboratory equipment and field facilities, etc. The Institute will also co-ordinate the research activities of the technological and agricultural wings, and plan and implement a comprehensive research programme. If necessary, as a short term measure, expatriates may be appointed in areas and fields where expertise is lacking.

Many government agencies are involved in the processes of production, marketing and research of jute. A central authority should be set up which will co-ordinate the activities of these agencies and also formulate policies and programme in the field of jute.

3. Tobacco

Tobacco is an important crop of Bangladesh especially in Rangpur district. The acreage and production of tobacco remained almost static at about 1·10 lakh acres and 8·60 crore pounds respectively during the late sixties. *Matihari* tobacco, which is grown all over Bangladesh, accounts for about 66 per cent of total production and is mainly used for *hukka, bidi* and chewing purposes. *Jati* tobacco, which accounts for about 30 per cent of total production is generally grown in Rangpur and used for *bidi*, chewing, *zorda, kiman, hukka* and also for the manufacture of low grade cigarette. Manila and Sumatra varieties are grown only in Rangpur and Cox's Bazar and used for making cigars. Cultivation of flue-cured and air-cured Virginia, generally used for making cigarettes, has recently been started in Kushtia, Jessore, Rangpur and Dinajpur.

Per capita annual consumption of tobacco and tobacco products during the period from 1966-67 to 1970-71 was 1·80 lbs. With the gradual urbanization and change in consumption habits the demand for *hukka* and *bidi* tobacco is being substituted by cheap cigarettes. Allowing for an annual growth of demand for cigarettes at an estimated rate of 5 per cent, the projected requirement of cigeratte and other types of tobacco products by the end of the Plan period comes to 6·38 crore lbs. and 8·60 crore lbs. respectively.

It is expected that with the introduction of improved technology and application of fertilizer in moderate quantity, it may be possible to meet the requirement of tobacco from a total acreage of 1·48 lakh acres (0·70 under cigarette tobacco and 0·78 under other types) as against the present acreage of 1·10 lakh acres. The additional acreage can be obtained by bringing under cultivarion the current fallow lands available in Jaldaka, Nilphamari and Domar of Rangpur, Kushtia, Jessore and Dinajpur.

Total production of cigarette tobacco and other types have been fixed at 14·80 crore lbs. of which cigarette tobacco accounts for 6·20 crore lbs. and the rest accounts for 8·60 crore lbs. The projected consumption and production of tobacco are shown in Table VIII-9.

TABLE VIII-9

Projected Production and Consumption Demand for Tobacco during the Plan Period.

(In crore lbs.)

Year.	Consumption Demand.			Projected Production.		
	Cigarette types.	Other types.	Total.	Cigarettes types.	Other types.	Total.
1973-74	5·250	8·600	13·850	1·550	8·600	10·150
1974-75	5·515	8·600	14·115	2·640	8·600	11·240
1975-76	5·788	8·600	14·388	3·830	8·600	12·430
1976-77	6·078	8·600	14·678	5·000	8·600	13·600
1977-78	6·381	8·600	14·981	6·150	8·600	14·750

The production of cigarette tobacco will be progressively increased and by the end of the Plan period the import of tobacco will almost be eliminated.

To attain self-sufficiency in cigarette tobacco, the main strategy would be to increase production on the following lines:

(i) to bring about 70,000 acres under cigarette tobacco (28,000 FCV+42,000 ACV) by organising the growers;

(ii) to train tobacco growers in the production, curing and grading of tobacco, particularly flue-curing of locally grown virginia tobacco;

(iii) to construct and manage about 15,000 barns of different sizes for flue-curing of locally grown virginia tobacco;

(iv) to ensure proper marketing facilities;

(v) to conduct research to evolve high yielding varieties of tobacco, improved cultural practices and technology at lower cost;

(vi) to produce virus free seeds, specially of virginia tobacco in the farms of Research Institute;

(vii) to arrange supply of credit, fertilizer, pesticides and other essential facilities to tobacco growers in adequate quantity and in time;

(viii) to set up storage facilities to enable small growers of *Matihari* and *Jati* tobacco to avoid post-harvest sale at a very low price.

A total quantity of about 29 thousand tons of fertilizers, 800 tons of insecticides and fungicides and 9 tons of tobacco seeds will be required during the Plan period for the programme.

4. Sugarcane

Sugarcane is grown in almost all the districts of Bangladesh but more than two-third of the total acreage are in Dinajpur and Rajshahi districts. During the period 1962-63 to 1969-70, the total acreage under sugarcane increased from about 3 lakh acres to 4 lakh acres while the yield per acre which remained more or less constant at 15 tons. The increases in acreage have been mostly outside the mill zone which has gone up from 1·42 lakh acres to 1·80 lakh acres. The percentage of recovery of sugar in the past has shown a downward trend from 8 per cent to 6 per cent resulting in less production of sugar. Both inadequate supply of cane and low recovery rates have led to higher cost of production of sugar. Delivery of cane to the mills was about 50 per cent of their crushing capacity. In 1962-63 the per capita availability of sugar and gur per annum was 3 lbs. and 4 lbs. respectively. In 1969-70 the per capita availability increased to 4 lbs. of sugar and 7 lbs. of gur.

Inadequate supply of cane to mills and low recovery were due to (i) lack of price incentive to the cane growers, (ii) supply of inferior quality of cane to the mills by the farmers due to fixed price of cane, (iii) poor yield due to lack of HYVs, judicious application of fertilizer, better cultural practices, insect and pest control measures and irrigation and drainage facilities, (iv) inappropriate location of sugar areas, difficulties of transportation and inefficient extraction process in the mills.

Considering the past consumption trend, milling capacity, possible growth rate of cane production, the projections of demand and supply of sugarcane have been made as follows:

(i) The total requirement of sugar and gur by the end of 1977-78 will be 1·90 lakh tons and 3·0 lakh tons, respectively (at the rate of 5 lbs. of sugar and 8 lbs. of gur per capita).

(ii) For this amount of sugar and gur 28·20 lakh tons and 46·00 lakh tons of cane, respectively will be required.

(iii) The yield per acre is expected to rise to 20 tons in mill-zones and 17·8 tons in gur areas.

The following steps will be taken to achieve the targets of production:

(a) Introduction of HYVs, fertilizers, pesticides, irrigation and drainage facilities in both mill and gur zones to increase per acre yield.

(b) Payment of incentive price to cane growers on the basis of quality of cane supply.

(c) Adequate extension and credit facilities.

For the mill zone the following measures would be necessary:

(a) Concentration of cane production and procurement within five miles of the mills.

(b) Improvement of roads and transport facilities within five miles of the mills.

(c) Improvement of procurement and payment by the mills to minimise waiting at the cane delivery centres.

(d) Entrusting the Sugar Mills Corporation with the responsibility of supply and services of all inputs including credit requirement of the growers in the mill zone area.

(e) Sugar industry sector will create facilities for industrial utilisation of molasses for the production of spirit, alcohol, dextrin, yeast, etc. Molasses can also be used for feed-supplement of livestock. Simultaneously, the industrial utilisation of bagasse in hard-board and paper industry may be another source of income to the Sugar Mills Corporation.

Total requirements of fertilizer and pesticides have been estimated at about 2·50 lakh tons and 1,800 tons respectively during the Plan period. Total requirement of seed-cane for covering an acreage of 4 lakh at the ratio of two-third under new crop and one-third under ratoon is estimated to be 26·50 lakh tons during the Plan period (calculated at the rate of 2 tons per acre).

5. Cotton

Extra short staple Comilla Cotton is grown in a system of shifting agriculture on some 33,000 acres in Chittagong Hill Tracts area producing about 13,000 bales. Comilla Cotton fibre is extremely short and rough which are ideal qualities for mixing with wool and, therefore, it gets premium in the market over other cotton in the sub-continent. Efforts will be made to increase the production of this cotton by moderate application of fertilizer and insecticides. According to the statistics of the Directorate of Soil Survey, an approximate acreage of 4 to 5 lakh may be suitable for medium staple cotton in Rangpur, Bogra, Dinajpur, Khulna, Jessore and Dacca, under irrigation. Moreover, in some parts of Tista silt and alluvial tracts of Rangpur and Dinajpur districts, medium staple cotton can also be grown practically without irrigation and fertilizer application with an average yield of 10 to 12 maunds of seed cotton per acre. Assuming that the present usage of 2·4 lbs. cotton fibre *per capita* per annum remains constant, the fibre requirement for the projected population by the end of the plan period comes to 5·10 lakh bales. At present Bangladesh has 45 spinning-mills with 8,30,700 spindles, besides about 200,000 spindles are under installation. It is estimated that about 5·0 lakh bales of cotton will be required annually to run these textile mills.

Since production of medium staple cotton will be a new venture in Bangladesh agriculture, a very cautious approach will be needed. By the terminal year of the Plan, it is proposed to produce 63,000 bales of raw cotton from an area of 50,000 acres against the total requirement of 5·0 lakh bales by the end of the plan period. As a by-product 3,300 tons of cotton oil and 17,000 tons of oil cake will also be available.

In the initial years a modest beginning will be made on the following lines:

(i) to distribute the C-1 and C-5 varieties of cotton to the prospective growers;

(ii) to train the pest control staff in Chittagong Hill Tracts cotton area;

(iii) to start the multiplication programme of these two varieties and to install—small ginneries in some of the selected cotton growing area;

During the first two years cotton would mainly be grown for field experimentation, staff training, seed multiplications and demonstration purposes on government farms and in some textile mill areas covering minimum acreage of 450-500 acres. In addition, field research would be concentrated on various agronomic aspects of the crop.

In the later years, the programme will include:

(i) Wide spectrum variety screening and seed bulking, along with improved technological and cultural practices under local conditions.

(ii) Large scale demonstration using improved varieties and cultural practices, along with a sound training programme for the growers.

(iii) Textile Mills Corporation will be entrusted with the responsibilities of village ginning before purchasing the fibre from the growers.

6. Potato

Potato is a popular vegetable item and is grown in all the districts of Bangladesh. However, the main concentration of areas under potato are in the districts of Dacca, Comilla, Bogra, Rajshahi, Dinajpur and Rangpur. Acreage under potato steadily increased from 1·40 lakh acres to 2·00 lakh acres during the late sixties. Production has similarly gone up consistently from about 4·0 lakh to about 8·0 lakh tons during the same period. Imported high-yielding varieties contributed greatly to this increased production.

In order to meet the increased demand for potato, which is expected to rise due to increased population and urbanization, the production target has been fixed at 11·00 lakh tons by 1977-78 compared to the bench-mark production of about 8·0 lakh tons.

This implies an increase of production by about 38 per cent in five years. The main strategies that will be adopted to increase the output of potato will be as follows:

(i) The acreage under potato will be maintained at the existing level. The increased output will be obtained by augmenting per acre yield substantially. The yield rate is expected to increase by a maximum of 50 per cent over the present level (150 maunds per acre as against 100 maunds) over a period of five years.

(ii) High yielding varieties will be imported and further multiplied in the country for distribution to farmers on an extensive scale.

(iii) Additional capacities will be created for preservation of potatoes for both seed and consumption purposes. These storage facilities will not only help avoid wastage but will also even out the seasonal fluctuation in prices and thus provide incentive to farmers.

At present only 40 per cent of the recommended dose of fertilizers is used by farmers. Even with this application they get a fair yield. As application of fertilizers along with improved varieties provide a high return, it will be realistic to expect farmers to use the recommended dose of fertilizer, which is estimated to rise from 2·1 maunds per acre to 4·6 maunds per acre by 1977-78. On this basis, the total requirement of fertilizers for potato during the plan period will be 1·25 lakh tons.

It has been proposed to cover 100 per cent of the potato area at least by one spray. This is necessary to protect the crop which is susceptible to pest attack. Requirement of insecticide is estimated at 20 lakh lbs. and fungicides at 10 lakh lbs.

Requirement of seeds to cover 2 lakh acres comes to about 94,000 tons per year. At least 5 per cent of the requirement will be imported in the initial years for multiplication but in the subsequent years the import of seeds can be gradually reduced.

Cold-storage facilities will be provided in accordance with the production in major potato growing districts so that potato can be preserved both for seed and table purpose. Programmes for cold-storage will be included in the industrial programme of the country in the plan period.

Emphasis has to be given on evolving suitable high yielding varieties through a sound breeding programme. Research work on these lines will be undertaken.

7. Oilseeds

A large number of oilseed crops are grown in this country, out of which mustard and sesame have the largest coverage and also consumers' preference. Groundnut is a crop with high yield potential and therefore needs to be singled out for special attention. In 1969-70 the area under mustard, sesame and groundnut was 5·40 lakh acres, 1·20 lakh acres and 0·80 lakh acres respectively. The total production of edible oil was only 0·60 lakh tons against a total requirement of 1·80 lakh tons. The yield rates of almost all the oil seed crops are very poor due to poor cultivation practices, lack of use of fertilizers, particularly nitrogen and phosphorous, and lack of control of insect pests.

It is estimated that at the rate of 2·62 seers of oil consumption per capita the total requirement of edible oil will be about 2·0 lakh tons in 1977-78 or in terms of seed approximately 6 lakh tons. Considering the requirement and production possibilities the target of oil seeds production has been fixed at 4·0 lakh tons in 1977-78 against a base year (1969-70) production of 2·0 lakh tons. The total production of edible oil will be about 1·30 lakh tons which is about 70 per cent of the total requirement.

The programmes for oil production will aim at increasing yield of mustard and increasing acreage and yield of groundnut. A total acreage of 2·50 lakh will be brought under an intensive mustard cultivation programme. The extension of area under groundnut will be possible in the districts of Dacca, Bogra, Comilla, Noakhali, Sylhet and Kushtia without affecting the rice or jute acreage. The existing area under sesame will be left under normal production programme.

The Agricultural Research Institute will undertake applied research programme for improvement of production technology and development of HYV oil seeds. Incentive prices will be fixed in consultation with the oil mills and will be announced every year before sowing season. A total quantity of 1.68,000 tons of chemical fertilizer and 46,300 tons of seeds will be required during the Plan period. Plant protection measures will be adopted in the intensive production areas to prevent losses due to pests and diseases.

8. Pulses

Pulses like-kheshari, mug, masur, gram and peas are important sources of protein especially for low income group people. The present consumption of pulses is only 8 grams per capita per day. The desirable consumption considering nutritional requirement would be about 29 grams per day. Therefore, it is imperative that production of pulses be increased to meet the objective of higher nutritional standard especially of the poorer section of the community.

With the increasing irrigation facilities, a decline in the acreage of pulses is more likely during the initial years due to higher profitability of rice, potato and tobacco, etc. The programme for production of pulses is expected to correct this situation.

The target of production of pulses is fixed at 3·50 lakh tons in 1977-78 from a base production of 2.90 lakh tons, an increase of about 21 per cent. This target has been fixed keeping in view the production possibilities by the use of modern inputs. The acreage under pulses will be maintained at the present level of 9·20 lakh acres but the yield per acre will be increased from 8 maunds to 10 maunds per acre. The increase in yield rate will be achieved by:

(i) introducing high yielding varieties of seed;

(ii) introducing phosphatic fertilizer, sowing in line and effective plant protection measures;

(iii) increasing the area under masur by reducing area under kheshari.

The estimated total requirement of fertilizer is 0·26 lakh tons of TSP. Improved varieties of seed will be imported. The Agricultural Research Institute will test the suitability of improved seeds under local conditions.

9. Tea

Tea plantation occupies 1,10,000 acres, employing about 1,40,000 workers, and provides about 4 per cent of Bangladesh export earnings. Formerly it enjoyed a subsidized and protected market in Pakistan. Now it must compete and at a lower price than before. Over the next 5-7 years Bangladesh tea will meet severe competition from high-yielding, low cost clonal varieties developed elsewhere. The local growers have not only failed to replant with such varieties but have also neglected to fill dead tea bushes in mature plantations. They also neglected prunning and factory development. The present unsatisfactory state of affairs may be ascribed to three factors: (i) lack of a clear policy on ownership of tea lands, (ii) unremunerative prices at least since 1971, and (iii) failure to encourage replanting and associated research. The present production of tea in Bangladesh is shown in Table VIII-10.

TABLE VIII-10.

Present Production of Tea in Bangladesh.

Class.	No. of gardens.	Total area covered by the tea estates. (Acres)	Area under Production (Acres)	Production m. lbs.	Average production per acre (lbs.)
All 'A'	59	1,76,993	78,257	58·44	746
(Sterling 'A')	(33)	(1,17,433)	(52,165)	(38·40)	(736)
'B'	14	27,091	10,230	4·38	428
'C'	34	43,923	10,974	5·37	358
'U'	40	31,180	6,539	0·81	120
Total ..	147	2,79,187	106,000	69·00	627

SOURCE: *Tea Enquiry Committee Report.*

Note—Figures in bracket are included under "All A" class.

Tea land is leased only for five years at a time. In accordance with the Government's recent industrial policy statement, growers need to be assured that leases will be renewed for at least fifteen years and will not be taken over without fair compensation. The amount of compensation may be decided, if necessary, by agreed arbitration. Meanwhile experiments with commercially managed estates, co-operative plantations and with small holdings will continue.

Many estates are now failing to cover costs, and to adopt improved practices because of low prices. Tea gardens suffered heavy damages during the war of liberation and the production in 1971-72 was reduced to 40 per cent of that in a normal year.

Certain actions for improvement in yield and quality are indicated below:

(a) Intensive cultivation

Tea cultivation in Bangladesh has not been much intensive; not more than 50 per cent of the potentiality of tea land has been exploited. The extent of estimated loss due to different factors is:

Vacancy	25 per cent
Weeds, poor drainage, inadequate shade, insufficient fertilizer, faulty prunning, etc.	15 per cent
Pests and diseases	15 per cent
Lack of adequate irrigation	10 per cent

There is thus plenty of scope for increasing the crop from the land already under plantation by taking recourse to intensive cultivation which, *inter alia*, will involve weeding, drainage, proper shade plantation, application of fertilizer, proper prunning, pest and disease control, infilling of vacancies, irrigation facilities and replanting old tea sections.

(b) Production of other economic crops

As income from tea is declining, the tea estates can conveniently cultivate other crops side by side with tea in order to reduce the cost of production of tea. Cultivation of *Java citronella* had been taken up widely by the tea estates in Assam. Other crops that can be grown successfully in the tea soils of Sylhet and Chittagong are black pepper, cotton on the hills, rubber, pineapple and lemon. Cultivation of these crops will not only bring additional income for the tea estates but also will provide new avenues of employment for the surplus labourers.

(c) Repair of factories

The repair and renovation of the damaged factories and modernization of old worn-outones, although a long term programme, should be taken up immediately with a view to improving the quality of manufactured tea. The economy of a garden is largely dependent upon the modernization of its factory. Co-operative factories may be set up for small groups of gardens. The possibility of arranging the machinery for these co-operative factories on a hire purchase system could also be looked into.

The most important medium-term issue concerns replanting policy. Mature VP (vegetatively propagated) tea greatly increases yield, improves quality and cuts labour-cost. But there is a temporary sacrifice to the grower and to Bangladesh of the foreign exchange loss while the land (formerly yielding seed tea) is rehabilitated and replanted. Since labour costs are similar for replanting and for cultivation, reimbursement of output value foregone by loan (about Taka 300 per acre) would compensate the grower, provided he was confident of continued ownership (or fair compensation) and of a fair output price.

It is not at all obvious which land should be replanted whether to seed tea, or VP, and whether with irrigation. Also some land should be diversified out of tea. An Agro-economic team will be constituted by the Government to evaluate the desirable rates, location, and composition and changes in the use of tea lands; assess the foreign exchange costs, and identify potential sources of aids both for replanting and associated tea factory rehabilitation. The exact acreage and speed of replanting would be determined after the report by the team.

Considerable staff and other support are needed for the Tea Research Institute, in order to enable it to develop much greater amount and variety of clonal material. It will also require economic expertise to evaluate technical recommendations before extension, to suggest priority research areas, to evaluate land-use and pricing programmes by cost of production and price response studies on tea and possible alternative crops and to investigate possible measures to improve the condition of tea estate labourers, especially through improved farming of their homestead land.

It will be desirable to have the Tea Board near the tea estates. The responsibility for the management of the nationalised plantations is being transferred to the Tea Industries Management Committee (TIMC) which, with a manager and an elected committee of the workers, should perform day to day business within a given policy framework.

(d) Programme outlay

The cost of the programme has been estimated to be Taka 26·10 crore for the plan period. Itemwise and yearwise distribution of cost is shown in the table below:

TABLE VIII-11

Cost of Tea Programme

(Taka in crore)

	1973-74	1974-75	1975-76	1976-77	1977-78	Total.
Replanting of Tea lands ..	1·5	3·0	4·5	6·0	7·5	22·50
Co-operative Tea factories ..	0·2	0·2	0·1	..	..	0·5
Factory Rehabilitation ..	0·4	0·4	0·4	0·3	..	1·5
VP Sub-stations (TRS) ..	0·4	0·3	0·3	..	..	1·0
TRS Research/Extension ..	0·2	0·1	0·1	0·1	0·1	0·6
Total ..	2·7	4·0	5·4	6·4	7·6	26·10

The replanting and factory rehabilitation loans will be fully recoverable with interest from the growers. The cost of VP Sub-stations will be partly recovered from the sale of clonal material.

(e) Recommendations

The problems faced by the tea industry today need more careful and sympathetic appreciation from the financing institutions to enable them to overcome the crisis. Certain steps are suggested below:

(i) The ADBB and the Commercial Banks should continue to grant hypothecation loans to the tea industry on usual terms and conditions on a monthly requirement basis.

(ii) The rate of interest on hypothecation loan advanced to tea estates by the Agricultural Development Bank should be the same as that charged to other sectors in agriculture.

(iii) The consortium of banks created for meeting the financial requirements of industries sector should come forward to advance adequate loans to the tea industry. With the risks being shared by all the banks in the consortium it should not be difficult for them to meet the requirement of the tea industry.

(iv) It was felt that the cash credit basis to these gardens could be 80 per cent of the anticipated price of the crop as against the current estimates of 75 per cent particularly when the Agricultural Development Bank of Bangladesh has obtained a Government guarantee.

(v) Customs duties on fertilizers, pesticides and irrigation equipment, etc., should be reduced to the level of the rates for the agriculture sector.

(vi) Special credit facilities to gardens should be arranged for intensive cultivation infilling vacancies in young gardens, growing a second crop along with tea and other improvements of gardens.

(vii) For sales promotion the following actions are suggested:

Sales promotion teams should be sent to countries importing large quantities of tea including those in the Middle East and Africa as soon as such contracts are feasible.

A 'Bangladesh Tea Centre' should be organised in London as done by Ceylon and India, since London is still the biggest tea centre of the world.

Tea may be included as an item of exchange in commodity agreements entered into by the Government particularly with those countries which are major importers of tea.

Sales promotion means should be assisted by such measures as production of tea bags which seem to attract consumers' preference.

10. Fruits and Vegetables

Acreage and production of fruits and vegetables in Bangladesh have not shown much increase during the last twenty years. At present about 10 lakh acres of land are under

fruits and vegetables with a total production of 16·10 lakh tons and 26·90 lakh tons respectively. The yield per acre is very low. The current level of consumption of fruits is only 1·33 ounces per head per day which is declining. The factors listed below are directly and/or indirectly responsible for the inadequate supply and availability of fruits and vegetables:

(a) non-availability of requisite number of good variety of seeds and seedlings;

(b) lack of organised fruit and vegetable marketing system;

(c) inefficient transportation system;

(d) lack of sufficient information on modern techniques of fruit and vegetable cultivation;

(e) inadequate facilities for storage, canning and preservation;

(f) lack of sufficient number of technically qualified personnel and well-co-ordinated approach between public and private agencies.

The soil and climatic conditions of the country are suitable for successful cultivation of various kinds of horticultural crops and there is, therefore, considerable scope for increased production, both through expansion of acreage and increased yields per acre. Experiments conducted so far in different orchards clearly indicate the potentialities of raising per acre output by application of highly productive inputs under proper management.

To lay a proper base for the development of horticulture during the First Plan period, it is proposed to bring all aspects of development, *i.e.*, extension, supply of seeds and seedling, pesticides, implements, credit, marketing, processing, etc., under the operational control of the Horticultural Development Board already established for such purposes. To start with, the Horticultural Development Board will have under its control and supervision the existing 44 orchards/nurseries belonging to the Directorate of Agriculture (E&M) and BADC and also abandoned farms. Chittagong Hill Tracts Development Project and the Agricultural Development Estates under BADC will also be transferred to the Board. The functions of the Board will be as follows:

(a) to survey the demand and preference for various fruits and vegetables in urban and rural areas together with "Nutrition" drive for effective use of suitable fruits and vegetable;

(b) to supply disease free seed and nursery stock by private and Government agencies under strict supervision. As soon as possible, local farms and agencies will be established to multiply seed and seedling stock of locally established varieties. Development of improved nursery stock of litchi, mango, cocoanut, guava, banana and papaya would be given special attention;

(c) to evaluate the existing nursery and horticultural projects critically, with a view to recommending their continuation, rehabilitation or discontinuation;

(d) to conduct field research in screening the existing varieties and development of improved varieties of horticultural crops;

(e) to encourage development of gardens in the private sector on a 'Project Area' concept by supplying of fertilizer, seed, pesticide, under direct guidance and supervision of the extension staff; and

(f) to introduce co-operative marketing management.

With the execution of the programmes to be drawn up by the Horticultural Development Board, it is expected that by the end of the plan period, there will be an increase in the production of fruits and vegetables to 18 lakh tons of fruits and 29 lakh tons of vegetables. The production will increase by about 10 per cent in case of banana, papaya and pineapple and 5 per cent in case of tree fruits. Research under the supervision of Agricultural Research Institute would be concentrated mainly on the most important types of quick-growing fruits as a short term measure and the tree fruits in long term perspective.

8.1.4 Fisheries

A. *Introduction*

Few countries of the world of comparable size, physiography and climate enjoy such vast fisheries potential within their boundaries and territorial waters as Bangladesh. Although there is no reliable information, it is estimated that more than 30 lakh acres of different types of water bodies constitute the inland fisheries resources, whereas the territorial waters cover an area of over 25 lakh acres. In addition to these, sixty to seventy lakh acres of paddy field which remains under water for three to six months, may be used as seasonal fish rearing grounds.

Fisheries sector plays a significant role in its contribution to Gross Domestic Product, foreign exchange earning, employment and nutrition of the people of Bangladesh. It is estimated that approximately 8 per cent of the population of Bangladesh derive their livelihood directly or indirectly from the fisheries sector. Prior to 1965, fish exports accounted for about Taka 5 to 8 crore a year. The role of fisheries in supplying animal protein is even more vital as evident from a past Nutrition Survey which shows that more than 80 per cent of the animal protein comes from fish alone.

Whereas an average person requires about 25 grams of animal protein a day for maintaining normal health, an average Bengali gets less than one-third of this per day. Development of fisheries resources provides a promising means for reducing the protein gap in the diets of the people.

B. *Present Position*

The important activities undertaken during the period between 1960-70 for inland fisheries development included reclamation and development of derelict waters for fish culture, establishment of fish seed multiplication farms, nurseries and fish sanctuaries. A research station for biological and technological research work, and training institutes for training of fisheries personnel and fishermen, were set up. The fisheries activities of the public sector was, by and large, limited to inland waters until 1964 when the Fisheries Development Corporation was created for exploiting marine resources. In order to survey and explore the fisheries potential of the Bay of Bengal and to conduct a comprehensive study of the overall marine fisheries resource potential, a pre-investment survey was undertaken in collaboration with UNSF/FAO. The survey was, however, discontinued due to the War of Liberation. The preliminary findings of the survey appear to be encouraging in terms of availability of fishery resources in the Bay.

Other major activities of the Corporation included mechanization of fishing boats, construction of wholesale fish markets and fish landing terminals, and establishment of a fish harbour.

Due to lack of reliable statistics, it is very difficult to assess the overall impact of various development activities of the Fisheries Sector on the production of fish in the country. Without going into controversies, it is safe to state that the increase in fish production, if at all has not been satisfactory during the past decade.

Some of the problems and constraints inhibiting and retarding development of fisheries resources are (i) profit oriented catching and revenue oriented management system without due regard for future conservation, (ii) destruction of many important natural fish habitats due to the withdrawal of water by low lift pumps for crop production, (iii) indiscriminate use of pesticides and fungicides which prove to be toxic to fish population and (iv) construction of coastal embankment and estuary enclosures interrupting natural breeding, and causing discontinuity in the life-cycle of fish. Unsatisfactory achievements in production, and development of fisheries can also be attributed to (a) poor socio-economic condition of the fishermen, (b) multiple ownership of the private ponds, (c) lack of facilities for preservation, quick transportation and efficient marketing of existing catch of fish. In addition, development activities could not be accomplished to the desired level due to delay in the release of required funds in time, and shortage of trained technical manpower.

C. *Objectives and Targets*

During the first Five Year Plan, the objectives in Fisheries Sector will be:

(i) to increase fish production by about 26 per cent at the terminal year, *i.e.*, from a benchmark production of 8·09 lakh tons in 1969-70 to 10·21 lakh tons in 1977-78;

(ii) to maximize the utilization of fishery resources, both inland and marine;

(iii) to improve the socio-economic conditions of the fishermen;

(iv) to create greater employment opportunities in fishing and ancillary industries; and

(v) to increase fish export, *i.e.*, about 20,000 tons by 1977-78.

To supply in the terminal year approximately 8·50 crore people each with 25 grams (minimum requirement on the international standard) of animal protein a day Bangladesh will require at least 7·78 lakh tons of animal protein. If only 50 per cent of this is to be met from fish, 19·45 lakh tons of fish production will be required (1 gram of animal protein is equivalent to approximately 5 grams of fish). This means that about 140 per cent increase of fish over benchmark production will be necessary. This will, however, be an unattainable target. The fish production target of 10·21 lakh tons (Table: VIII-12) as set in the plan will allow only restoration of the consumption of 6·4 grams (1962-64 level) of animal protein from fish *per capita* per day and an export of 20,000 tons of fish in the terminal year.

TABLE VIII-12

Estimate of Fish Production.

Source.	Agency.	Benchmark Production 1969-70.	Target Production Source and agency-wise in 1977-78.	Percentage increase in production over the benchmark.
1	2	3	4	5
			(In tons).	
Marine ..	B. F. D. C.	..	92,200	
	Fishermen's Co-operatives	..	70,000	
	Private Fishermen ..	..	16,300	
	Sub-Total ..	90,000	178,500	98
Inland ..	B. F. D. C.	..	5,000	
	Fisheries Department ..	..	16,300	
	Fishermen's Co-operatives	..	730,000	
	Private Fishermen ..	..	91,500	
	Sub-Total ..	719,000	842,800	17
	Grand Total ..	809,000	1,021,300	26

D. *The Strategy*

The highlights of the strategies to be adopted and the programmes to be executed during the First Plan period for achieving the objectives are as follows:

(1) To expand fishing in the Bay of Bengal by increased number of mechanized crafts and gears. In addition to 10 trawlers donated by the USSR and other three already existing, 20 more trawlers of 60—100 ft. length will be either locally built or imported. For catching fish in the shallow regions of the sea, 2,000 mechanized country boats are proposed to be introduced.

(2) To augment production in the inland fisheries by intensifying fish culture. As many derelict water areas as possible will be reclaimed, developed and brought under scientific fish culture and management. Optimum fish production in all water bodies including Kaptai Lake which are already under fish culture, will be ensured. The owners of the private ponds will be given all necessary assistance in the form of technical know-how, fingerlings and fertilizers at subsidized rates so that they get sufficient incentive to bring their ponds under scientific fish culture. In addition 1,400 boats powered with engines will be in operation in the estuarine and other inland waters.

(3) To launch an extensive training programme for marine fishing in order to train sufficient number of crew including skippers and engineers. Availability of trained crew personnel will be quite crucial for future expansion of the existing trawler fleet.

(4) To establish a well organized and scientific system for collection, preservation and marketing of fish in order to eliminate loss of fish through spoilage. The proposed system will not only ensure distribution of fish to the consumers at reasonable price in the areas remote from the landing centres but will also ensure reasonable remuneration to the poor fishermen.

(5) To conduct a systematic survey on various aspects of inland fisheries to obtain reliable information for future planning and development. The programme will include comprehensive studies on resource and stock assessment and management; survey of fishermen, types and efficiency of fishing gears in use, fish consumption rate, handling, transportation and spoilage; survey of fish markets and study of the economics of the inland fisheries industry.

(6) To ensure proper extension of scientific fish culture methods to the fish farmers by placing at least one trained Fisheries Extension Officer in each Thana.

(7) To conduct problem-oriented research in various aspects of fisheries by establishing two Central Research Institutes -one for inland fisheries and one for marine fisheries and oceanography each having a wing for technological research.

(8) To expand export potential of fish, including shrimp, frog, shark and other fisheries organisms which have relatively lower local demand.

(9) To establish new or expand existing multipurpose industries for processing and utilization of fish, fish wastes, oil and non-edible items.

(10) To protect the small fishermen from exploitation. The present system of fish exploitation from public waters, and marketing of the fish, will be changed so as to render the fishermen free from the grip of the lessees and other middlemen in the fishing. Co-operative organization of fishermen will be encouraged for providing them material inputs including credit more easily and for fostering the spirit of self-help among themselves.

(11) To bring about institutional changes and re-organisation in the Fisheries Service, so as to remove the administrative constraints that hinder successful development. For successful implementation of the programmes to be launched during the plan period, it is estimated that about 300 technical graduates, 265 diploma/certificate holders, and 1,000 skilled personnel will be required.

E. *Organizational and Policy Issues*

At present the following organizations are involved in the Fisheries Sector :

—Department of Fisheries.
—Bangladesh Fisheries Development Corporation.
—Co-operative Directorate.
—Revenue Ministry.

1. It is proposed that in order to avoid overlapping or duplication of efforts the jurisdiction of operation of each organization be clearly determined. It is recommended that the ownership of public water fisheries be immediately transferred from the Revenue Ministry to the Department of Fisheries for scientific fish culture and management under biological principles. The Fisheries Department will also be responsible for research, extension and legislation. It will be concerned with training of personnel of only the inland fisheries Sub-sector. The responsibilities for overall development and management of inland fisheries will lie with the Fisheries Department. The fishermen co-operatives, formed by the Co-operative Directorate, will abide by rules and regulations laid down by the Fisheries Department. The BFDC will be primarily responsible for commercial aspects of fisheries including commercial exploitation, marketing, and setting up of infrastructural facilities, like fish landing terminals, cold-storages, wholesale fish markets, etc., whether inland or marine. The Corporation may have its own research and quality control units to cater to its special needs. In addition, BFDC will arrange training for the crew and other essential staff required for operating the trawlers for marine fishing. For efficient functioning the corporation should be given reasonable autonomy. Similarly the Research Institutes should also enjoy maximum autonomy.

2. To avoid overlapping of marine and inland catch statistics and to remove all possible administrative confusion, the inland waters will be defined as all waters including estuarine waters lying within the coast line while the areas beyond the coast line will be identified as marine waters. The zone beginning from the coast line up to the limit of 12 miles into the sea, will continue to be known as territorial or coastal waters.

3. All waters, not privately owned, be declared as natural resources. As long as the conservational laws to be laid down by the Government are properly respected, utilization of fisheries resources of the public waters will be open for exploitation by the licensed fishermen. All water bodies, not privately owned, would immediately be handed over to the Department of Fisheries for development, and management under biological principles. The existing revenue oriented management system will be abolished forthwith.

4. In the case of failure on the part of the owners of Private ponds, to bring their fish ponds under scientific fish culture despite the facilities to be provided to them, the responsibility for management of such ponds for optimum fish production will be vested with the Department of Fisheries through appropriate legislation. There will be an 'unutilized water area requisition and utilization act' which would vest with the Government the authority of reclaiming all unutilized water areas for fish culture. Such measures may ensure optimum utilization of all water areas for fishery development.

5. Bangladesh will preserve the exclusive right for exploitation of her inland and territorial fisheries. No foreign agencies will be allowed to exploit the above waters. Outside the territorial limit, joint ventures between the Bangladesh Government and foreign countries/ firms may be allowed.

6. The trawlers, belonging either to public or private sector, will limit their operations only in the marine waters, *i.e.*, outside the coast line.

7. Inland fish, with the exception of shrimp and frog which are either very high priced or not accepted as food locally, will be used mainly for the purpose of reducing protein deficiency in the country. The development of marine fisheries, on the other hand, will be export oriented. The marine catch after meeting the export requirement will supplement the inland fish resources to meet the internal demand. The idea of such differential policy on the use of fish of different sources is that in case of inland fisheries the production centres are mostly in the vicinity of consuming centres thus obviating the necessity of expensive refrigeration, transportation and marketing operations which are so much needed to dispose of marine catches.

8. Shore installation facilities at Khulna and Chittagong will be established and owned by the Public Sector but will be made available for use to the private sector as well. The export facilities could, however, be jointly exploited by Bangladesh Government and foreign firms.

9. Any water resource use will be given due consideration for fisheries and all possible measures will be taken to eliminate or minimize harmful effects on fisheries.

10. Rules already promulgated in the past or to be promulgated in future to prevent the destruction of undersized and brood fishes both marine and inland will be enforced by the Government with all vigour and earnestness.

F. *Plan Allocations*

The first plan envisages a gross investment of Taka 45·184 crores and net investment of Taka 30·984 crores in the fisheries sector (Table : VIII-13). A separate fund set aside for fisheries research is included in the Section dealing with Agricultural research.

TABLE VIII-13

Financial Outlay for Fisheries Sector during the Plan Period.

[Taka in crore]

Agency.	Gross Cost.	F.E.C.	Net Cost.
B. F. D. C.	18·476	8·148	8·476
Fisheries Department	16·708	5·781	12·508
Fishermen Co-operatives	10·000	5·000	10·000
Total demand (all agencies) ..	45·184	18·929	30·984

8·1·5 Forestry

The existing forest area of the country is inadequate to meet the growing requirements of timber and firewood. Pressure of population precludes any possibility of expansion of forest areas except in Chittagong Hill Tracts and emerging char formations in coastal areas. With reservation of available areas in these two regions, the total forest land under regular management of the forest service will be approximately 12·5 per cent of total area of the country.

By intensive resource management practices, making full use of production potentials of these forest lands, the minimum requirements of the country can be met by internal production of timber and firewood for sometime more.

The *per capita* consumption of timber and firewood based on actual availability, has been 0·40 cft. and 0·55 cft. respectively in 1969-70. This estimate has been based on the assumption that the production of timber and firewood from village sources had remained more or less the same at an estimated 1·2 crores cft. and 1·50 crores cft. respectively. This *per capita* consumption will rapidly fall if we cannot obtain a proportionate increase in production from Government forest sources in keeping with the increase in population.

A. *Present Position*

Large scale destruction of rural and urban houses has taken place during the War of Liberation. This has resulted in heavy felling of trees in rural areas. The situation has been further aggravated by banning timber and firewood extraction from Government forests since early 1972. This will seriously reduce future supply of timber and firewood from rural sources. Partly due to import restriction and due to the ban on timber extraction from Government forests, there is an acute scarcity of timber and firewood in the market with three-fold increase in price since 1970. The restriction might have also provided scope for large scale theft and smuggling of timber and firewood from the forests defeating the very objective of such restrictions. This calls for urgent review of Government policy so that planned extraction of timber and firewood, available on sustained-yield management basis, could be resumed according to prescriptions of approved working plans.

During the last decade much headway could not be made in bringing all the available forest lands under regular management of the Forest Department for various reasons. Systematic development of road communication facilities inside the forest also did not receive due attention. The programme of timber exploitation in Chittagong Hill Tracts has not steadily developed. The total production of timber and firewood from Government forests have actually declined from 2·490 crores cft. and 3·643 crores cft. respectively in 1964-65 to 2·047 crores cft. and 2·350 crores cft. respectively in 1969-70. Production was almost at the same level as in 1969-70. The entire requirements of timber and firewood of Bangladesh have been met so far from local production. The Government has been earning an annual revenue over Tk. 30·00 million up to 1969-70.

Mangrove forests of Sundarbans have continued to be managed under a Silvicultural system whereby replacement of annual cut of mature trees has been ensured by a natural regeneration process. But regeneration of the reserved forests in the hills under exploitation and those of the central and northern plain districts has been done through reforestation, while afforestation has been carried out in some of the waste lands and extensively depleted Government forests. During the period 1960-61 to 1969-70, a total of 90,911 acres have been regenerated by reforestation and 76,889 acres by afforestation. Compared with an average of 10 ton (500 cft.) per acre of timber available in existing hill forest under exploitation, the plantations raised by regeneration is expected to yield, at maturity, minimum 50 tons (2500 cft.) per acre of high quality timber with at least three times more stumpage value per cft.

About one-third of the total production of timber and firewood in the country comes from rural homestead lands. The aim of forest extension service is to replenish this stock and make fuller use of the available areas in homestead land for timber production by voluntary efforts of each rural and urban family in the country. The limited extension efforts has attained considerable success in seedling distribution (1·00 crore seedlings by 1972).

The F. I. D. C. has been entrusted with the responsibilities to develop timber extraction facilities in Chittagong Hill Tracts. In the pre-liberation period an annual extraction of 45,000 tons of timber by 1969-70 was envisaged. But largely due to lack of timely allocation of foreign exchange for essential equipment the progress has not been satisfactory. Maximum annual production of 28,000 tons was reached in 1968-69 and then it again gradually declined. The new Russian equipment brought in 1970 have proved unsuitable for timber extraction under local conditions. However, the Saw Mill and timber processing complex at Kaptai is almost completed with adequate processing capacity.

The rubber plantation programme has not progressed according to the scheme target. Against a target of 10,500 acres to be planted during 1965-66 to 1969-70 only 4,057 acres have been planted by 1971—73 though most of the allocation has been utilized. This is largely due to selection of unsuitable sites and repeated failures. Out of 3,000 acres raised during the period 1961—65 more than 700 acres have been abandoned. Against previous target of rubber production of 194 tons annually only 19 tons have been obtained in 1969-70. An expert evaluation team should go into the whole project of rubber plantation and recommend future course of actions.

B. *Objectives*

Future development of forests management should aim at:

(1) bringing all available forest lands and potential forest lands under regular management of the forests service by reservation and use them for multiple benefits;

(2) exploiting the low quality overmature growing stock of existing hill forests and regenerating them with high quality productive plantations of economic importance as quickly as possible;

(3) obtaining higher timber production per unit area by execution of a plantation policy of raising fast growing local and exotic species like tropical pines and storm resistant varieties of Poplar and Eucalyptus species in afforestation programme;

(4) judicious management of the mangrove forests of Sunderbans and extension of a forest belt along the coast for protection of inland agricultural land and habitations;

(5) making full use of homestead waste land in rural and urban areas for planting trees through intensive extension service;

(6) developing programme of wild life management and recreational facilities;

(7) developing adequate facilities for forest research and training of professional and technical personnel necessary for intensive management of forest resources.

C. *Highlights of the Programme*

The highlights of the programme during the Five-year Plan would be as follows:

(1) Immediate action should be taken to use the aerial photographs taken in 1969 of the forest areas of Dacca, Tangail and Mymensingh for inventory of forests for reservation after land use classification.

(2) Demarcation and reservation of those areas of unclassed state forests in Chittagong Hill Tracts which are earmarked for forestry according to the recommendation of the Committee set up for implementation of findings of the land-use survey.

(3) Reservation of Khas land on coastal areas of Noakhali, Barisal and Patuakhali districts will also be completed during the plan period.

(4) Roads to facilitate exploitation of forests in Chittagong Hill Tracts and Sylhet will be developed. A re-assessed annual cut in Sunderban forest is not likely to be more than 1·00 crore cft. of timber. This will mean a decrease of 11·20 lakh cft. in Sunderbans from the cut of 1969-70.

This will have to be made up by an increase in timber extraction in Chittagong Hill Tracts areas. For this purpose, construction of a total 50 miles of access road to Matamuhari and Upper Kassalong reserves is required. With road constructions and timely procurement of logging equipments it may be possible to reach a minimum annual production target of 60,000 tons in Karnafully valley and 20,000 tons in Matamuhari reserve by 1977-78. It will be necessary to review the principle of stumpage payment by the F.I.D.C. so that they are required to pay the stumpage on estimated standing volume of timber and firewood available in the annual cutting areas as against present arrangement of payment on actual extraction. This will ensure fuller exploitation and utilization of the available stock.

(5) In other hill forests outside Chittagong Hill Tracts, 100 miles of forest roads will be built with pucca bridges and extraction of an additional 10,000 tons in these areas.

(6) 100 miles of additional roads will be developed in bamboo forests of Chittagong Hill Tracts during the plan period. This will increase annual outturn by about 25,000 tons.

(7) Regeneration of exploited areas will be made mandatory with more vigorous species of economic importance and technological use. Teak is a decidous species which should not be raised on too short a rotation. Not more than 50 per cent area should be planted with teak which will be separated by sizeable strips of Mehogony, Champ, Toon, Pinkado, Chapalish and Kanjal. Such mixture will maintain a minimum balance in the future crop for multiple-use benefits. Enrichment planting will be done in the existing Natural Regenerations Plots (NRP).

(8) Annual afforestation programmes in Chittagong Hill Tracts and Chittagong districts will be suitably expanded. Teak seed collection and distribution to plantation centres should be centralised under Silviculture Division of F.R.I. to ensure quality seed collection under expert supervision. Development of seed orchards with pro-

geny from elite trees will be taken up. In afforestation programmes consideration should be given to meet future needs of two pulp mills in this region. Jackfruit trees, Cashewnut, and oil palms will be planted in suitable sites in afforestation programmes but under cultivated type management.

(9) Isolated small patches of forests in Dacca, Tangail, Mymensingh and northern districts will be managed as Community forests and larger compact blocks of forest should be managed for timber and firewood production. Such a policy is expected to obtain co-operation of the local people for forest conservation. Complete inventory of encroachments will be made and 7,000 acres of such areas will be reafforested with quick growing Eucalyptus and other economic species during the plan period. A pilot scheme of raising horticultural crops like pineapple, banana and citrus fruits as an under storey to forest trees will be taken up in these plain land forests in collaboration with Horticulture Board.

(10) It is necessary to carry out a fresh aerial survey of Sunderbans forests to locate and obtain an inventory of damages done by the war of liberation. The survey will assist in fresh assessment of annual growth and in adoption of a conservative prescription of annual cut to compensate the considerable overfelling done in the past.

(11) A pilot porject of excavating some 50 miles of drainage canals to improve conditions of Sundori natural regeneration in swampy areas is proposed. Dredging of relevant portions of Bhadra river is also envisaged after a feasibility study.

(12) A pilot scheme of enrichment planting of Golpata in deficient bank spaces of 500 miles (1,000 acres) of water courses in Sundarban forests will be undertaken and 1,000 acres of drier areas of it will be planted with storm resistent Eucalyptus, Babul and other species to improve productive capacity of these low quality forests. With past experiences of initial programme of afforestation in coastal areas an additional 20,000 acres will be planted and another 30,000 acres of char lands will be given protection.

(13) Rubber plantations in Bangladesh constitutes an industrial plantation programme of intensive investment. Further expansion of rubber plantations will be done after evaluation of the causes of failures of the existing plantations and advance procurement of suitable land. Problematic areas regarding future protection of these plantation will be avoided. Efforts will be made through extension service to increase total acreage of rubber plantation by encouraging plantation in small private holdings.

A total 10,000 acres of rubber plantation including balance 6,443 acres of past target may be taken up by the Forest Industries Development Corporation during the plan period if the proposed expert evaluation committee recommends it and after advance commitment of specific land from the forest department. An annual production target of 350 tons of rubber by 1977-78 is proposed.

(14) With concurrence of Railway authorities, a programme of afforesting barren areas of railway embankments should be initiated. Planting of avenue trees on either side of main highways should remain the responsibilities of the Roads and Highways Department. In all plantation programmes, emphasis will be on quality rather than quantity (coverage) to be achieved.

(15) In order to replenish the rural timber tree resources, additional nursery facilities, at least one centre in every new district, will be developed to distribute a total 2·40 crores seedlings in polytheline bags and some in stump forms. During the plan period the annual target of distribution will be 60·00 lakh seedlings by 1977-78 with 75 per cent success and 300 plants to an acre, distribution of 2·40 crores seedlings would amount to equivalent establishment of 60,000 acres of forest plantations during the plan period.

D. *Forest Research and Training*

All forest management and product research is now centralised under Forest Research Institute, Chittagong. Development of research facilities under the existing development scheme should be completed with recruitment of necessary personnel. Attempts will be made to consolidate work of forest research under the Institute by recruitment of competent personnel and provision of equipment. It would be desirable to include under forest management research programmes of a survey of forest soils and investigation of fluting in teak. Programme of research with introduction of tropical pines and other fast growing species of industrial use will continue with emphasis on finding out alternative uses of low quality miscellaneous timber. The Research Institute must enjoy functional autonomy.

Because of inadequate areas of forest land in the country, it is necessary to develop intensive multiple-use forest management practices, for which adequately trained professional and technical personnel of diversified talents are needed. The long term objectives should be to provide at least one professional person (Forestry Graduate) to every 10,000 acres of hill forests and 20,000 acres of mangrove forests of Sundarbans. For this purpose adequate training facilities should be developed. A 4-year degree course is the minimum standard of professional training which is needed to man the higher cadres of the profession. These professional cadres will be of professional training which is needed to man the higher cadres of profession. These professional cadres will be assisted by subordinate technical personnel maintaining a suitable ratio between professional and sub-professional cadres. A professional degree course (B. Sc. Forestry) in forestry will be introduced by establishment of new faculty in the Agricultural University/Chittagong University. The 4-year course may also involve Forestry Research Institute at Chittagong which may provide facilities in training in timber technology and forest management, etc. and in this context senior research officers of the Institute may become associate member of the faculty.

Research cadres will be filled up from those with M. Sc. (Forestry) degrees. Refresher courses both for professional and technical personnel will be established. Forest Guards and Forest workers will be given 6 and 4 months' training respectively.

The following table shows the estimated requirements of professional and technical personnel for forestry in Bangladesh over the next 15—20 years.

TABLE VIII-14

Requirement of Technical Personnel for Forestry.

	Requirement over 15—20 years.					Requirement during First Five Year Plan.	
	Forest protection and management.	Plantation work.	Extension work.	Research and education.	Total requirement in 15—20 years.	1972-73 Existing.	1977-78 Target.
Forestry Graduates and Technologists.	280	110	70	60	520	84	119
Sub-Professional Technical personnel.	1,680	660	420	240	3,000	807	1,007
Forest Guards ..	3,360	1,320	840	20	5,540	1,283	1,583
Forest Workers (Group Leaders). ..		2,640	420	20	7,080	..	500

Officers drawn from forest management cadre are very often mentally unsuited for extension service. It will be desirable to form a separate extension cadre under the Forest Service to render specialised professional service in this essential field. To meet the pressure of forest protection problem the duties of forest plantations and management staff in the subordinate executive cadre should be separated from those assigned to protection duties. For adequate speed in movement and communication vehicular transport, speed boats and launches and telecommunication facilities in Sundarbans and Chittagong Hill Tracts will be provided for the field staff.

E. *Organisational Aspects*

Forest Industries Development Corporation will give more stress on the development of timber extraction facilities during the plan period so that adequate supplies of raw materials are available for efficient use of their own timber processing plants and other timber using industries in the country. By suitable expansion of its timber extraction branch, it may gradually take over entire timber extraction in Sundarbans and other hill forests of Chittagong and Sylhet districts and replace the activities of individual private contractors inside the forests, if required, for due protection of the forests. Care should be exercised not to introduce unnecessary mechanised transportation in timber extraction in Sundarbans which creates unemployment. The Forest Department, responsible for management and protection of the forest resources, should not be involved in timber extraction activities so that it can exercise necessary check on the quantity of timber and firewood actually taken out from the Government forest. The F.I.D.C. has been depending considerably on borrowed talents from the Forests service to man its timber extraction and rubber plantation organisations. In future, the F.I.D.C. should develop its own cadre of officers so that expertise developed will continue to be available for longer period to execute its development programmes.

All expenses of planting, weeding, cleaning and filling up vacancies till a plantation is established are usually costs of formation of a plantation. In the past only the first year expenses of planting an area have been met from the development budget leaving cost of subsequent weedings and cleanings to be met from the revenue budget. This position had often created difficulties in finding adequate funds for these essential maintenance operations. The question should now be carefully reviewed to decide whether the entire expenses of establishment of a plantation should be met from development budget to ensure successful plantations. The stumpage rates of forest produce should be reviewed and refixed in conformity with prevailing market prices so that sufficient forest revenue is available for maintenance and management expenses.

F. *Wild Life*

The report of the Wild life Enquiry Committee provides the basis for systematic development of wildlife management programmes. Necessary legislation in this respect is the first step to be taken so that an appropriate wildlife management organisation under the Forest Service can be developed with proper training of essential personnel and procurement of equipment during the plan period. Further development of game sanctuaries, game reserves and national parks is envisaged.

G. *Plan Allocation*

An amount of Taka 42·090 crores with a foreign exchange component of Taka 8·29 crores has been earmarked for the development of forestry in Bangladesh. The detail break down of the investment programme can be seen at Table VIII-15.

TABLE VIII-15

Cost Estimate for Forestry Sector during the Plan Period.

(Taka in crore.)

Agencies.	Gross cost.	Net cost.	FEC.
Forest Directorate	26·791*	25·751	3·295
BFIDC	12·300	0·225	4·100
Bangladesh Paper and Board Corporation	3·000	0·750	0·900
Total ..	42·091	26·726	8·295

*Includes 1·178 crore Taka for on-going schemes.

8·1·6 **Livestock**

A. *Present Position*

Livestock sector contributes only about 5 to 6 per cent. of the GDP of Bangladesh. It has, however, great importance in terms of its contribution to the draft power, animal protein and foreign exchange earning. In 1970-71, Bangladesh had about 1·8 crores of cattle heads (3·0 lakh bulls, 73 lakh bullocks, 45 lakh cows and 59 lakh young calves). There were also 38 lakh buffaloes, 80 lakh goats and sheep and 1·595 crores fowls and 34·50

lakh ducks. During the last 3 years the livestock population declined due to the cyclone and the War of Liberation. This has partly been replenished by natural growth. Most estimates show that livestock output in Bangladesh has progressively declined since 1964-65. Not only that the draft power in the country has failed to keep up with demand but the *per capita* availability of meat, milk products and eggs has also gone down.

At present, there is no specialised commercial livestock industry in Bangladesh. Practically all livestock are reared and maintained on small farms by way of mixed farming. The local breeds are small in size and poor in milk and meat production. Since there is a heavy pressure of population on land, there is competition between man and animal on a given area of land for food and feed. The area for production of green fodder and roughage has gone down considerably. Livestock feed on commercial basis has not developed in the country. As a consequence, both the quantity and quality of livestock have gradually gone down. The poultry birds are mostly scavengers, and small in size. They are susceptible to epidemics against which there is hardly any effective control. Cattle population are also like-wise prone to epidemics. There is hardly any effective research work on upgrading the local breeds of both poultry and cattle. The Government breeding programme is inadequate and to a great extent, ineffective. The main constraints of a commercial poultry production are absence of locally adaptable improved breeds and lack of measures to control epidemics.

B. ***Objectives***

Development of livestock during the First Five Year Plan in Bangladesh will centre round two major objectives.

These are:—

Improvement in the quality and increase in the quantity of draft power;

Increase in the supply of animal protein by greater production of milk, milk product, meat and eggs.

1. Draft power

Land preparation is traditionally done by bullocks pulling indigenous wooden plough. The method is admittedly inefficient and time-consuming. Only between one-third and one-fourth of an acre can be ploughed by a pair of bullocks by working 6 hours a day. Adequate cultivation requires 4-6 ploughings followed by 2 or more ladderings. With 2·25 crores acres under cultivation at a projected cropping intensity of about 150 per cent at the terminal year of the first Plan, each of the currently estimated 50 lakh pairs of working animals, will have about 6-7 acres to cultivate.

Where only one rice crop followed by a vegetable crop is grown, pressure of land cultivation is not so serious. But where multiple cropping especially in the irrigated areas is undertaken, the time of planting is very critical. HYV of rice need to be planted in time for optimum yield and this puts pressure on the draft power. IR-20 is a case in point. Increased irrigated area under HYV during the First Five Year Plan may necessitate more draft power unless large scale mechanization is contemplated. Inadequate draft power may be a constraint for aus-jute planting. It may also lead to poor land preparation in rabi season and may cause poor yield. Deep ploughing especially under heavier clay soil would require much stronger bullocks than the ones that are currently available in the country. Widespread use of improved

ploughs which are more efficient than the traditional ones; is dependant on the availability of stronger bullocks. Consumption of more meat is also dependant on the availability of more beef cattle. Since mechanized cultivation, on a large scale basis, is not visualised during the plan period, the solution for quick and proper land preparation lies in the development of improved implements to be pulled by a larger number of stronger cattle. Thus during the First Plan Period, both the quality and quantity of bullock power will require to be increased.

The quality can be improved by prohibiting slaughter of young calves and mature bulls and bullocks and by undertaking a continuous breeding programme through artificial insemination. Improved local breed can also be propagated. The quality can also be improved by regular vaccination and deworming programmes. Steps will be taken to improve animal nutrition. Farmers will be encouraged to produce feed crops such as napier grass, groundnut, cow-peas, in their spare lands, canal and pond banks and embankments. Groundnut and pulses hay will be increasingly used as cattle roughage feed. Concentrate feed mill will also be established during the Plan period.

2. **Animal protein**

The protein intake in Bangladesh is very low. Pulses and fish are the major sources of protein. The average intake of pulses and fish protein is 28 grams *per capita* per day as against the standard requirement of 63·5 gms. The *per capita* milk and meat consumption per day is 17 gms and 4 gms respectively. The annual consumption of eggs is only 4 *per capita*. Most of these livestock products are usually consumed by higher income groups. The prospect of rapidly increasing meat supply from beef cattle is rather limited during the First Five Year Plan.

Beef and Goat: Beef is now usually obtained from disabled, ailing and very old cattle and goats provide the main supply of better quality meat. There is no specialised beef cattle industry in the country. Meat from poultry and goat constitute only about 25 per cent. of total meat production. Therefore, substantial increase in the total meat supply cannot be expected from these sources. Beef production can be increased by increasing the number of cattle and improving their body weight by better feeding. The size can be increased by crossing local cows with foreign breeds or with local improved breeds. The scope of increasing the goat and poultry population during the first Plan appears to be large. Goat production can be increased by encouraging flock rearing on commercial scale in the coastal and hilly areas, and also mixed farming in the homesteads. This can be done by proper selection and supply of better and higher yielding breeds for crossing with local breeds and by adopting disease control measures.

Poultry: In the poultry sector, duck rearing on commercial scale will be emphasized during the Plan. The topography and water courses in Bangladesh provide favourable conditions for a much larger duck population. As in China, ducks can be reared in flocks in the haor areas; big canals and derelict ponds. The increase in price of ducks and duck eggs, and the fact that ducks are relatively more resistant to disease, may make duck rearing more profitable in Bangladesh.

However, for supply of duck eggs and duck meat, in larger quantities, greater reliance will be on small private farmers.

The prospect for rearing chicken are also brighter during the First Five Year Plan. Back-yard poultry will be relatively more promising than the commercial poultry farms. Supply of chickens can be increased by introduction of exotic breed in the rural areas and adopting disease control measures. During the Plan, chicks will be distributed to the farmers from the different poultry farms, for rearing and marketing either directly or through an organised Co-operative marketing society. Distribution of chicks of exotic breed will help increase both egg and meat production from the present level of 40-50 eggs and 1-3 lbs of meat per bird to 200-250 eggs and 3-4 pounds of meat per bird. This will require systematic upgrading of village birds with exotic birds. For this purpose, poultry farms will be set up at thana head-quarters for providing poultry producers with foundation stock.

A pilot unit combining upgrading work, disease control and supply of improved feed will be undertaken during the Plan period. The project will initially cover 50 thanas where approxi-mately 30 lakh birds might be available for upgrading. About 15 per cent. of these birds (*i.e.* 4·50 lakh birds) will be covered under this programme. Fourteen to fifteen thousand cross-breed layers will be housed under semi-intensive deep litter condition. The project will involve construction of poultry house and procurement of equipment for producing young high quality cockrels for distribution to the village producers. It will also involve supply and distribution of vaccines in the project area, and improved feeding for young chicks with balanced feed supplement.

3. **Disease control and feed**

The major diseases which affect cattle and buffaloes are Rinderpest, Anthrax, Foot and Mouth disease and Tuberculosis, etc. In order to provide effective disease control, veterinary services at village level will be organised for preventive purposes. Village squads will be trained for vaccination and innoculation. Thana veterinary hospitals will be modernised. Production of viral and bacterial vaccines will be stepped up and a disease-investigation laboratory will be established. The vaccine production unit which will be expanded will include construction of suitable production facilities, purchase and installation of manufacturing equipment and field distribution facilities.

Poultry birds specially chickens are seriously affected by infectious diseases such as Newcastle, Fowl-pox and Cholera. The major constraint in the development of village poultry is the high rate of mortality especially in the villages. The present preventive service is very inadequate. Village squads will be trained at the union level to vaccinate the poultry birds in each village. In addition to training, the squad members would need vaccination kit and supply of vaccines. Biological production centres will be suitably strengthened for increased production, storage and distribution of vaccines. Shortage of cattle and poultry feed is hindering the development of livestock in Bangladesh. To provide well balanced concentrate feed, it is proposed to establish 2 (two) pilot feed mills, one in the northern part and the other in the eastern part of Bangladesh. For immediate production of animal feed, in larger quantities, the feed mill at Postogala will be transferred from the Food to the Livestock Department. The mill will undertake large scale manufacture of animal and poultry feed with mixture of maize, wheat bran, pulses, oilseeds, mineral supplements and Vitamins, etc. Production of urea enriched molasses will be tried on a pilot basis as cattle feed.

4. **Co-operative dairy complex**

Special programme will be drawn up to increase the supply of milk in the country. A co-operative dairy complex is planned with four plants in rural areas of Pabna, Faridpur, Tangail and Manikganj and a pasteurisation and packaging unit in Dacca City. This will offer a year-round remunerative milk market outlet to small, poor mixed-farm units. It will be integrated with veterinary services and artificial insemination units, which will aim at producing dual-purpose animals rather than pure draught-animals. If these plans prove successful commercially as well as in contributing to the welfare of poor farmers and the nutrition of undernourished people, similar dairy complexes will be set up during the Second Plan around Chittagong and Khulna cities.

C. *Targets and Plan Allocation*

In Livestock sector, the following production target is envisaged during the plan period:

TABLE VIII-16

Physical Target in Livestock over the Plan Period

	Production in base year 1969-70.	Production in 1977-78.	Per cent increase in production.
Milk and Milk Products ..	627,000 tons (20·4 lbs)	1005,000 tons (26·4 lbs.)	60
Meat	127,000 tons (4·1 lbs.)	210,000 tons (4·5 lbs.)	65
Eggs	35·3 crores (5·1)	52·0 crores (6·1)	48

Note—Figures in parenthesis is *per capita* availability per annum.

A thorough reorganisation and streamlining of the Livestock Department will be made to ensure effective implementation of the livestock development programmes envisaged in the First Five Year Plan. The proposed reorganisation will emphasise preventive aspect rather than the curative one that is now emphasized. Animal Husbandry will be given relatively greater emphasis in the educational and training programme. The financial outlay for the livestock sector is shown in Table VIII-17.

TABLE VIII-17

Financial Outlay for the Livestock Sector during the Plan Period

(*Taka in crore.*)

Scheme.	Total	F.E.C.
On-going schemes	3·480	0·136
New Schemes or expanded current Schemes	16·510	6·045
Other new projects (mostly of commercial nature)	11·968	0·925
Co-operative Dairy Complex	6·321	2·389
Total ..	38·279	9·495

8·1·7· Input Programmes

The First Five Year Plan of Bangladesh places major emphasis on the increased use of high yielding varieties of rice and wheat. The hard core programme which has been identified includes the judicious use of agricultural inputs—fertilizers, pesticides, and seeds along with irrigation for growing more food to attain self-sufficiency within the shortest possible time. On the basis of these targets an estimated need of major agricultural inputs and the approximate cost involved therein have been worked out. The total value of seeds, fertilizers and insecticides needed for the agricultural plan is estimated to be Taka 641·683 crores. The total requirement of foreign exchange for procurement of these inputs will be Taka 335·580 crores. However, the total net cost to the government as payment of subsidy for the inputs will be about Taka 124·900 crores.

A. *Fertilizer*

Fertilizer is one of the key inputs in the seed based technology for increasing agricultural production. Enhanced use of fertilizers in Bangladesh is of immense significance, specially in connection with high yielding varieties grown under irrigation. It is envisaged that the off-take of this critical input at the end of the terminal year of the First Plan is expected to be more than three times the off-take of 1972-73 which is about 375,000 tons. Achievement of such a target will depend to a great extent on the development of an effective system of fertilizer pricing and distribution.

1. **Past consumption**

Consumption of chemical fertilizers went up from 66,000 tons in 1960-61 to 300,000 tons by 1969-70. The major jump of consumption was mainly in nitrogenous fertilizer. During the period 1960-65, the consumption was moderate (average 84,000 tons a year) as the traditional varieties of seed do not generally respond to a high dose of fertilizer and consequently the farmers were not keen to apply fertilizer to these varieties. However, with the introduction of high yielding varieties of rice which are highly responsive to fertilizer, there has been a very sharp rise in consumption, which rose from 129,000 tons in 1965-66 to 300,000 tons by 1969-70. Use of optimum doses of fertilizer in the high yielding varieties is crucial in the seed based technology. Proper use of fertilizer by rice growers will depend on the efficiency of the extension agents who will have to demonstrate the use of optimum doses and proper method of application. At present there are very few demonstration plots, and farmers are not aware of use of NPK in their proper proportion. The consumption of phosphatic and potassic fertilizers have consequently been lagging behind that of nitrogenous fertilizers. In order to encourage and promote balanced use of NPK discreminatory price in favour of potassic and phosphatic fertilizer may be necessary.

Fertilizer consumption in the past has always fallen considerably short of the target even when adequate fertilizer was available. The reasons were as follows:

(i) large risk factor due to lack of controlled water for irrigation;
(ii) lack of cash and absence of credit facility to majority of farmers;
(iii) difficulties in proper storage, distribution (time and quantity) and transport.

At present many of the farmers using fertilizers are not deriving the potential benefit because of the following factors:

(i) unbalanced application of fertilizers (NPK);
(ii) deficiencies of elements other than N P K (Magnesium, Calcium, Sulphur, possible trace elements);

(iii) wrong timing and improper and inadequate application of fertilizer;

(iv) application of fertilizer to soils that are not deficient in fertilizer element;

(v) ignorance of potential benefits that can be obtained by using fertilizers;

(vi) poor agronomical practices (poor seed, too old seedlings, etc).

However, the situation has been changing radically.

2. Future requirements

The present demand for Urea is considerably above the level of supply. At present, prices of fertilizers in free markets are reportedly 2-3 times higher than the official subsidised prices. Most farmers of Bangladesh have become aware of the benefits which can be derived from fertilizers. Moreover, the prices of agricultural commodities have gone up to a great extent, thus enabling the farmers to bear the full cost of fertilizers. In these circumstances reduction of subsidy is unlikely to have any adverse effect on the off-take of fertilizer. It is, therefore, proposed to eliminate subsidy on fertilizer by the final year of the plan. Projected requirement of fertilizers, during the First Five Year Plan (1973-78) is shown below in Table VIII-18. The industrial sector programme will show the extent of their domestic production. Our huge deposit of natural gas may be utilized for the production of Urea far beyond the level of self-sufficiency.

TABLE VIII-18

Estimated Year-wise Requirement of Fertilizers (Urea, TSP, M.P.) during the Plan period (1973-78).

Year.	Requirement (*In thousand tons*).			
	Urea.	T.S.P.	M.P.	Total.
1973-74	301	158	61	520
1974-75	342	173	74	589
1975-76	423	207	104	734
1976-77	518	254	134	906
1977-78	616	332	187	1,135
Total	2,200	1,124	560	3,884

It is envisaged that fertilizer consumption will grow from the current level to cover 11-35 akh tons by 1977-78, if the programme of irrigation facilities and improved varieties of seeds are implemented according to schedule. The present use of phosphate and potash is very low. With more effective extension work the off-take of phosphate and potash is likely to go up. Use of phosphate and potash will be popularised among the cultivators during

the Plan period. The projected requirement of 11·35 lakh tons of fertilizers at the terminal year represents an increase of about 203 per cent over the present level. The objective is to deliver these fertilizers to farmers in right quantity, at the right time, and at a reasonable price.

3. Balanced fertilizer application

Highly concentrated fertilizer, presently used, contains only N.P.K. It is certain that with increasing use of N,P and K increasing area will become deficient in elements like Magnesium, Calcium, Sulphur, Zinc and possible Borax. Though perhaps of minor concern at this moment, there is need to monitor responses to above elements. The deficiency of trace elements in soils leads to considerable reduction in yield. Due attention will be given to this problem. Bangladesh soils appear to lack in organic matter which are very essential for crops. Use of organic matter will be encouraged to enrich the fertility of soil.

4. Distribution of fertilizer

At present, BADC controls the procurement and internal distribution of fertilizers. Fertilizers purchased by BADC at the factories, Fenchuganj and Ghorashal, are directly despatched to the Feeder godowns and Thana godowns at the Rly. heads by rail wagons. Imported fertilizers received at the ports (Chittagong/Chalna) are cleared by C&F agents, appointed by BADC, and then are despatched to the Feeder godowns. It is the responsibility of BADC to move the fertilizers from factories and ports through a system of district and thana storage facilities to retail dealers at the thana and village level (currently numbering about 22,800) who move the fertilizers from thana centres to villages and sell them on commission basis to farmers. A growing number of co-operative societies have been participating in the distribution of fertilizers at the thana and village levels in recent years. In areas not covered by TCCAS, distribution of fertilizer will be conducted by the Union Krishi Unnayn Committee (UKUC) which will determine the requirement of fertilizer and also select retail agents.

In areas not covered by IRDP fertilizers for commercial crops grown in concentrated areas and having particular requirement will be supplied directly by the respective agencies (Tea Estates, Sugar Corporation, Tobacco Board). From the thana level downwards, Co-operative Societies and private dealers will be allowed to operate side by side in order to assure alternative choices and sources to farmers, until such time as the majority of the farmers become members of the co-operative societies.

The following measures will be implemented during the Plan period:

—Efficiency and flexibility of the fertilizer distribution system will be improved by allowing free movement of fertilizers within districts and allowing other agencies including co-operatives, sugar mills, etc., to participate in fertilizer distribution.

—Ten per cent of fertilizers will be kept as reserve for buffer stock in order to achieve a better flexibility in the distribution for areas where demand exceeds set targets

—Storage space for fertilizer will be provided in accordance with expected growth of fertilizer consumption. This applies to storage space above as well as below the Thana levels. Agencies concerned with handling of fertilizer will have to see that available storage capacity is consistant with fertilizer utilization.

—Field tests will be undertaken by Soil Fertility Section to determine optimum requirement of N.P.K. in different soil tracts with priority to areas of concentration. This step will be of special importance because of gradual elemination of subsidy.

Lack of purchasing power is one of the constraints to the use of adequate doses of fertilizers by the farmers. The Government seeks to alleviate the situation by provision of credit facilities and through fertilizer pricing policy. The existing institutional credit system for the purchase of fertilizers are lengthy, tedious and inadequate. It should be considerably streamlined so that cultivators can get the benefit of credit to overcome their financial limitation for timely purchase of fertilizers in adequate quantity.

B. *Plant Protection*

High humidity, plentiful rains and hot temperature encourage the growth and multiplication of insects, fungi and bacteria in Bangladesh. It has been estimated that pests and diseases cause 10 to 15 per cent reduction in potential crop production. Further loss occurs due to pests, disease, rodent etc. and during storage. The introduction of high yielding varieties of rice and other crops which have vigorous and succulent growth invites pests and disease. Plant protection measures, therefore, have special significance and will become increasingly important in the future with a further expansion of new crop varieties.

1. **Present Position**

The Government had supplied 62159 hand sprayers, and 11,700 power sprayers during 1971-72. Up to 1971-72 the Government had purchased 154,633 hand sprayers and 84,687 power sprayers, out of which 77,555 hand sprayers and 35,630 power sprayers are now available for use for Plant Protection Services. The procurement of pesticides for plant protection measures went up from 419 tons in 1965 to 3861 tons in 1967. The total pesticide import requirement in 1972-73 has been estimated at 12,000 tons. In the ADP 1972-73, provision has been made for 20·860 crores Taka for procurement and distribution of pesticide and plant protection equipment.

During 1969-70 about 85 lakh acres were sprayed by ground operation. Aerial operation during 1969-70 accounted for 13 lakh acres using ten aircrafts. At present five Beaver aircrafts are operational for aerial spray. Four additional planes are to be obtained from the Government of New Zealand, one of which has already been delivered.

The Agriculture Extension Service presently has about 415 Thana Agricultural Assistants who are responsible for maintaining contacts with farmers to help them solve plant protection problems as well as other problems in agriculture. In addition, there are about 1,000 spray operators (Mokaddams) stationed throughout the country. The number of Mokaddams has further been increased after adoption of the accelerated rice production programme. These men are supplied with sprayers, and it is one of their main jobs to apply pesticides that are supplied to the farmers free.

Reports from various agencies have indicated that free distribution of pesticides is not ensuring proper use of pesticides. Misuse of plant protection material must be stopped. A study of how this can be accomplished in a most practical manner will be undertaken during the Plan period.

2. Policy Guidelines

The following criteria will be observed while evolving measures for protecting crops from pests and diseases :

(i) Consolidation of all existing plant protection agencies and wings under a single central authority.

(ii) Implementation of a field survey and reporting system designed to provide field data on pests and disease occurance.

(iii) Gradual reduction of subsidy from pesticide and plant protection equipment.

(iv) Evaluation of the present chemical control practices with a view to stopping ineffective measures and indiscriminate use of toxic materials.

(v) Strengthening of existing field training programme for extension worker in plant protection along with farmer's education.

(vi) Enactment of Pesticide Act to regulate manufacture, formulation labelling and use of pesticides.

3. Organization, Training and Manpower

Too many departments/agencies are involved in Plant Protection Services which make co-ordination difficult. Consolidation of plant protection activities under a single authority is designed to simplify the current complex structural arrangement. It is possible that an organisational frame-work based on separate but co-operating sections can be formulated. The handling of pesticide and purchase of spray equipment will be assigned to one section. It should also be responsible for procurement, distribution and proper storage of chemicals. Application of pesticides, both by aerial and ground operations needs to be regulated on actual requirement basis. Determination of such requirements would be based on correct information supplied by field reporting groups.

Subsidy on pesticides and plant protection equipment will be reduced in a phased manner during the Plan period. Pesticides will be marketed by government retailers now located at village levels throughout the country.

Use of pesticides which are toxic to fish fauna will be strictly regulated. Pesticides which are banned in other countries will not be allowed to be used in Bangladesh except in special circumstances. The Plant Protection Department will carefully evaluate all technical information before allowing any pesticide material to be used in the country. Pesticides are now used without sufficient justification from field data. Judicious control of pests and diseases demands that timing and dosage of pesticides application must be in keeping with the pest population in the area of application. These conditions can be ascertained from information collected periodically by plant protection workers strategically placed throughout the country Year-round monitoring of pests and diseases will provide a basis for effective use of the pesticides by allowing plant protection workers to be aware of the problems as they are occurring. This reporting system will be a full time exercise requiring separate workers properly trained for the job.

A group of plant protection specialists will be assigned to the task of evaluation of current pesticides use. The purpose of such evaluation is mainly to determine areas where pesticides are not yielding any benefits either in the form of increased production or prevention of losses. This group should also be deputed to work on standardization and selection of pesticides.

An extensive training programme in plant protection will be mounted. Plant protection specialist will be trained in the Agricultural Research Institute. The Institute will offer two courses annually of three months duration in all aspects of plant protection for existing plant protection personnel . The four year graduate course already in operation in the Agricultural University will help in turning out plant protection personnel who will enter the plant protection service on priority basis.

District level training will be conducted by subject matter specialists. Training at this level will be conducted in the field and will cover the basic problems existing in each individual area. Such training will be of short duration, not exceeding one week and will be held at the beginning of each season or three times, annually.

There is an immediate need for training plant protection workers. It may be possible, however, to find a practical solution to this problem by sending available experts to individual Districts or areas to conduct simple field course, of short duration, which would cover all aspects of plant protection measures. Trainees could be drawn either from among the existing Union Assistants or from the 1,000 Spray Operators (Mukaddams). These men will perform the immediate activities connected with the evaluation of pesticides application and reporting of pest and disease occurrence.

A longer range plan for training of plant protection workers should include the setting up of a training institute which would provide a trainee with the basic knowledge of plant protection as applicable to conditions in the country.

Diseases due to attack of Virus, Bacteria and Nematode of different crops are also becoming gradually serious. Attention will be given to control these diseases. For better germination and growth, seeds carrying diseases and pests should be treated with effective chemicals.

Plant protection personnel should acquire knowledge of resistant varieties which are becoming increasingly available. Feild workers should stress the importance of these varieties to the farmers. Various research organizations working on resistant varieties and Biological Control should maintain close contact with the field workers so that they may obtain all necessary information from the field on new materials tried in the country.

The aircrafts available with the Plant Protection Department are considered adequate to cope with the problems of pests and diseases of crops occurring in epidemic form. Aerial application should be carried out under two main conditions :—

(i) To treat crops that are not accessible by ground equipments.

(ii) To treat extended areas where there is a large scale attack in epidemic form.

Efforts may be undertaken to manufacture some varieties of pesticide and spraying equipments in the country.

Introduction of new high yielding crop varieties has added a new dimension to plant protection. Because of their high yield, farmers are also becoming increasingly conscious of the potential

benefits derivable from prophylactic measures. Year-wise projection of requirements of pesticides and spray equipment and their approximate costs have been prepared. The subsidy for the Plant Protection Programme is estimated to cost the country Taka 79·453 crores. The approximate foreign exchange cost will be about Taka 157·232 crores for the purchase of Plant Protection equipment and 88,000 tons of pesticides during the Plan period. For aerial spraying operation, a portion of the cost will be realised from the cultivators whose crop will be sprayed. But for combating epidemic of pests and diseases, no charges are proposed to be made.

C. *Seeds*

Improved seed has a significant role to play in increasing output in agriculture. No other input can affect the production as markedly as the variety planted. Development of high yielding new varieties is the most important element of the new agricultural strategy.

1. Present Position

Agricultural Development Corporation was responsible for production, multiplication, processing and distribution of imporved seeds of major crops in Bangladesh between 1962 and 1971. Bangladesh Central Jute Committee has now been entrusted with the responsibility of producing jute seeds. Breeder's seed of rice is produced by the Bangladesh Rice Research Institute and those of wheat and jute by the Agricultural Research Institute and the Jute Research Institute respectively. At present the supply of quality seeds to farmers by Government agencies cover only few crops. These agencies either multiply seeds in their own farms or procure them from registered growers and external sources. There are 22 seed multiplication farms of various sizes under the management of BADC, 17 of these are of 100 acres each, 4 of 500 acres each, and the largest one, Dattanagar Farm, has an area of 3,000 acres. The main objective of these farms is to produce "foundation seeds" of selected varieties of major crops. Foundation seeds produced in these farms are further multiplied by the registered growers for ultimate distribution among the cultivators. High yielding as well as traditional varieties of rice and wheat seeds are grown in these farms.

2. Targets

The seed programme during the first Plan will aim at production and distribution of large quantity of quality seeds of high yielding varieties. Government supply of seeds cannot cover the entire requirement of improved seeds in the country. This is also not necessary because after introduction of a new variety, distribution from farmer to farmer serves as one of the major means of spreading the variety among largest groups. In the Plan, estimation of seed requirement has been based on the following assumptions :

—One hundred per cent of the additional area under HYV of rice and wheat in any year will get supply from public agencies.

—For the existing areas under the HYV rice and wheat, the supply of seeds from public agencies will be at the rate of 20 per cent of Aus area, 5 per cent of Boro, T. Aman and Wheat areas. The seed rate per acre is 10 seers for rice and 30 seers for wheat.

The crop-wise programme of improved seeds during the Plan period is shown in the Table VIII-19. The programme will be reviewed from time to time and revised, if necessary.

In the new strategy for agricultural development, the use of HYVs has been given top priority. BADC farms at different places including contract growers are expected to produce 12,000 tons (Rice 10,000 and wheat 2,000) of seeds. The whole system of production, processing and distribution will form a seed industry project. This project will be expanded gradually to take over programme of other crops. Besides this, a project for production of seeds through "Registered Growers" has already been in operation to supply a large quantity of paddy, wheat and jute seeds. The on-going projects for seeds will be expanded during the Plan period. The existing distribution mechanism will be enlarged and strengthened to handle the entire seed distribution programme proposed in the plan. Besides rice, jute and wheat, stress will also be given for improvement in the production and distribution of tobacco, cotton, oilseeds and vegetable seeds for rapid expansion of their cultivation during the Plan period.

Often farmers are dissatisfied with the quality of seeds supplied by public agencies. This can be remedied by setting up a seed certification agency under the Ministry of Agriculture. Although farmer to farmer distribution of HYVs seed will be an important factor in the spread of these varieties regular replenishment of certified seeds of genetic purity will be essential to maintain high potential yield. Growth of licensed seed merchants will be encouraged from amongst the progressive registered growers who will be given technical support on seed technology.

TABLE VIII-19

Estimated Crop-wise Seed Requirement during the First Five Year Plan (1973-78).

(In thousand maunds).

Crops.	1973-74	1974-75	1975-76	1976-77	1977-78
Rice	631·900	605·000	305·000	295·200	434·900
Wheat	225·000	86·200	52·500	41·300	72·400
Jute	31·034	31·034	41·385	51·737	43·447
Sugarcane (Sett)	1985·600	3427·200	3644·800	3644·800	..
Potato	204·544	156·760	178·976	166·192	178·976
Oil Seeds					
(a) Groundnut ..	32·640	27·200	35·360	43·520	54·400
(b) Mustard	1·088	2·176	3·264	4·352	5·440
Cotton	0·044	0·044	1·088	2·502	2·502
Tobacco	0·002	0·003	0·003	0·002	0·003
Winter Vegetables ..	0·607	0·668	0·728	0·607	0·546

Note—(i) Quantity of seeds shown is to be supplied by the Govt.
(ii) Seed requirement for HYVs rice and wheat is shown.

3. **The Programme for Seed Farms**

The programme for development of the seed farms of BADC and other seed projects will include the following :

(i) For foundation seeds, Kashimpur (100 acres), and Sadhuhati (100 acres), and for certified seeds, Dattanagar (3,000 acres), Madhupur (500 acres), Tebnia (500 acres), Thakurgaon (100 acres), Itakhola (100 acres) farms will be developed. In addition to the above mentioned farms, improvement of the seven other farms of BADC for production of second generation seeds will be made.

(ii) A small contract grower's scheme will also be set up at Tebnia and Madhupur to undertake seed processing for BADC.

(iii) Seed processing laboratory and godowns for storage facilities at the above six seed production sites will be constructed.

(iv) Laboratory for testing seed and seed certification services will be strengthened.

(v) The BADC seed farms which are not scheduled for production of foundation or certified seeds will be used for multiplication of new trial varieties in addition to their normal programme of producing seeds, other than wheat and rice.

During 1965-66 to 1970-71, seeds were sold to cultivators at the rate varying from Taka 22 to Taka 45 per maund (subsidy varying from Taka 3·31 to Taka 5·00 per maund).

To encourage rapid increase in the production of jute in the country, it has been proposed to subsidise the cost of jute seeds at the rate of 50 per cent in the first year with a gradual reduction of subsidy to 20 per cent in the terminal year of the Plan. To boost up cotton production in the country only medium staple variety of cotton seeds will be sold to cultivators at 100 per cent subsidy throughout the Plan period.

During 1971-72 the sale rate for paddy seeds imported from abroad was Taka 30 with a 50 per cent subsidy. This was done to encourage the farmers to buy improved seeds at a lower cost and derive the benefit from increased production. Since prices of all agricultural commodities have gone up and the cultivators are eager to buy improved seeds even at higher price, it is felt that there is no need to continue subsidy on paddy and wheat seeds during the Plan period. However, in order to encourage the cultivators, it is proposed that incidental cost on rice and wheat seeds will be subsidised in the Plan period. Even in case of other important crops, the incidental and overhead costs may have to be subsidised depending on the merit of individual cases.

The seed Progeamme will cost Taka 6·877 crores as subsidy with a foreign exchange component of Taka 8·673 crores for import of quality seeds as shown in the Table VIII-20.

TABLE VIII-20

Estimated Cost of the Seed Programme.

(Taka in crore)

Years.		Value of Seeds.	Subsidy Cost.	Foreign Exchange Component.
1973-74	..	10·298	2·046	3·589
1974-75	..	10·241	1·649	2·758
1975-76	..	8·402	0·990	0·885
1976-77	..	8·441	0·971	0·697
1977-78	..	7·281	1·221	0·744
Total	..	44·663	6·877	8·673

D. *Water*

Water is the leading input for increasing agricultural production. Surface and ground-water will be developed simultaneously; large-scale multipurpose projects of irrigation, drainage and flood control and low-lift pumps will be developed for utilisation of surface water and tubewells for exploiting ground-water. Efficient water control and management will contribute to improve agriculture by stabilising production by increasing cropping intensity and also by making the change over from the traditional to high yielding varieties possible. Though a comprehensive ground-water survey is to be conducted to identify good aquifers, the available ground-water data indicate that about 19,000 (2-cusec equivalent) "deep" tubewells and 15,000 (½-cusec) "shallow" tubewells can be safely installed. Total area which will be brought under tubewell irrigation by 1977-78 is estimated to be about 14 lakh acres. At the terminal year of the plan period a total of 19,000 "deep" tubewells (2-cusec equivalent) will be fielded to bring an area of about 11 lakh acres under irrigation. The number of tubewell installed up to June 1973 is estimated to be 2,900. The number of "shallow" tubewells to be installed by BADC will be 15,000 of which 2,000 is expected to be instatied by June, 1973. An area of about 2·20 lakh acres will be brought under irrigation by shallow tubewells. Predicted coverage will be 40, 45, 50, 55 and 60 acres for each 2-cusec "deep" tubewell in the 1st, 2nd, 3rd, 4th, 5th and subsequent years and that of shallow tubewells will be 8, 10, 12 and 15 acres in the 1st, 2nd, 3rd, 4th, and subsequent years, respectively. About 50,000 acres are already under irrigation by "deep" tubewells and fractional pumps under the private sector.

From the available hydrological data it is estimated that in Bangladesh it is possible to install about 45,000 two-cusec capacity single-stage low-lift pump (LLP). The estimate is based on 12 hours pumping per day, taking peak requirement of water as 12 inches (including losses) during March and April. Up to June 1973, the number of pumps fielded is estimated to be 30,000. Total LLP coverage under irrigation in the terminal year will be 22·50 lakh acres on the basis of 35, 40, 45 and 50 acres per 2-cusec pump in the 1st, 2nd, 3rd, 4th and subsequent years respectively. Of the total number of LLP (45,000) about 7,000 pumps will be allocated to the projects under the Water Development Board (BWDB) and the rest for the projects under the Bangladesh Agricultural Development Corporation (BADC) Programme.

BWDB will launch a programme of multipurpose irrigation, flood control and drainage projects with major emphasis on irrigation. A number of completed projects will be further developed to increase irrigation coverage. Several on-going projects will be completed and some new projects will be undertaken. During the plan period an area of 21 lakh acres will be protected from floods by construction of embankments, channel improvement, etc., and 3·4 lakh acres will be brought under irrigation. An area of about 30 lakh acres will be protected fully and 9 lakh acres protected partly from flood as of June 1973. At the terminal year of the Plan fully flood protected area will be 51 lakh acres and partly protected area will be about 9 lakh acres. In addition, small irrigation and drainage schemes presently undertaken by the Irrigation Directorate will provide drainage facilities to an area of about 8 lakh acres.

The physical targets for Water Development Programme has been summarized in Table VIII-25 under Water Resources Development.

E. *Storage and Marketing*

The problems of storage and marketing are of very great importance for procurement and distribution of agricultural inputs and products. Modern inputs, whether procured locally or from abroad, required to be stocked and distributed to the farmers throughout the country. Farm output will also require storage facilities at wholesale and retail distribution centres.

1. Fertilizer Storage

A much larger quantity of fertilizer, pesticides, and seeds is going to be distributed during the Plan period. In keeping with the fertilizer distribution target, 4·90 lakh tons of storage capacity needs to be built. The existing capacity is 1·96 lakh tons and an additional 56 thousand tons capacity is under construction. The balance capacity of 2·98 lakh tons is required to be built. The total number of godowns of varying sizes will be 289.

Yearly phasing of construction of fertilizer storage during the Plan period is shown in Table VIII-21.

TABLE VIII-21

Phasing of Construction of Fertilizer Storage.

Per unit capacity (in tons).	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.	Total No. of godowns.
5,000	2	2	3	2	1	10
2,000	15	10	20	20	10	75
1,000	10	10	15	10	5	50
400	15	20	20	18	17	90
200	10	12	12	15	15	64
	52	54	70	65	48	289

2. Seed Storage

For seeds, required storage capacity is 19 lakh maunds of which about 2·50 lakh maunds already exist in the country—all of this at the district level. There is thus need for an additional capacity of 16·50 lakh maunds.

During the Plan period a storage capacity of 9·50 lakh maunds will be built at the thana level and the rest 7 lakh maunds at the district level.

The seed storage will also be used for wheat, groundnut and other seeds besides rice. According to the seed programme, the maximum seed requirement will be in the first year for almost all crops. Thus most of the allocation for seed storage has to be made during the first year.

3. Pesticide Storage

Adequate storage capacities at the district, thana and local levels are also necessary for pesticides and spraying equipment. At present there are 437 godowns as detailed below:

No. of stores.		Capacity of each godowns.
Division	4	40 tons.
District	20	20 tons.
Thana	413	5 tons.

Total capacity is thus 2,625 tons during the Plan period; pesticides programme will be expanded and this will necessitate creating additional storage capacities especially at the local-level within easy reach of the farmers. Some of the existing seed stores are beyond repair and some can be used after minor additions and alterations. A programme for additions and alterations for 4,053 seed stores was undertaken in the pre-liberation period. The same programme will be continued during the First Five Year Plan.

4. Foodgrain Storage

The Plan envisages substitution of imports of grain by domestic production. The existing storage capacity for foodgrains is given below:

Type of storage.	Capacity. (*Lakh tons*).
Silo	2·25
Central Supply Depot (CSD)	3·60
Local Supply Depot (LSD)	4·73
Total	10·58

There are now 314 Local Supply Depots covering 264 thanas. The remaining 144 thanas do ot have any Local Supply Depots. For better procurement and storage of foodgrains and other edibles, these 144 thanas must also be covered by Local Supply Depots. It is estimated that 153 more godowns of 500 tons capacity each will have to be built. This will enable us to have more than one godown in bigger thanas. The unfinished task of reconstruction of the LSDs damaged during the Liberation War, will also be completed during the plan period.

5. Jute Storage

The existing storage capacity for jute is 6·0 lakh tons owned and hired by the Jute Marketing Corporation (JMC), Jute Bailing Corporation (JBC) and Jute Trading Corporation (JTC), including Private Traders.

In order to ensure a better price to the growers storage facilities at different marketing centres will have to be built. Moreover, in view of the plan projection of increased jute output, storage capacity will also have to be expanded. It is estimated that a net additional capacity of 1·0 lakh tons will need to be built as shown below:

Existing capacity (both public and private).	Required capacity* (*in lakh tons.*)	Net capacity to be built.
6·00	7·00	1·00

*The required capacity has been estimated on the basis of an assumption that 30 per cent of the annual raw jute output need final storing. In order to allow for handling at different stages, another 10 per cent is added *i. e.* 40 per cent of the annual raw jute output would require storage space from secondary market to final disposal points.

6. **Warehousing Corporation**

Assuming that the private traders will not expand their storage space, the entire additional storage capacity will have to be built under public sector. The Warehousing Corporation will build the entire storage capacity for the Corporations concerned, *i.e.*, JMC, JBC JPSC, and JTC. The estimated cost for jute storage is Tk. 13·5 crores with a foreign exchange component of Tk. 2·7 crores. It is assumed that 1 square foot of storage space can hold 1 maund of Jute. It is also assumed that the current cost of construction including the cost of land and other ancillary facilities is Tk. 45 per square foot of which 20 per cent is in terms of foreign exchange.

In addition to this, the Warehousing Corporation will also build additional storage for commodities other than jute at distribution and export points. The estimated cost for the same is Tk. 7·5 crores of which Tk. 1·5 crores is in foreign exchange.

The estimated cost of storage and marketing during the plan period will be Tk 46·491 crores of which foreign exchange component is Tk. 9·414 crores. The details are shown in Table VIII-22.

TABLE VIII-22.

Estimated Cost for Storage and Marketing

(Taka in crore).

	Local Currency.	Foreign Exchange.	Total.
Fertilizer storage	10·306	2·831	13·137
Seed Storage	2·175	0·384	2·559
Pesticides Storage	5·760	1·440	7·200
Grain Storage	1·836	0·459	2·295
Marketing (studies, research and improvement of marketing intelligence).	0·200	0·100	0·300
Warehousing Corporation*:			
(*i*) Jute Storage	10·800	2·700	13·500
(*ii*) Commodities other than Jute	6·000	1·500	7·500
Grand Total ..	37·077	9·414	46·491

*To be financed through loan from financial institutions.

8·2 WATER RESOURCES DEVELOPMENT

8·2.1 Introduction and Background

Bangladesh having a flat deltaic area of about 35 million acres has been formed at the confluence of three mighty river system: the Brahmaputra-Jamuna, the Ganges-Padma and the Meghna. These rivers drain an area of 38·4 crore acres of which only about 2·9 crore acres (7·5 per cent) lie within the country. Of the annual average rainfall of 70 inches, more than 80 per cent occurs during the months of May to October, causing widespread flooding whereas drought condition exists for the remaining six months of the year. About 33 per cent of the total cultivable land is flooded to depths exceeding 3 feet in an average year and the rest (67 per cent) may be considered as intermediate and high lands suitable for irrigation development. Development of water resources must accompany the development of agriculture in Bangladesh. It is realised that to attain self-sufficiency in food, side by side with improved agricultural inputs, irrigation water is to be supplied, proper drainage facility is to be provided and land is to be protected from flood.

The first major study of the problem of water resources development in Bangladesh was initiated in 1957 by a UN Technical Mission (Krug Mission). In its report, the Mission primarily dealt with the unique problems of flood in this country and suggested embankment and channel improvement for flood protection and control. Subsequently flood and water resources problems were studied by General Hardin (1963) and Prof. Thijsse (1964) whose findings paralleled those of the Krug Mission. Former EPWAPDA was created in 1959 for taking up implementation of the flood control, irrigation and drainage development programme. Immediately after its creation WAPDA hired the services of the International Engineering Co. of USA (IECO) as General Consultant for preparing a comprehensive plan for the conservation and development of water resources. Having worked for five years, IECO produced a Master Plan which was a 20 year programme involving 51 major projects. The Master Plan made very little provision for small and medium scale irrigation development which is so vital for agricultural production.

Following a request made by the former Government of Pakistan for World Bank assistance in the development of the water resources of the country, the Bank reviewed the IECO Master plan and sent a special Mission in 1967 to assess the requirements. In July 1970, a proposal for an Action Programme for Agriculture and Water Development was presented by the Bank. In the Action Programme the Bank identified 18 flood control and irrigation projects for implementation. Implementation of the Action Programme could not make a headway due to the War of Liberation. After liberation, the Bank reviewed the entire water programme in the context of their Land and Water Sector Study for Bangladesh. In the revised Programme, the Bank has laid primary emphasis on irrigation and drainage development which will result in increased agricultural production during the plan period. Simultaneously, it has also been suggested that during the plan period studies and investigation of the major rivers and hydrological regions should be intensified and completed with a view to identifying long-term development programmes.

So far, over 30·00 lakh acres have been protected from upland flooding and inundation by sea water through flood control programmes. These works included 2,270 miles of embankment, of which 2,077 miles are in the coastal belt and are provided with sluices and regulators. The area protected from saline water inundation and monsoon flooding has ensured at least one sure crop. Physical works also include a total of over 1,000 miles of main, secondary and tertiary irrigation canals, some 4,600 sluices and regulators, and 3 major and 85 minor pumping stations. Irrigation coverage, so far, has been about 1 million acres which is estimated to have increased up to about 13·60 lakh acres by June, 1973. The estimate is based on 122,000 acres under large-scale projects (LSP), over 1 million acres under 30,000 Low-lift Pumps (LLP), 175,000 acres under 2,900 "deep" tubewells (DTW) and 16,000 acres under 2,000 "shallow" tubewells (STW).

8.2.2 Problems and Prospects

A very rapid progress in agricultural production, particularly in grain production is a pressing need for Bangladesh. Attention and effort are focussed at present for increasing food production through quick-yielding, low cost, and labour intensive irrigation schemes and use of new high-yielding rice varieties. The new varieties of rice require a controlled water supply for irrigation. To feed the rapidly expanding population, a rapid expansion in irrigation areas in the country is essential. It is, therefore, imperative that a balanced development strategy is formulated which should include both short and long-term irrigation, flood control/protection and drainage projects. As the construction and gestation period of major multipurpose water projects are long, emphasis will be on short-term irrigation, drainage and flood protection schemes. However, action on some selected long-term projects will be initiated now so that these may begin to render benefits during the subsequent Plans when the benefits from short-term projects will begin to taper off.

A. Low-lift Pump Irrigation

In Bangladesh irrigation potential is constrained by the availability of surface water as well as occurrence of saline ground water in the South. Although the rivers carry a total of over 50 lakh cusecs during the wet season, the flows in all major and minor rivers add up to only about 225,000 cusecs during the dry season. The present Plan is to utilize the maximum surface water potential irrigation by low-lift pumping by fielding a total of 45,000 single-stage low-lift pumps. It is believed that any further withdrawal would cause problems of navigation, fisheries, and salinity intrusion.

B. Tubewell Irrigation

Although an extensive ground water survey is yet to be completed, experience from several hundred wells that have been drilled, together with other technical evidences, indicate that there is a fairly good prospect for tubewell development in Bangladesh. Studies undertaken so far suggest that the most favourable areas for tube-well development are:

(i) North-west region (Dinajpur, Rangpur, Bogra, Pabna and Rajshahi) extending over an area of 4,000 sq. miles.

(ii) North-west part of the south-west region (Kushtia and parts of Jessore and Faridpur) covering about 2,600 sq. miles.

(iii) North-west corner of the North-east region (north Mymensingh) covering an area of about 500 sq. miles.

Ground water studies carried out by various agencies indicate that, except for the saline area (area south of Jessore-Comilla line) and red tracts of Madhupur and Barind areas of Rajshahi and Dinajpur districts, suitable shallow aquifers exist for development of "shallow" tubewells. These tubewells usually having less than 100 feet depth, involve low cost and shorter time and will employ local skill and materials. However, since shallow tubewells for irrigation purpose were never tried previously in Bangladesh, the programme should be implemented with caution at least during the initial stage.

Although a comprehensive Groundwater Survey Programme was started in 1970-71, no appreciable progress could be made due to the War of Liberation. After liberation, work has been resumed; so far data on several hundred test wells and a number of deep tubewells have been compiled and a map of seasonal fluctuation of water table has been prepared by the Groundwater Directorate of the BWDB. Excluding low lying areas as well as areas with unfavourable aquifer conditions, the total area so far identified for prospective tubewell development in Bangladesh is about 9·5 million acres. It appears that from recharge consideration alone, about 47,000 (2-cusec) tubewells can be accommodated in the area. However, there are other limiting factors on which withdrawal of groundwater will depend, such as: (i) spacing of wells (interference), (ii) safe yield, (iii) quality of ground water, (iv) economics of pumping and (v) availability of suitable land for irrigation from the standpoint of contour, productivity and water-holding capacity. Considering these factors and allowing a spacing between wells of ¾th to 1 mile, the total number of tubewells (2-cusec) has been tentatively fixed at 19,000. In a similar way, the number and distribution pattern of "shallow" tubewells have been tentatively fixed at 15,000 (½-cusec). The programme may have to be revised later on, as the results of comprehensive groundwater survey become available. In addition, private sector participation in shallow tubewells may be encouraged subject to technical and other constraints. Any additional irrigation coverage due to such programme will contribute towards meeting the Plan target.

C. Low Cost Irrigation Methods

A research project on low-cost irrigation methods, including different types of dug-well and tank irrigation has been designed and is being implemented by the Government under the overall guidance of the Planning Commission. The alternatives which are being considered are different types of dug-wells and tank irrigation.

Dug-wells

There are more than 1,000 dug-wells in Rangpur district which can be used to some extent for irrigation but these are unlined and the water is extracted by hand which is not an effective method of withdrawal of water. Improved design and type of dug-wells should therefore be considered in future. These are:

(*i*) *Lined Dug-wells*—These wells could be constructed by manual excavation of a hole about 6 feet in diameter, about 25 to 35 feet deep (in northern districts) depending upon the position of ground water table. A concrete ring of about 5 feet internal diameter could be lowered into the hole followed by perforated brick lining as the concrete ring descended into the excavation under its own weight. Pumping from such wells at the rate of about 0·5 cusecs should be possible in most cases with simple surface mounted centrifugal pump.

(*ii*) *Dug-well with bamboo strainers*—Such tubewells have been used in areas with artesian aquifers. Its use in Bangladesh will, therefore, be limited.

Construction of the well will be simple; a 6 feet diameter hole, 25 to 35 feet deep should be excavated manually. At the bottom of the well two or three hollow bamboos with longitudinal slots will have to be inserted. These bamboos will act as strainers, water will enter the bamboo strainers and will rise into the well automatically, under artesian pressure.

(*iii*) *Jetted wells*—Where the available groundwater table is too deep, jetted wells should be drilled by means of simple, locally manufactured tripod rigs capable of being moved from place to place manually or by bullock carts. Research and development work is required to define the most appropriate design for this type of well but it seems likely that about 60 feet of 4 inches screen followed by up to 40 ft. of 6 inches plain casing would yield 0·5 cusecs. A simple propeller pump would have to be used for withdrawing water from such a well. The equipment required for jetting may consist of a simple tripod arrangement for suspending the casing while it is being lowered into position and a pump to force water down through the casing to create the jetting action. To drill a 6 inches hole into a depth of 80-100 ft. and to lower the casing may take a couple of days. Preliminary cost estimates indicate that the capital cost of these wells will range between Taka 2,000 and Taka 2,500, the cost of simple dug well being the lowest and the jetted well being the highest.

Tank Irrigation

Bangladesh is a country where there are numerous tanks fulfilling the multipurpose water requirement in rural areas. It is estimated that the total surface area of all tanks would be 633,000 acres, but almost 75 per cent are derelicts. One idea was to excavate the tanks and utilize the tank for irrigation during the dry season. Quantitative analysis has, however, shown that the proposition of deepening tanks merely for the purpose of using the tank water for irrigation is not feasible. As an example, one may consider Feni subdivision which has a large number of tanks as compared to other subdivisions. The total area of the tank in Feni subdivision has been estimated to be 13,400 acres. Also it is assumed that these tanks were excavated to ensure a minimum depth of 8 feet of water during the dry season. Assuming conservatively that loss due to evaporation and seepage during the irrigation period will be about 25 per cent and that a minimum of 3-4 ft. of water must be retained in the tank to support aquatic life, it is found that if all the tanks in the Feni subdivision were re-excavated and utilised for irrigating agricultural land it would hardly be possible to cover more than 5 per cent of the total irrigable land in the area during the Boro season.

Although intensive irrigation using tank water is not feasible re-excavation, cleaning and fertilization of tanks for the purpose of raising fish seems to have great promise in Bangladesh. A properly excavated, cleaned and fertilized one acre tank should yield about 1,500 pounds of fish annually. Assuming conservatively, an average yield of 1,200 pounds of fish per year, expenses of Tk. 500 per year and price to farmer of Tk. 2 per pound, farmers' annual profit is calculated to be Tk. 1,900. The annual profit that a farmer makes in the Comilla district, for example, is said to be about Tk.500 per acre when traditional technology is used and Tk. 1,600 per acre when proper irrigation and flood protection facilities are provided and all other inputs including HYVs are made adequately available. This indicates that not only re-excavation of existing tanks but also excavation of new tanks has a promising future

in Bangladesh. The primary benefit will be fish production; secondary benefits will be water supply for domestic use, recreation and to a limited extent, irrigation.

D. Flood Control and Indo--Bangladesh Co-operation

The problems and prospects of short-term development as outlined above will form the initial stage of an overall water development plan. The problem of formulating such an overall plan is complicated due to the fact that a complex system of major rivers, all originating outside the country, pass through this flat delta interlaced with a large number of small streams and channels which carry over 50 lakh cusecs of flow and enormous sediment load during the monsoon. Over a period of years some semi-major and many minor rivers have deteriorated to such an extent that dredging in some rivers is needed to improve their carrying capacity for efficient flood flow during the monsoon and better navigation and irrigation during the low flow season. Embankment has been considered as a good means of flood protection. Double embankment over a long period of time may cause raising of river beds due to siltation; this may solve the problem of flood protection but over a period of time may cause the adjacent lands to fall below the river beds in some cases creating waterlogging and other consequent social problems. To counteract this effect dredging is again a solution in the double embanked stretches of some of the rivers.

The major rivers except the Meghna derive only a negligible proportion of their flow from run-off within Bangladesh. Major problems, therefore, arise with the development of these international rivers, which have to be resolved through co-operation between the countries involved. For such co-operation and joint action, India and Bangladesh have set up a Joint Rivers Commission. The Commission is presently working on a number of specific studies. The question of formulation of a long-term plan to develop river systems for mutual benefits is also under consideration by the Commission. The small streams and channels lying within the country will have to be enlarged and controlled by suitable structures for improving irrigation, drainage, flood control and quality of the environment. The plan will also include interlinking of watersheds into an integrated regional water development system. The limited fresh water supplies during the low-flow period should be supplemented by diversion of water from major rivers at strategic points and by selected estuary closures. This plan for water control in Bangladesh will have to be carried out by stages, each of which will be a self-contained step with identifiable benefits justifying its implementation and each contributing towards reaching the ultimate goal.

8.2.3 Objectives

One of the major objectives of the plan is to achieve self-sufficiency in foodgrain production by 1977-78. To achieve this objective, the programme in the water sector has laid considerable emphasis on fast pay-off and short-term water development projects, while concurrently stressing the necessity of undertaking studies and initiating actions on large-scale projects. The specific objective of the Plan will be as follows:

1. To maximise benefits by increasing efficiency of operation and management of completed water development projects.

2. To re-organize and strengthen the existing executing agencies of flood control, irrigation and drainage works to enable them to undertake massive development programmes in an efficient manner.

3. To install low-lift pumps and tubewells, and to design and construct irrigation channels for proper delivery of water.

4. To develop and control surface water resources in order to provide dependable and timely irrigation for winter crops, by medium to large-scale canal irrigation.

5. To protect coastal areas from saline water inundation by coastal embankments and to control or regulate flood in vital areas.

6. To negotiate with India on the development of the Ganges, the Brahmaputra and the Meghna river basins and utilization of their waters under a long-term strategy.

7. To organize and expand the hydrological data collection activites and to intensify studies of the major rivers and the hydrologic regions which will be essential for drawing up a comprehensive water development programme for the country.

8·2·4 Strategy of Development

In Bangladesh, social and human factors weighed so heavily on planning and selection of the "right" project that over the past years there has been a continuing effort to identify the most appropriate overall strategy for water resources development, particularly for the irrigation development. One of the most pertinent areas of discussion and analysis has been the relative merits of "major" versus "minor" projects. With regard to "major" projects it has been observed that because of design problems (partly attributable to the advice of foreign consultants not adequately familiar with local problems), the facilities built have in many cases proved to be less efficient and dependable. Moreover, problems have arisen in connection with obtaining rights of way for large-scale projects and with farmers' natural reluctance to invest for the cultivation of HYVs when the control of vital inputs was in some one else's hands. By contrast, small irrigation projects have developed on the concept of providing facilities in response to requests from small co-operative farmer groups. While the engineering of such projects is below the optimum level, these projects have led so far to the irrigation of over one million acres while the "major" projects have reached less than one-fifth of this area at a very high cost.

The overall strategy of irrigation development during the Plan period will therefore be one that permits and requires the earliest and direct involvement of the farmers. The strategy recognizes the tremendous potential latent in rural Bangladesh that can be realised with small and intermediate scale irrigation and drainage development projects, low-lift pumps and tubewell development. Simultaneously a number of selected large-scale projects will be taken up, which are on-going, labour-intensive and will provide substantial flood control, drainage and irrigation benefits towards the end of the plan period. Attempt will be made to introduce water management within the Coastal Embankment Project, Phase—I so that agricultural benefits can be derived within the project area in the shortest possible time.

Although the strategy during the plan period is to lay emphasis on "minor" projects (which along with some selected large-scale multi-purpose projects are expected to provide irrigation coverage to only about 20 per cent of the net cultivable area by the end of the plan period) it is realized that the ultimate solution of the problem lies in long-term basinwide development. Attempts will, therefore, be made to intensify the regional studies and study of the major rivers and to identify and formulate long-term projects for implementation during subsequent plan periods.

Last but not the least, there is a great need for continuous project evaluation and an urgent need to recover part of the cost of projects. During the plan period, a project evaluation team from the Planning Commission will be continuously engaged in making an assessment of progress against targets. Water charges will be realized from the beneficiaries to recover a part of the total cost of development because without a judicious pricing of water, efficient utilization of this costly input can never be ensured.

8·2·5 Programmes

A. Improvement of existing irrigation projects

As indicated earlier, highest priority is to be attached to increasing the efficiency of operation and management of all existing irrigation projects. Some important steps to achieve this goal would be:

(i) To introduce some flexibility in the allocation of the number of tubewells and pumps to each district on the basis of existing hydrological conditions and past performances in maximizing the command areas so that a system of incentives aimed at maximum efficiency is complemented although existing schemes define the number of tubewells and pumps for each district.

(ii) To consider each irrigation facility such as tubewell and low-lift pump, as independent project requiring survey, design and construction of irrigation channels.

(iii) To increase the number of hours of operation of tubewells and pumps to at least 12 hours per day on an average, during the months of peak irrigation requirement.

(iv) To entrust the responsibility of operation of tubewells and pumps to the farmer groups. The agencies shall, however, continue to provide maintenance and repair services.

(v) To recover a part of the cost of irrigation from the beneficiaries.

(vi) To reorganize the agencies presently involved in conservation, development and utilization of water resources in the country.

B. New Irrigation Projects

Next to this in the line of action, will be to take up short-term, quick-yielding projects such as low-lift pumps, "deep" and "shallow" tubewells and canal irrigation. From available hydrological data it is estimated that it is possible to field about 45,000, 2—cusec single stage

low-lift pumps, 19,000, 2-cusec "deep" tubewells and 15,000, ½-cusec "shallow" tubewells within the plan period. Out of a total 45,000 low-lift pumps, about 7,000 pumps will be used for pumping water within the surface water irrigation programme of BWDB. As regards tubewell development, two separate schemes will be taken up, one for 19,000 "deep" and another for 15,000 "shallow" tubewells. A tentative regional allocation and year-wise phasing has been suggested in the Plan which may be modified on the basis of hydrological survey.

Total areas expected to be brought under irrigation programme at beginning and end of the plan period have been estimated to be about 13·60 and 41·30 lakh acres respectively. By the end of the plan period the areas covered by various types of irrigation projects, that is low-lift pumps, tubewells and large-scale canal irrigation are expected to be about 22·50, 14·20 and 4·60 lakh acres, respectively (Appendix N-2). The estimates are based on an ultimate command areas of 60, 50 and 15 acres for each "deep" tubewell, low-lift pump and "shallow" tubewell, respectively. Besides, an area of about 8 lakh acres will be provided with imporved drainage facilities by small drainage schemes.

C. Flood Control

Flood Control Programme during the plan period will include:

(i) Flood protection embankment to protect low lying areas from floods and coastal embankments to protect land from saline inundation and also to develop polders for irrigation and drainage.

(ii) Urban protection works to protect the important urban/commercial centres.

(iii) Channel improvement, river training and land reclamation.

(iv) Studies and initiation of action on long-term multipurpose projects. The programme proposed to be included in the Plan will protect an area of over 21 lakh acres from floods. By June 1973 an area of 30 lakh acres fully and 9 lakh acres partly will be protected from floods. At the terminal year of the Plan the fully flood protected area will be over 51 lakh acres and 9 lakh acres will be partly protected. Besides protecting the land from damages to crops, flood protected areas will provide improved social security, communication, commerce and trade, land value and environmental condition to the people inhabiting the area.

D. Surveys and Data Collection

There will be emphasis on the programme of comprehensive hydrological, groundwater and hydrographic surveys and data collection. Hydrological surveys will include collection of discharge, water level, sediment load, rainfall, evaporation, sunshine records and salinity data. On hydrographical surveys cross sections of rivers should be collected in all the major and medium size rivers all through the country. On groundwater surveys there will be extensive coverage of data collection on quantity and quality of groundwater. Stress should be given on processing, analysis, interpretation, research and publication. Water balance studies should also be undertaken. As basic data form the basis of formulation of any water project

emphasis will be on accuracy of surveys and consequent processing thereof. Research will be undertaken on hydraulic and hydrological problems of rivers, river training, sediment transport, bank erosion, etc.

E. Recovery of Cost of Irrigation

An economic analysis of costs and benefits from various types of irrigation projects have been made under a set of conservative and realistic assumptions. This is presented in Table VIII-23 :

TABLE VIII-23

Summary of Benefit-Cost Analysis of Irrigation Projects.

Type of Irrigation.	Annual cost/acre (Taka)	Annual net Benefit/acre (Taka)	B/C.	Present Repayment as percentage of annual cost.
1. Low-lift Pumps	158	1,285	8·1	23
2. Shallow Tubewells ..	156	1,023	6·6	34
3. Deep Tubewells	216	1,118	5·1	14
4. Large Scale Canal Irrigation ..	280	1,200	4·3	Nil.

The calculations are based on certain variable assumptions. Nevertheless, benefit-cost ratios (B/C) as shown in the table are indicative of the relative efficiency of different types of irrigation projects. It will appear from the table that though investment on irrigation is highly profitable, realisation of irrigation costs from farmers has been very poor; it ranged from nothing for large scale projects to 34 per cent for shallow tubewells. Without a simultaneous increase in revenue generation by recovery of cost, further expansion of water resources development will be seriously constrained. Recovery of cost of irrigation is also necessary for better utilization of the created facilities in water development.

Financial analysis of the return to farmers from use of irrigation water indicates that the farmers derive a considerable surplus. But considering the facts that our farmers are generally indebted and that they will need to consume more with increased income, it will not be possible to realize full cost of water from them during the Plan period. There are considerable variations in costs and benefits under different types of irrigation and in different areas under the same type of irrigation. Imposition of taxes strictly on the basis of costs and benefits will, therefore, involve enormous complexities. It is, therefore, suggested that a minimum uniform and gradually increasing rate be imposed for all types of irrigation throughout the country. Considering the present rate of payment by the farmers and other factors, it is proposed that the following water rate should be realized from beneficiaries during the Plan period ;

(*Water rate in Taka per acre.*)

1973-74.	1974-75.	1975-76.	1976-77.	1977-78.
50	70	90	120	150

This will imply the rates of subsidy on different types of irrigation projects as shown in Table VIII-24.

TABLE VIII-24.

Government Subsidy on Annual Costs, in Percentage Terms

Types of irrigation.	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.
1. Low-lift Pumps ..	68	56	43	24	5
2. Shallow Tubewells ..	68	55	42	23	4
3. Deep Tubewells ..	77	68	58	44	30
4. Large Scale Canal Irrigation	82	75	68	57	46

Low-lift pump and tubewell irrigation differs in some respect from large scale canal irrigation projects. In case of low-lift pumps and tubewells, an alternative system of payment is also suggested. Instead of paying water charges at the above rate the beneficiaries may have the option to own the facilities by payment of capital cost. This capital cost may either be paid at a time or on instalment basis. In such cases Government will still be providing repair and maintenance facilities on payment, if the farmers so desire.

8.2.6. Organization, Employment and Training

Development and utilization of water resources is a pre-requisite to the development of agriculture and also to the overall economic development of the nation. Unfortunately in the past, achievement against target has been rather unsatisfactory. Experience indicates that efficiency of projects has been reduced considerably primarily due to lack of co-operation and overlapping responsibilities between various agencies. Examples are Thakurgaon Tubewells, G.K. Project and Low-lift Pumps and Tubewells under BADC where the actual command area has been less than 50 per cent of the expected command area.

The achievement of physical target of water sector during the Five Year Plan and consequently the attainment of self-sufficiency in foodgrain is subject to several conditions, an important one being reorganization of water resources conservation, development and utilization agencies.

The reorganized set-up is recommended to be one in which conservation of all national water resources and development of large-scale multipurpose projects will be the primary responsibility of the Ministry of Flood Control and Water Resources. Ministry of Agriculture will be primarily responsible for development and utilization of tubewells, low-lift pumps and small irrigation and drainage schemes since such projects are directly related to agricultural development. The Ministry of Flood Control and Water Resources should concentrate on conservation of water resources, survey, planning, designing, programming and execution of large-scale surface water development projects. The Ministry of Agriculture through a reorganized set-up will be responsible for installation of tubewells and low-lift pumps. It will also be responsible for implementation of small schemes for irrigation and drainage and operation and maintenance of completed projects of Water Development Board excluding the large-scale multipurpose projects. However, in planning and programming for the small irrigation schemes, tubewells and low-lift pump projects the agencies under Ministry of Agriculture should get prior clearance from the Water Development Board and the Flood Control and Water Resources Division of the Planning Commission.

The reorganized agency under the Ministry of Agriculture should be decentralized, to the District level having planning and implementation cells. To perform the responsibilities entrusted to it the Water Development Board should be decentralized into several regional offices. The planning, designing and programming of large-scale projects will, however, have to be done at national level. For planning and programming at the national level there should be a Planning Cell in each of the two Ministries. The existing office of the Central Executive Staff under Water Development Board may be reorganized to form a Planning Cell under the Ministry of Flood Control and Water Resources. The Flood Control and Water Resources Division will co-ordinate the activities and formulate the overall national plan in consultation with the Planning Cells of the two Ministries.

In the light of rapidly increasing labour force, creation of employment opportunities has been given priority in the overall Plan. The implementation of projects in the water sector will generate substantial employment not only in direct project execution activities but also in indirect activities and crop sector. Training institutes will be established and existing ones expanded and improved to offer training to engineers and technicians, in order to enable them to shoulder the responsibility of building, operating and maintaining all projects included in the Plan. The Engineering Academy at Kaptai will be expanded to impart in-service training to the officers and staff of water resources development agencies. New institutions should be established to train a large number of technicians and mechanics for operating and maintaining tubewells and low-lift pumps.

8.2.7 Physical Targets and Plan Allocations

The physical and financial targets of the Plan have been summarized in Table VIII-25. Details showing district-wise and year-wise irrigation, flood control and drainage coverage of all projects and financial allocation of individual projects have also been worked out.

TABLE VIII-25

Summary of Physical and Financial Targets

Type of Project/Agency.	Physical Targets (Area to be irrigated/ protected from flood, drainage in lakh acres).				Financial Targets for the Plan, cost in crore Tk.	
	Benchmark coverage (June 1973)		Final coverage.		Total cost	F. E. C.
	Irrigation.	Flood Protection.	Irrigation.	Flood Protection.		
(i) LLP/BADC ..	10·50 (30,000)	..	22·50 (45,000)	..	74·00	21·50
(ii) DTW/BADC ..	1·25 (2,900)	..	11·44 (19,000)	..	174·00	61·00
(iii) STW/BADC ..	0·16 (2,000)	..	2·25 (15,000)	..	9·07	...
(iv) Tubewells and Fractional Pump/Private.	0·50	..	0·50	...	...	...
(v) LSP/BWDB ..	1·22	(a) 30·00	4·63	(a)51·40	309·50	71·00
		(b) 9·00	..	(b)9·00	..	...
(vi) Small drainage schemes/ Irrigation Directorate.	..	..	(c) 7·90	..	11·70	...
*Total	13·63	30·00 9·00	41·32	51·21 full 9·00	578·27	153·50

Figures within parenthesis indicate number of pump/tubewell.

*Excludes drainage improvement to 0·79 million acres.

(a) Full flood protection.

(b) Partial flood protection.

(c) Drainage improvement only, no irrigation water will be supplied.

Abbreviations :

LLP = Low-lift Pump, DTW = Deep Tubewell, STW = Shallow Tubewell.

LSP — Large-scale projects.

8.3 RURAL INSTITUTIONS

8.3.1 Present Status of Rural Institutions

Bangladesh has a long history of institution building and institutional reform related to rural and agricultural development. A Provincial Department of Agriculture was instituted as early as 1885, but the present pattern of extension organisation was initiated in the forties when District level agricultural officers, demonstration farms and Union level agricultural workers were first introduced. The co-operative movement in Bengal began as a government sponsored programme at the beginning of this century when the provincial co-operative bank, central bank, and village co-operative societies in the country-side were set up. The present programme of union multipurpose co-operative societies was introduced in 1949. A system of Local Self-Government in rural Bengal was introduced in 1885, which continued to remain the basic foundation of local government institutions until the emergence of Bangladesh as an independent nation. As regards land administration and land reform the first significant step was taken in 1951, when the East Bengal State Acquisition and Tenancy Act abolished the Permanent Settlement of 1793. A national community development programme known as the Village Agricultural and Industrial Development programme (VAID) was launched in 1952 but failed to make any significant contribution to agricultural development. The programme was abandoned in 1960. The Bangladesh Academy for Rural Development was established in 1959, and began a series of pilot experiments leading to such rural development programmes as the Rural Works Programme, the Thana Training and Development Centre, the Thana Irrigation Programme and the Integrated Rural Development Programme.

The present status of rural institutional programmes may be summarised briefly as follows:

(i) The Ministry of Agriculture has agricultural extension officers at the Union, Thana and District levels. In general, most of these officers at the Thana and Union levels are poorly trained in agricultural science and extension methods. At the village level the Union Agricultural Assistant operates in a large area. His performance has been very poor. The present extension service cannot meet the demands of agricultural development programmes envisaged in the First Five-Year Plan.

(ii) There is a national co-operative credit bank with 62 central banks spread all over the country. At the village level there are 4,107 union multipurpose co-operative societies and about 25,000 agricultural co-operative societies. This set up is primarily concerned with distribution of short-term farm credit. Its effectiveness has been very limited; only a small fraction of the total credit needs of the farmers is met by the co-operatives.

(iii) The former local government bodies were disbanded after Independence. A new local government system is in the process of formulation which will start functioning within a short period. The Rural Works Programme is now primarily concerned with the massive task of relief and rehabilitation of the war ravaged rural area. The concept of the Thana Training and Development Centre as a key institution for integration of rural development activities of different departments and training of local leaders has faded away, although the work of building the physical structure of T.T.D.C. has progressed satisfactorily.

(iv) The Integrated Rural Development Programme (the new two-tier co-operative programme developed by BARD, Comilla) has made modest progress in its expansion in new areas and consolidation in the existing areas. In 1972 only 33 Thana Central Co-operative Federations and 6,607 village co-operative societies were in operation. The village co-operatives have not been able to attract the small farmers, share-croppers and landless cultivators. In many places the co-operatives are dominated and controlled by relatively well-to-do and influential land owners, money-lenders and traders. The Thana Central Co-operatives (TCCAs) have yet to show signs of self-reliance and self-management.

(v) The procurement and distribution of modern agricultural inputs (irrigation pumps, HYV seeds, fertilizer) is the responsibility of Agricultural Development Corporation (BADC). The inputs are distributed through a system of warehouses and Thana godowns operated by BADC, and co-operative societies, irrigation groups and private dealers at the village level. This system will have to be considerably improved to ensure rapid and smooth flow of inputs where and when they are needed.

(vi) Marketing of agricultural produce is now handled by private traders through the existing market centres in the rural areas. The conditions of the rural markets and transportation are very poor due to long neglect and devastation during the war of liberation.

8.3.2 New Institutional Policy and Programmes

The achievements of the targets postulated in the preceding chapters will call for a sound institutional base. This is particularly important as the aim is not only increased production but greater equality in distribution by the active involvement of small farmers and landless labourers in the process of growth. The institutions which serve these small farmers and landless labourers are, therefore, of paramount importance. In our analysis the major mistakes of institutional policy pursued in the past were as follows:

(i) The rural institutions were imposed from the top and treated as an extension of government bureaucracy rather than people's organisation.

(ii) Locally elected bodies were never truly representative because the richer and influential class managed to win the election. The election system failed to recognise the authoritarian nature of traditional power-structure, and no provision was made to protect the interest of the politically weak, depressed and exploited class of people.

(iii) The local institutions failed to provide a forum for collective decision making and action. People's participation and control at the local level were missing. This happened because the supremacy of 'workers' (cultivators, fishermen, weavers, etc.) rather than 'owners' was not recognised.

(iv) The main purpose of the rural institutions was seen as distributing and utilizing resources injected from outside, rather than mobilising internal resources. The principles of self-management and self-reliance were forgotten.

These mistakes must be corrected. In our plan for building a new institutional frame-work specific measures are suggested for this purpose. We propose to build the local government and co-operative institutions on a broader base; as representative of different categories of

people; capable of being self-managed and self-financed within a specified period of time; free from bureaucratic control; and fully oriented towards increasing production and facilitating equitable distribution of income.

The new local government institution will be responsible for building and maintaining the infra-structure of roads, drainage and irrigation system; providing public health, sanitation, educational and social welfare services; assisting the central government in maintaining law and order, and collecting taxes, rents, rates, dues, etc., and requisition of the means of production and services for public interest. The local government institution will promote and assist such organisations as co-operatives, associations, clubs, etc., of local communities.

The local government institution will ensure effective planning, co-ordination and mass participation in development programmes at the lowest possible levels. For this purpose informal people's council at the village level, consisting of all voters in the village, will meet once every month. It will receive reports from its elected representatives to the local government, discuss problems, make plans of action, and take collective decision on all matters related to the village within the broad frame-work of development plans and policies. The people's council will ensure mass participation, public accountability, and social responsibility of the members and leaders of village communities. It will provide a forum for the members of the community to express their ideas and opinions, and to share the responsibility of making decisions. The council will perform the traditional functions of the 'Samaj' in a new context, and in a more democratic and egalitarian manner.

The main seat of development administration of the local government will be at the Thana. The physical facilities of the Thana Training and Development Centre (TTDC) will be expanded, if needed. The TTDC will be fully utilised by bringing together all the Thana level officers of various nation-building departments into a single development team under the control of local government. Long-term and short-term Thana plans will be prepared. Inventories of locally available material and human resources will be prepared and schemes for mobilisation and utilisation of such resources will be made with the help of union panchayet and people's council at the village level.

A social transformation of the agricultural and rural economy of Bangladesh requires that the means and processes of production and distribution be socially controlled and regulated. A strong, representative local government will no doubt facilitate social control, but specialised institutions like co-operatives will be needed to formulate policy and implement programmes. It is well known that serious class differences exist in the rural society of Bangladesh. The rural power structure is authoritarian, dominated by the vested interest groups. If these groups continue to dominate and make decisions regarding choice of new technology and institutions, the interests of the lower stratum and the majority of rural society will not be safeguarded, class differences may be magnified, and bitter class struggle will become inevitable. This problem can only be tackled by helping the depressed class to organise themselves, adopt innovations collectively, and become a dominant productive force. Co-operatives are a suitable organisation for such purposes. A co-operative institutional frame-work is specially relevant because of the very high population density which creates severe pressure on land and other natural resources, and the existence of a large body of unemployed and underemployed persons whose interests cannot be safeguarded otherwise. The co-operative programme will have to be directed towards community planning, saving of scarce resources by collective operations, and generation of savings for productive investment. A system of integrated multipurpose workers' co-operative will be most suitable for this purpose. The innovations introduced by Comilla Pilot Project on co-operatives and the experience gained on this during the past years can be fully utilised in developing an integrated co-operative development programme.

8.3.3 Integrated Rural Development Programme (IRDP)

The present Integrated Rural Development Programme (IRDP), having village level cooperative societies and their federation at the Thana level, and associations at the District and the National level, will be modified, strengthened and expanded to cover 250 Thanas by the end of the Plan period. The village level cooperative will have a broader base by bringing together three categories of people pursuing identical objectives into a single organisation. The three categories are as follows:

(I) *Category A*: those who practically have no means of production, who depend entirely on their own labour and work as hired hands;

(II) *Category B*: those who have small means of production; who depend on their own labour, occasionally employ hired workers or work as hired workers when the need arises; and

(III) *Category C*: those who have appreciable means of production, who work themselves but also employ hired labourers, but do not work as hired labourers themselves. They tend to work more as managers of their enterprises rather than as manual workers.

The location and physical boundary of a primary cooperative should be decided locally by the people, in a manner so that the cooperative becomes a socio-economically viable unit, and does not remain confined to a particular village faction, kinship group or social or economic category of people. The membership of the primary cooperative will be open to all who are working or looking for work in the field. Money-lenders, rentiers or contractors of hired workers will not be eligible for membership in the cooperative.

The members of the managing committee of primary cooperative society will be elected in such a way that the three categories (A, B and C) of people described above are proportionally represented in the managing committee. The general body of the cooperative society meeting at least once every fortnight will make important decisions. The managing committee will carry out these decisions and report back to the general body. For training/operation purpose the total body of the membership may be divided into a number of sub-groups of 20—40 members on "para" or sub-locality basis. These groups will meet once every week. The village cooperative assisted by TCCA will organise training/discussion programmes.

The primary cooperatives will be given dealership for distribution of inputs (fertilizers, nylon twine for fishing net, yarn, etc.) supplied by the government and nationalised industries. Equipment and machinery (pumps, tractors, looms, nets) supplied by the government as grant or loan will be given to the cooperatives for joint and collective use by the members. Credit will be supplied through the cooperatives. The landless labourers will be encouraged and helped to jointly own and operate implements and machineries (sprayers, threshers, pumps, tillers, boats, transport vehicles, etc.). They will also be trained in various technical skills. The primary cooperative society will organise these programmes. In addition to their normal production oriented functions the cooperatives will help the local government institutions to plan and implement specific projects and schemes. Particularly, the cooperative will organize its members to work in the labour intensive projects (roads, irrigation canals, etc.) undertaken by the local government. In this way the cooperative will provide employment opportunities to its members and facilitate productive utilisation of unused labour force. It will become an important institution for everybody who work or are seeking work.

The Thana Central Cooperative Association (TCCA) will operate as a supporting organisation: to assist in planning and supply of inputs and services, organise processing storage and marketing of outputs, arrange regular training and extension services, provide technical/organisational consultation and advisory services. Its functions will be to promote the growth of primary cooperatives as self-managed and self-reliant bodies and integrate them into one cooperative system. The TCCA will ensure that the primary cooperatives do not become merely their agents and, therefore, dependents. The TCCA will gradually withdraw itself from directly operating the credit business. It will promote thrift deposits by cooperative members, assist the cooperatives in assessing their credit requirements and planning credit utilisation. The actual business of distributing credit, keeping accounts, etc., will be taken care of by the branch of National Cooperative Bank (or Nationalised Banks) at the Thana. These banks will have to be specially organised for handling rural credit programmes. It will have to be ensured that loans are promptly supplied to the village cooperatives on the recommendation of TCCA. The Managing Committee of TCCA will be elected on the same principle of proportional representation as in the case of the primary cooperative. The Managing Committee will appoint a Manager or Executive Director of the TCCA, who must be a qualified and trained person recommended by the Cooperative Development Board (CDB).

The development of cooperative system will have to proceed systematically within a broad frame-work of national development plan. The government will have to invest resources and assist in the initial promotional and organisational responsibility. On the other hand, it is important to ensure that the cooperative movement does not become just another development function of the government bureaucracy and dependent only on government grants. In order to initiate, promote and organise the cooperative movement as a national development programme the following steps will be taken:

(i) A Cooperative Development Board (CDB) will be formed by the Government immediately, and the IRDP will be placed under that Board. The CDB will have 15 Members and a Chairman. Ten of the members will be elected by the TCCAs; three senior officials and two non-official scholars/professionals/practitioners in rural development will be selected by the Government. The Minister-in-charge of Co-operatives will act as the Chairman of the Board for the first three years, after which the Board will elect its Chairman. Alternatively, the Chairman may be elected by the members of the Board from the first year. During the first three years the members of CDB will be elected/selected every year. Subsequently the election/selection will be held once in every three years. The CDB will begin operation immediately with the Board formed by the selected members and representatives from the existing TCCAs.

(ii) The present IRDP office at Dacca will be the Secretariat of CDB. Its main function will be promotional, training and research rather than executive functions related to operation of TCCAs. The CDB will build up a cadre of cooperative organisers who will be placed at different thanas for initial promotional and organisational work and to become the manager/executive director of TCCA. This cadre will be carefully selected, preferably from local field workers, and trained in ideological as well as operational matters. The CDB will also arrange training for managerial and administrative personnel appointed by the TCCAs. Initially the cost of training will be borne by CDB.

(iii) The CDB will offer each TCCA an initial grant of Taka one lakh per year for five years only, provided the TCCA satisfies certain minimum organisational requirements and performance standard. In addition, long-term seed capital will be provided at the rate of Taka four lakhs per year to TCCAs on request for 5 years. The TCCAs will be able to borrow short-term loans from the cooperative bank and other financial institutions for which arrangements will be made by CDB. Under no circumstances the government grant to a TCCA will be continued after the fifth year.

(iv) The organisation of educational and training programme will be one of the main responsibilities of CDB. It will prepare standard programmes for different categories of people in consultation with different training institutions (BARD, Cooperative College, Extension Institutions, etc.). It will offer financial and technical assistance to the training institution if such help is needed. In addition, seminars, workshops, conferences, etc. will be financed and organised by CDB. Finally the CDB in cooperation with the District level Cooperative Associations will finance and organise mass member-education programmes aimed at functional literacy, ideological and organisational education, etc.

(v) Financing and conducting pilot action programmes, research, surveys and evaluation will be the other main functions of the CDB. The research operation will be conducted on the basis of practical need, on a continuous basis, so that the progress of the movement can be carefully evaluated and monitored.

The effectiveness and success of the cooperative development programme will basically depend on a number of supportive government policies and action. First, the government and the party in power shall have to mobilize the whole political machinery and the mass media of communication in favour of the movement. Second, the distribution of all modern inputs should be made through the cooperatives. The cooperatives and their members should be treated preferentially in this regard. Similarly in procurement and marketing the cooperatives should be given preference. Third, the cooperative laws/acts should be modified and the regulatory functions (audit, registration, etc.) should be strengthened and made more effective in a positive sense so that acts and regulations help in the healthy growth of cooperatives. Fourth, land reform programmes should be closely related to development of cooperative organisation. The programme of distribution of land to landless cultivators should be implemented by organising the beneficiaries into cooperatives. In this way advanced form of cooperative should be promoted. On the other hand, the cooperative organisations should be encouraged and given responsibilities of implementing land reform and related programmes. Thus, such programmes as reclamation and productive use of derelict tanks, improvements of hats and bazars, etc., can be implemented through the cooperatives. Finally, to provide technical support the Planning Commission may institute a Technological Advisory Committee to ensure that the technical content of the package of improved agricultural practices is sound and appropriate for local conditions. This committee may include representatives from IRDP, the Ministry of Rural Development, the Ministry of Agriculture, the Ministry of Forestry, Fisheries and Livestock, the Water Development Board, the Agricultural University, the Rice Research Institute and other major research institutions. This committee may formulate the package of practices for each season, boro, aus and aman, for rice and kharif and rabi for other crops after obtaining reactions from the field through consultation with representatives of local government bodies, TCCAs, DAOs, TEOs and VEAs and village cooperatives. These practices will then be implemented with the help of IRDP, local government bodies and agricultural extension service.

In the course of the First Five-Year Plan IRDP will be expanded to 250 Thanas (present 89+161 new) giving prior attention to (i) the area of foodgrain concentration in so far as these are also the areas where pump-sets and tube-wells are expanding fastest, (ii) the cyclone-affected areas, (iii) part of the jute area of concentration (in that order of priority). After the second year an evaluation will be made and on satisfactory performance the programme will be expanded to cover the whole country. The estimated total cost of the programme will be Taka 31·00 crores, which will be provided as government grant. In addition the programme will require Taka 39·50 crores as long-term loans and Taka 72·20 crores as short-term loans to TCCAs. The details of cost estimates are shown in Table VIII-28. The expansion of IRDP will take place in a phased manner as shown in Table VIII-26. Some of the targets of IRDP to be reached by 1977-78 are shown in Table VIII-27.

8.3.4 Other Cooperative Programmes

The IRDP will be concerned with peasants' cooperatives. Other cooperative programmes will be implemented by the Department of Cooperative during the plan period. Those will be concerned with Milk Producers, Fishermen, Weavers, Auto-Rickshaw Drivers, and Sugarcane growers, etc. The Milk Producers Cooperative will organise 500 primary societies and a Central Association. It will have pasteurisation and chilling plants in Pabna, Dacca, Faridpur, Tangail and Manikganj. The existing Lahirimohanpur Dairy and Asto Dairy plants will be brought under a single cooperative organisation. The objective of this programme is to supply 60,000 litres of fresh milk per day to consumers of Dacca city by the end of the Plan period.

The Fishermen's Cooperative Programme will organise 200 primary societies and 20 Central Associations. About 2000 mechanised fishing boats and 50 carrier vessels will be constructed. The Weaver's Cooperative Programme will strengthen and develop 600 primary cooperatives and 30 Central Associations. It will establish a Design Centre, Weaving Factories, Sales Emporia and Dyeing Factories.

The estimated total expenditure of these programmes of the Cooperative Department will be Taka 24·15 crores with a foreign exchange component of Taka 8·60 crores. The expenditure on different projects/schemes is shown in Table VIII-28A.

TABLE VIII-26.

Phasing of IRDP

Year.	No. of Thanas to be covered.	Cumulative Total.
Already covered	89	89
1973-74	61	150
1974-75	50	200
1975-76 *	50	250

* In 1975-76 an evaluation study will be conducted and on satisfactory performance IRDP may be expanded to cover the whole country. Therefore, the phasing schedule from 1975-76 onward will be formulated in the light of the evaluation.

TABLE VIII-27

Targets of IRDP to be Reached by the end of the Plan Period

(*All figures are cumulative*)

Total No. of village Societies	39,000
Total No. of Co-operative members	25·70 lakh
Share capital of the members	Tk. 4,00·00 lakh
Deposits of the members	Tk. 3,09·00 lakh
Distribution of long-term loans (repayable after 5 years)	Tk. 39,50·00 lakh
Distribution of short-term and medium-term loans (Short-term repayable within 18 months, and medium-term repayable within 3 years).	Tk. 72,20·00 lakh
Realisation of short and medium-term loans	Tk. 43,80·00 lakh
Training of people:	
(a) Key personnel of IRDP	750
(b) Managers and model farmers of co-operatives	78,000 Nos.
Managing Committee members of TCCA's District and National Federations.	14,000 Nos.
Supervisory staff of TCCA's	6,300 Nos.

TABLE VIII-28

Financial Requirements of IRDP

	Lakh Taka.	*F. E. C.*
Recurring grants	15,43·00	2·50
Non-recurring grants	8,45·00	3,40·00
Grants for pilot projects	7,12·00	2,57·00
Total ..	31,00·00	5,92·50
Long-term loan	39,50·00	
Short and Medium-term loans ..	72,20·00	
Total ..	111,70·00	
Less—recovery of S. & M. loan ..	43,80·00	
Total ..	67,90·00	

TABLE VIII-28. A

Schemes of the Co-operative Department to be Included in the Plan.

	Total estimated cost.	(*Taka in lakh.*) F. E. C.
1. Development of Fisheries Co-operatives	10,00·00	4,50·00
2. Co-operative Dairy Development	6,32·10	3,00·00
3. Linking of Marketing Agricultural Produce with Co-operative Credit.	3,00·00	1,00·00
4. Development of Transport Co-operatives	1,32·80	..
5. Development of Sugarcane Growers Co-operatives ..	50·00	..
6. Development of Weavers Co-operatives	3,00·00	10·00
Total	24,14·90	8,60·00

8.3.5. Rural Works Programme

The Rural Works Programme, started in 1963-64, has been compelled by the disruptions during and after the Liberation War to become largely a programme of relief. This is incompatible with its role in the Five-Year Plan. The programme needs a complete overhaul. Its main tasks will be to contribute to the attainment of foodgrain self-sufficiency by constructing and maintaining irrigation and drainage structures in the area of foodgrain concentration and to provide for landless labourers productive employment, outside and inside the area of concentration.

A. *Highlights of the Programme*

The Rural Works Programme during the plan period will consist of five components: (1) a Thana based integrated works programme, (2) a programme for the reclamation of derelict tanks, (3) Thana irrigation programme (TIP), (4) Thana Training and Development Centre building programme (TTDC), and finally (5) a programme for the development of important rural hats and bazars.

The integrated Rural Works Programme has the primary aim of improved drainage, flood control and higher irrigation coverage. The following order of priority of the programme activities is proposed:—

(i) Construction and maintenance of irrigation and drainage channels, especially those directly related to pump and tubewell irrigation units;

(ii) Desilting and water-hyacinth clearing of irrigation sources and other earth-works needed to maintain and improve water retention capacity of the sources of irrigation;

(iii) Construction and maintenance of dykes, embankments, culverts and sluice-gates for controlled irrigation and drainage;

(iv) Construction of storage facilities for agricultural produce, especially where TCCA and village co-operative societies exist;

(v) Construction, repair and maintenance of Kutcha roads;

(vi) Construction of Pukka roads and bridges.

The total cost of this programme for the plan period is Tk. 96,00 lakh. Approximately two-thirds of the amount will be spent on construction and maintenance of irrigation and drainage channels, dykes, embankments, culverts and sluice-gates. The rest will be spent on construction of storage facilities, especially for TCCAs and village cooperative societies and roads and bridges.

The programme on reclamation of derelict tanks aims at the excavation of such tanks for the purpose of scientific fish culture and irrigation. It will be jointly prepared by the concerned Ministries namely, Agriculture, Local Government, Rural Development and Cooperatives, Land Administration and Land Reforms and Forest, Fisheries and Livestock on a comprehensive basis. The reclamation of the tanks will be done preferably under the Works Programme. The development of these tanks for fish culture will be the responsibility of the Ministry of Fisheries. However, the local management of these tanks will be entrusted to the Local Government Institutions, unless the government decides otherwise.

The scope of RWP is further expanded into what is known as Thana Irrigation Programme in order to finance the training cost of model farmers, irrigation group managers, members of the managing committees, operators, mechanics and the cost of TIP workshop and godowns (priority in areas of concentration).

A grant of Tk. 5,80 lakh is made for effective operation of the Thana Training and Development Centres. The on-going construction programme for building the training hall, offices, workshops, storage and residential facilities at TTDCs will be continued.

The Plan of necessity has aimed at a concentrated effort for accelerating the growth of agricultural production to attain self-sufficiency in foodgrains, particularly rice. Better marketing facilities and institutions will be required for movement of surplus foodgrains and other produce to the urban and deficit rural areas as the traditional marketing institutions appear inadequate to handle this complex task. As a part of the overall marketing development programme, the existing rural hats and bazars in the areas of concentration, especially those which would be required to handle large volume of trade, will be developed under the programme of the Development of Rural Hats and Bazars during the Plan period.

The project will consist mainly of such activities as (i) necessary physical expansion of the markets, (ii) raising of land surface above normal flood level where necessary, (iii) providing amenities for open shops under covered sheds for perishable commodities like fish, vegetable, meat, etc., (iv) providing partitioned shops under covered sheds for non-perishable food commodities, (v) construction of walled and lockable shops for permanent occupation by traders, (vi) providing workshop accommodation for artisans like tailors, carpenters, blacksmiths and for small industries, (vii) construction of storage godowns for agricultural products and inputs, (viii) construction of paved lanes, drains, latrines, urinals and approach roads, bridges, ghats, etc., (ix) providing facilities for parking/berthing of road/water transport.

In the execution of the project's works, the principle of labour intensive method of construction will be followed to generate local employment. About 40 per cent of the total allocation under the programme will be spent for the said purpose.

The Ministry of Land Administration and Land Reforms will be the sponsoring authority. The execution of works of Rural Hats and Bazars programme will be on the principle of Works Programme, as far as possible, under the supervision of the Ministry of Land Administration and Land Reforms.

The achievements of rural works programme including TIP will be evaluated from time to time. An amount of Tk. 10 lakh is provided in the Plan for evaluation. An adequate grant of Tk. 3,50 lakh is made for staff and contingencies for effective operation of RWP including TIP.

B. *Organization and Accountability for Funds*

RWP schemes will be initiated at the lowest level by Ward level committees set up by the Union Panchayet. The Ward Committee will be composed of three elected representatives (members of Union Panchayet) from the Ward and an equal number of representatives of the farmers and landless labourers in the Ward. In the IRDP areas two members of the Ward Committee will be from the village co-operatives. One of the elected representatives will be the Chairman of the Ward Committee. The schemes thus prepared will be consolidated by the Union Panchayet and submitted to the Thana Board for scrutiny and approval.

The Ward Committee will be responsible for the implementation of approved schemes. The funds will be allocated to the Ward Committee through the Union Panchayet.

At the Thana level the Thana Board will constitute a Technical Committee consisting of the officers of concerned nation building departments and TCCA project officer. This committee will scrutinise the individual schemes, consolidate them into a Thana Plan and submit the Thana Plan to the Thana Board for final approval. The Technical Committee may also initiate schemes covering more than one Union and incorporate them into the Thana Plan. Similarly a Technical Committee at the district level will consolidate the Thana Plans, initiate new district level schemes and consolidate them into a District Plan. The District Plans will strictly conform to policy and principles formulated by the Planning Commission. The Ministry of Local Government, Rural Development and Cooperatives will generally guide, supervise, monitor and evaluate the Rural Works Programme and allocate finances and technical assistance.

It is vital to secure proper checks on the use of funds. Two measures will be taken at once. First, Union Panchayets will be made responsible for RWP and advanced the whole sum needed for approved RWP projects on integrated programme, reclamation of derelict tanks and development of hats and bazars on a loan basis (Tk. 141 crore). On completion of the approved physical works and due checking, half the sum will be waived. To the extent the physical works are not completed, the corresponding loan advanced to the Union Panchayet will be directly repayable by the Union Panchayet, unless exceptional circumstances are established. Second, the half of RWP funds that remains on a loan basis after completion of the works must be recovered from the beneficiaries in ten annual instalments, each of 12 per cent of the value of the loan (*i.e.*, 6 per cent of the value of the works). This still represents a big subsidy to RWP, reflecting its importance as a source of employment and as a mobiliser for productive purposes of otherwise idle labour. The Ward Committees will prepare lists of beneficiaries and determine the share of each beneficiary for repayment of RWP loan. The loan repayment will be collected in cash or kind after harvesting of crops. If a beneficiary fails to repay his share of the loan he will not be permitted to utilise irrigation facilities such as lift pumps and tubewells, etc. In the IRDP areas the TCCA and village cooperatives will be responsible for realisation of loans from the beneficiary cooperative members. Thus, as IRDP expands the responsibility of RWP loan realisation will be gradually taken over by the co-operatives. Where cooperatives do not exist, the Union Panchayet will undertake the responsibility of recovery of RWP loans. In case of fishery tanks and hats and bazars the management bodies will repay the loan from the income earned from the projects. The Union Panchayets will realise these loans.

To ensure adequate public accounting of the funds spent in RWP, auditing will be carried out systematically by special auditing teams set up by the Directorate of Local Audits. For this purpose the Directorate needs to be expanded and strengthened. A certain percentage (to be fixed in consultation with the Directorate) of the RWP funds will be handed over to the Directorate of Local Audit. This cost will be included in the budget of each RWP scheme.

Training programmes for implementation officers, elected representatives of local bodies, members of project committees, etc., will be carefully drawn up and carried out by various training institutions (BARD, Comilla; proposed Regional R. D. Institutions; Local Government Training Institute; TTDCs). The Ministry of Local Government, Rural Development and Co-operatives will prepare a co-ordinated training programme.

The total financial requirement by major items for the Rural Works Programme is shown in the table below:

TABLE VIII-29

Financial Requirement during the Plan Period.

(Taka in Lakh.)

Integrated programme	96,00·0
Reclamation of derelict tanks	25,00·0
Thana irrigation programme:	
(a) Training	7,20·0
(b) Workshops and godowns	1,50·0
Thana Training and Development Centres	5,80·0
Development of rural hats and bazars	20,00·0
Evaluation	10·0
Staff and contingency	3,50·0
Total	159,10·0

8.3.6 Urban Works Programme

In the past, within the pattern of financing the works programme, there was scope for urban works carried out by the local government institutions like municipalities and town committees. Expenditure was incurred mainly for the development of urban physical infra-structure. In the past, physical development in almost all the urban centres was characterised by unplanned and haphazard growth. Naturally, the physical infra-structure that was developed and maintained by utilizing works programme allocation was no better than the general pattern of unplanned development. During the plan period an all out effort will be made to ensure the utilisation of urban works programme funds in planned development of urban physical infra-structure. The Ministry of Local Government, Rural Development and Co-operatives will have a separate urban works programme but the responsibility of directing the programme will lie with the Ministry of Works and Urban Development.

The size of the urban works programme during the plan period is Tk. 20 crore. Of this, Tk. 40 lakh is earmarked for necessary training of local government personnel associated with the programme and research on various related urban development problems which will be sponsored and conducted by the Local Government Institute.

8.3.7 Training, Research and Evaluation of Institutional Programmes

The Bangladesh Academy for Rural Development (BARD) since its inception (1959) has been working in the fields of training, research, experimentation and evaluation of institutional programmes. The Academy has made significant contributions in the past. It will have to bear increasingly more responsibilities during the plan period. The training, research and evaluation requirements of IRDP and RWP will have to be met mainly by BARD. The Co-operative College at Comilla and eight Co-operative Zonal Institutes will have to take large training loads. It is, therefore, proposed to expand the capacity of BARD, establish two Regional Institutes of Rural Development at suitable places (one in the northern part of the country) and strengthen the co-operative college and zonal institutes.

The Regional Institutes of Rural Development (RIRD) may be affiliated to BARD. These will be assisted by BARD in the matter of (i) planning, (ii) recruitment and training of their faculty members, (iii) selection and conducting of research programmes and pilot projects, (iv) preparation of training course materials. The functions of RIRDs will be similar to those of BARD. Each institute will adopt the surrounding area (Thana) as its laboratory area. The BARD will be expanded to undertake larger number of training courses and to conduct more intensive action research and evaluation. The laboratory area of BARD will be enlarged from Comilla Kotwali Thana to full district (proposed new district, now subdivision). The co-operative college and zonal institutes will be reorganised and strengthened.

The total financial requirement for these schemes will be as follows:

(Taka in Lakh)

	Total	F.E. Component.
(i) Expansion of BARD	2,60·0	55·0
(ii) Expansion of BARD's Laboratory area	1,70·0	40·0
(iii) Establishment of two Regional Institutes for Rural Development	4,00·0	80·0
(iv) Strengthening of Co-operative College and Zonal Institutes...	1,20·0	25·0
	9,50·0	2,00·0

8.3.8 Agricultural Extension

Agriculture extension now reaches the farmer through 4,000 Union Agricultural Assistants (UAAs), supplemented by "Model Farmers" trained by TTDCs, progressive jute farmers and special officers for pest control, fisheries, etc. The overall message is confusing and the training of the extension workers is inadequate, their linkage to research tenuous, and even their contacts with the farmers highly infrequent. In the next five years it will not be possible to remedy this, because the training capacity is inadequate and in need of rehabilitation. But this certainly does not mean that extension can be neglected. Farmers want fertilizers, but do not often know how exactly to apply them for best results. Improved extension services will be an integral part of the programme to achieve rice self-sufficiency. After rice self-sfficiency is achieved, as farming becomes diversified and complicated, the need for skilful extension will increase manifold. Therefore, the ground work for the extension service of the 1980's has to be laid now.

The eventual extension structure will involve one Village Extension Agent (VEA) per 2,000 net cropped acres (about 1,500 gross acres) throughout Bangladesh. A complementary network of model farmers, regular training for both VEAs and model farmers at the Thana Training and Development Centres (TTDCs) and at intervals at the Agricultural Extension Training Institutes (AETIs), are eventually envisaged. A cadre of subject-matter specialists will be responsible for keeping AETI and TTDC teachers, TEOs and senior level extension personnel up-to-date with the latest research and its application through systematic training and a programme of local adaptibility field trials. This information in turn will be passed on to the farmers through VEAs and model farmers.

During the Plan, the limited extension personnel must be retrained and also directed to the immediate goals, especially foodgrain self-sufficiency. Accordingly, in the 15m net acres (10m gross acres) likely to be under intensive cultivation by 1977-78 there will be 7,500 VEAs or one per 2,000 net acres. The VEAs will deal with crops, livestock, fisheries and irrigation management, and the present extension staff (*e.g.*, progressive jute farmers, UAAs) will be retrained as VEAs, or phased out. The progressive jute farmers may be incorporated as model farmers within TTDC structures. The VEAs will be deployed by the TEOs in support of the Thana Agricultural Development Plan prepared by the Thana Development Board for implementation through the TTDC-TCCA structure. Outside the area of concentration, UAAs, after being retrained at AETIs, will perform the same functions as VEAs but will cover a wider area.

At the Thana level an agricultural graduate will be posted as Thana Extension Officer (TEO). The present Thana Agricultural Officers (TAOs) will be either retrained and posted as TEO or phased out. The TEO will be kept up-to-date with the latest recommended farming practices and market information through extension manuals, pamphlets, radio and systematic in-service training. In turn, one of his important functions will be to collect information on technical problems faced by the farmer, including the problems of the small and marginal farmer who tended to be neglected in the past, and to process and forward them for solution to appropriate research officers (subject-matter extension specialists where they have been created). A new and also an important function will be to train and constructively supervise the VEA trainees during their nine months of practical field training and experience. At the District and Divisional levels no additional officers will be needed. But the present post of District Agriculture Officer will be upgraded to the rank of Assistant Director, and Deputy Director at the Divisional level to the rank of Additional Director.

The Government will set up an Agricultural Training and Manpower Committee to determine training policy and manpower requirement in the agricultural sector. This Committee will include representatives from the Planning Commission, the Ministry of Agriculture, the Ministry of Forestry, Fisheries and Livestock, the Ministry of Rural Development, BARD, the Agricultural University, BRRI and the Jute Research Institute. Sub-committees composed of experienced and practicing teachers and experienced extension workers will be formed to develop training syllabi and to determine the necessary supporting teaching/training material and audio-visual aids. The committee will approve the teaching/training materials and commission experts to prepare books, manuals, pamphlets, audio-visual aids and other training materials. Adequate remuneration will be provided for quality and timely work by the experts. Extension workers at all levels will receive pre-service and in-service training at appropriate training institutions. The VEAs will be trained in subject-matter and extension methods at the AETIs. All AETI instructors will be expected to complete one of the short courses organized by BRRI in practical rice farming and give similar course at a simpler level to all extension trainees, who will then become familiar by actual practice with the latest methods of rice cultivation. At present there are seven AETIs. These institutions will be rehabilitated and strengthened, and three more

Institutes will be established. The location of these institutes will be determined by the Training and Manpower Committee. Prior to commencement of formal training each trainee will be required to work for three months with a small farmer and prepare a simple case-study on the total farming situation of an average small farmer under the general supervision of a TEO. As VEA's must in time be prepared to deal in an integrated manner with all aspects of farming (crops, livestock, fisheries, etc.) increasing emphasis will be given during training to the basic steps in good management of a small farm. To assist in orienting all AETI training to the total needs of the small farmer, each AETI shall undertake extension work with a selected number of small farmers. The capacity of each AETI will be 150 trainees in a batch and three batches in a year. Each batch will take a three months' course, go to the field to work as VEA for nine months, and then return for another three months' course. In this manner each trainee will complete a one year academic course in four years on the principle of "learn as you work".

During the period of nine months' field work the VEAs will continue to receive training through a system of Radio-Forum. Transistor radios will be provided to TTDCs for this purpose. The Directorate of Extension will arrange a series of radio teaching programmes with Radio Bangladesh. One programme will be on the air every fortnight on a fixed day and time. The Thana Extension Officer will arrange listening and discussion sessions at the TTDC. The participants' questions, if any, shall be passed to the Directorate of Extension for answering during subsequent broadcasts. This will help VEAs to personally experience the value that radio discussion can have as a teaching tool and encourage them in its use with farmers. TEOs shall be actively consulted in the development of the syllabus for each period of the VEAs formal and practical field training to ensure that such training meets the needs of the real situation. TEOs shall also receive specific training in how to supervise and support the VEA trainees during their field training.

The training of extension officers and instructors of AETIs will be organised with the assistance of the Agricultural University, BARD and Regional Institutes of Rural Development. These institutions will also conduct research on agricultural extension. All training will adopt the problem solving approach to the extent possible. All instructors at AETIs, in addition to their BRRI course in improved rice farming, shall be required to undergo a short course in principles and methods of agricultural education prior to commencing teaching. Final selection of instructors will be based on their aptitude for teaching practical courses, and all possible administrative efforts shall be taken to ensure that good instructors are encouraged to continue teaching for a minimum period of five years.

Performance of extension workers at all levels needs drastic improvement. An agricultural extension worker of the Ministry of Agriculture shall automatically be transferred and disciplined by that Ministry if such a request is received from at least one-third of the farmers he is supposed to work with. The text of the request along with the comments of the superior officer, if any, shall be entered in his record. Regular and professional supervision and support to subordinate extension staff at all levels are urgent needs. These call for greater mobility on the part of the supervisors *plus* more frequent local in-service training courses at TTDC level. In addition, 'yield competitions' and 'command area contests' will be arranged, with a large number of prizes at Union, Thana, District and National levels for VEAs (and TEOs) as well as for the successful farmers. Increments of salary may stimulate the extension staff to work hard and may also improve the quality of services rendered by them.

The total financial requirement for the programme is shown in the table below. The total amount required is Tk. 12,79 lakh with a foreign exchange component of Tk. 1,80 lakh.

TABLE VIII-30

The Financial Requirement for the Extension and Training Programme

Extension Staff :	(*Taka in lakh.*)
Village Extension Agents' Salary and Allowance at average Taka 150·00 p.m. *plus* Taka 50 p.m. as T.A. (1st year 3,000, 2nd year 4,000, 3rd year 4,000, 4th year 5,000 and 5th year 7,500 VEAs).	6,20·0
Bicycle and stationery, etc., per VEAs	54·0
Better salary, office staff, equipment, etc., to the present Thana, District and Regional officers who will work as extension officers, and prizes and incentive.	1,20·0
Total ..	7,94·0
(F.E.C.)	10·0
Training:	
Rehabilitation and improvement of existing 7 AETIs and establishment of 8 new AETIs:	
(a) Capital expenditure	2,41·0
(b) Recurring expenditure	1,99·0
Radio-training, audio-visual and training material	45·0
Total	4,85·0
(F.E.C.)	1,70·0
Grand Total ..	12,79·0
(F.E.C.)	1,80·0

8.3.9. Agricultural Credit

Provision has been made for the use of a large quantity of agricultural inputs in the Plan. The low income farmers would need credit to purchase these agricultural inputs. The farmers would also need credit for meeting the cost of labour and other activities involved in farming operations. At present there are four major public and semi-public institutions which provide credit to the farmers. These are (a) Agricultural Development Bank, (b) Jatiyo Samabaya Bank, (c) Comilla Co-operative and Integrated Rural Development Programme and (d) Government Taccavi credit. Bulk of the short-term credit need is now met by Jatiyo Samabaya Bank, Comilla Co-operative and Integrated Rural Development Programme and Government Taccavi, while the long-term credit is, by and large, met by the Agricultural Development Bank. These institutional sources, however, meet only about 10 to 15 per cent of the credit need of the farmers.

A. *Credit Requirements*

The need for production credit in agriculture in Bangladesh is expected to be about Tk. 365 crore by 1977-78 of which 70 per cent will be short-term (Table VIII-30.1). About 45 per cent of it, *i.e.*, Tk. 162·7 crore will be met by institutional agencies by 1977-78

as against 10-15 per cent today. The credit needs of the areas under foodgrain concentration will be much larger than in the non-concentration areas. Of the total credit, more than two-thirds will be for short-term purposes.

TABLE VIII-30·1

Estimated Credit Needs at the End of the Plan

Crops.

Short-term Credit needs:*	(*Taka in crore*).
Rice	208·00
Jute	27·00
Sugarcane	6·40
Wheat	3·00
Potato	5·40
Tobacco	1·20
Oil seeds	3·20
Tea	2·00
Other (cotton, sweet potato, pulses, vegetables, etc.)	1·00
Total short-term credit (also includes some elements of currently used medium-term credit).	257·20
Long-term and medium-term credit for cattle purchase, land improvement, storage, IRDP's long-term capital, ware-housing, agricultural implements, horticulture, fisheries, livestock, and irrigational construction work, mechanization, tea, etc.	107·80
Total Credit ..	365·00

*Implies credit need based on a certain proportion of the cost of production (30 to 40%). This Proportion depends upon the relative cost of the purchased inputs which are higher in case of high yielding varieties, especially rice.

Year-wise allocation by agencies and type of credit are shown in Tables VIII-31 and VIII-32. Taccavi will cease to exist as a source of short-term credit. It may, however, continue as distress grant for which provision will be made in the revenue budget. The vacuum created by withdrawal of taccavi loan will be filled by a greater volume of IRDP and Jatiyo Samabaya Bank's credit and induction of the commercial banks in the field of agricultural credit. The commercial banks, in addition to providing short-term credit, will also provide long and medium-term credit. IRDP-*via* TCCAs will take over the bulk of credit, responsibilities in the areas of foodgrain concentration and cater to the special needs of the small farmers. The Jatiyo Samabaya Bank will advance short-term credit outside this area and to the farmers outside the co-operatives in this area, and the ADB will concentrate on long-term credit, chiefly but not merely in the area of foodgrain concentration. There are several policy issues which need to be carefully considered. These are outlined in the following paragraphs.

B. *Liberal Loan Policy and Repayment Discipline*

At present the credit agencies seldom lend to tenants, farmers owning small land holdings, and landless labourers. All TCCAs will, in future, admit heads of households regardless of land ownership status and family size to membership, and they should all be eligible for credit facilities from the TCCAs. Village level storage facilities will be made available to the TCCAs and JSB branches; some of these storage facilities will be constructed through Rural Works Programme. By 1977-78 each village society must, if requested by members, be prepared to accept repayment of up to one-third of its total loan in the form of crops.

TABLE VIII-31

Annual Distribution of Credit by the Credit Agencies*

(Taka in crore).

Year-wise credit.	Total volume of credit to be distributed.	Agencies responsible for distribution of credit.			
		Samabaya Bank.	IRDP	ADB	Commercial Bank.
Short-term Credit:					
1973-74	30·5	17·0	7·5	4·0	2·0
1974-75	41·0	22·5	10·0	4·5	4·0
1975-76 ..	55·0	3·10	12·5	5·0	6·5
1976-77 ..	83·0	45·0	17·5	9·5	11·0
1977-78	117·7	60·0	24·7	15·0	18·0
Sub-Total ..	327·2	175·5	72·2	38·0	41·5
Long and Medium-term Credit :					
1973-74	15·0	2·0	3·0	9·0	1·0
1974-75	21·0	2·5	5·0	12·0	1·5
1975-76	2·85	3·0	8·0	15·0	2·5
1976-77	32·5	4·0	9·5	16·0	3·0
1977-78	45·0	7·0	14·0	20·0	4·0
Sub-Total ..	142·0	18·5	39·5	72·0	12·0
Grand Total	469·2	194·0	111·7	110·0	53·5

*Annual phasing is tentative. It will be revised when phasing of the programmes of the agencies is finalised.

TABLE VIII-32

Annual Distribution, Recovery and Government Requirement of credit

(*Taka in crore*)

Years	Short-term.	Long and Medium term.	Total	Assumed recovery rate (in percentage)	Recovery of credit: Capital: Short-term (T-1)	Capital: Long and Medium term (T—3)	Interest: Short-term (T-1)	Interest: Long and Medium term (T—1) (T—2) (T—3)	Total recovery.	Government Supply of credit.
1	2	3	4	5	6	7	8	9	10	11
1973-74 ..	30·5	15·0	45·5	50	5·0	..	0·2	..	5·2	40·3
1974-75 ..	41·0	21·0	62·0	80	24·4	..	3·7	1·8	29·9	32·1
1975-76 ..	55·0	28·5	83·5	85	34·9	..	5·2	4·6	44·7	38·8
1976-77 ..	83·0	32·5	115·5	90	49·5	13·5	7·5	8·5	79·0	36·5
1977-78 ..	117·7	45·0	162·7	90	74·7	18·9	11·2	11·0	115·8	46.9
Total ..	327·2	142·0	469·2	..	188·5	32·4	27·8	25·9	274·6	194·6

TCCAs will also be instructed to accept loan repayment from the borrowing members, particularly small farmers and landless labourers, by way of deductions from their wage bills when they are provided with work under the RWP. Such works will be secured for groups of labourers by the co-operatives in the IRDP areas, and payment of wages will be made through the co-operatives to make such deductions possible.

Under the circumstances prevailing in Bangladesh it is impossible to insist that cash loan be associated with specific production purchases. Also, provided loans are repaid, there is no real case against some consumption loans. Nevertheless, to direct as many loans as possible to productive purpose, they will increasingly be given in kind.

Thus liberal credit is proposed during the Plan in three senses; a large amount, minimum formalities regarding use and maximum possible of services to the poor. However, tough credit will be insisted upon in two other senses: interest rate must realistically reflect both risk of default and the cost of capital, and must not give undue advantages to some agencies; a uniform rate for ADB, JSB, TCCAs and Commercial Banks to final borrowers will be adopted, say at a rate of 12 to 15 per cent for short-term credit and 14 to 15 per cent for long and medium terms credit. Interest rates will be fixed within this range depending on the overall government monetary policy.

Insistance upon recovery must also be tough. Expansion of agency credit, as Table VIII-31 shows, depends increasingly on recovery of previous capital and interest. Total credit supply by all the institutional agencies during Plan is envisaged to be Taka 469·2 crore. Deducting the recovery on a reasonably high rate, net amount of credit to be supplied by the Government during Plan roughly works out at about Taka 38·9 crore per annum.

For quick disbursement and prompt recovery of increased volume of credit, the agencies require strengthening. Recruitment, training and field placement are required immediately.

Jatiyo Samabaya Bank will require major overhauling. Its loan operation should be greatly improved by transforming it into a pure banking type institution, strengthening its technical staff, freeing it from bureaucratic controls and enforcing strict sanctioning and disbursement procedures and repayment discipline. Central Banks also require similar restructuring and reorganization. The JSB would need some initial grant of say, Taka 50 lakh for organisational improvement.

Bangladesh Bank must provide leadership in matters of agricultural credit policies and allocations, operational jurisdiction of the various credit agencies and their financing pattern, and should co-ordinate the operation of the agencies. Clear policy directives and operational principles consistent with Government plans and programmes may be laid down by the Bangladesh Bank with prior approval of the Government.

Repayment discipline by the credit agencies need to be imposed to a reasonably acceptable rate. The following steps need to be taken to reduce defaults:

(i) Agencies must invest credit in priority fields/items. An investment schedule should to be prepared by each agency.

(ii) Production plans of the farmers must be thoroughly evaluated and farmers' repayment capacity and incremental benefits carefully appraised before credit disbursed.

(iii) Maximum co-operation and participation of local government officials and public representatives must be ensured not only at the time of disbursement of credit but also at the time of its recovery.

(iv) Strict supervision of credit must be exercised by the officials of the credit agencies.

(v) Overdue loans must be thoroughly investigated by each of the agencies before appropriate actions are initiated.

(vi) The machinery for collection of credit requires to be suitably strengthened.

(vii) A 'credit stabilization fund' must be created with contribution from Government and Bangladesh Bank so as to cope with the financial loss caused by the agencies for really bad debts.

Each of the credit agencies would specifically earmark some funds for small farmers and landless labourers. The allocation of the agencies in the next year will be dependent on the current year's disbursement and recovery.

8. 3. 10. Agricultural Education and Research

A. *Education*

Shortage of trained manpower in Bangladesh has created deficiencies that pervade the entire spectrum of development activities in the agricultural sector. The gap is more evident in research where shortage of high level competent scientists make most research efforts

unproductive. Development activities around new seed based technology in rice, jute, cotton, tobacco and other crops have raised the demand for trained agricultural personnel in different fields. The output of agricultural graduates and post-graduates from the Agricultural University and Agricultural College is only about 300 per annum. The Agricultural University at Mymensingh is not operating at its optimum level due to lack of physical facilities. The Agricultural College at Tejgaon suffers from lack of competent teaching staff, equipment and field facilities. The facilities at the Agricultural University, therefore, will have to be expanded so that it can admit a larger number of students in different faculties. Increased enrolment is also necessary in Agricultural College at Tejgaon so that existing demand for agricultural graduates can be met. As it takes at least four years before students graduate from the University the impact of additional admission will not be felt during the Plan period.

Apart from the quantitative aspects of technical manpower there is the question of quality which is required to be improved so that agricultural graduates can meet the development needs of the country more effectively. The courses, in different faculties of the Agricultural Univerisity, are somewhat too theoritical. The contents of text book are mostly out of context of the real situation in the country-side and the students are not given the necessary skill or allowed to develop the appropriate attitude to work with or solve the special problems of small and marginal farmers who constitute the vast majority of the farming community. The result have been that the graduates are not equipped with practical field-requirements, and do not have the necessary confidence to become effective extension agents. More emphasis on practical training would be necessary both inside the University and outside. It is also felt that no agricultural graduates should be given an independent assignment unless he has worked under an experienced extension official or in a farm for at least a year, preferably during the early part of his student career at the University or College.

B. *Research*

Research in the post-graduate level will have to be intensified and improved and made more problem oriented so that the post-graduate students get familier with the problems of the country-side. Apart from its own research activities, the University should also take part in the co-ordinated research programmes drawn up by the Agricultural Research Council. The University should be allowed to take over one or two thanas as their project area and become responsible for all extension activities therein. This will give the University teachers an opportunity to acquire first-hand knowledge of the problems in the field. The University would also take the responsibility of undertaking in-service training for the district level officers and above in the agricultural sectors.

As farmers switch over to new technologies new problems will arise which can only be solved by research. Unless research keeps abreast of production problems, the progress of agricultural development is likely to slow down. Research in Bangladesh is at low ebb. Except in case of rice and to some extent jute and tea, very little research is currently being undertaken in the country. Gaps in knowledge of costs and returns of production, genetic make-up of different crop varieties, relation between fertilizer, soils and crops, irrigation requirement of different crops, etc., are wide and similar gaps exist in fishery, forestry and livestock. There is no co-ordination between research in different sub-stations and between different research sectors and the Agricultural University, with the result that there is considerable wasteful duplication of efforts and absence of proper priorities. Although it is going to take some time

to remove the deficiencies fully, a concreted effort must be made immediately so that the benefits from research may begin to be felt within the Plan period. It is, therefore, suggested that a comprehensive research programme be carefully formulated focussing clearly on the needs of the agriculture and water sector strategy outlined in the Plan. Such an emphasis in the formulation of an overall research programme can be illustrated by the programme for rice research which has a number of important problems to be solved such as :

(a) Breeding pest and disease resistance into new varieties which would be a most economical and practicable method of pest control.

(b) Breeding into new varieties better cold, salinity and drought resistance.

(c) Shortening the life cycle which would have many essential benefits. This would allow later Aus planting to escape early season droughts without depressing Aman yields by delaying transplanting. Shorter crop cycles would allow more time for land preparation, thus easing the draft power constraint. The shortening of the growth cycle of transplant Aman crops at the end of the season in October-November and in the drier, westernmost part of Bangladesh will increase cropping intensity.

(d) Development of high yielding varieties of deep water rice which would reduce precision needed in drainage and flood control. A promising start has been made with variety JR-442 which grows with the rise of water up to five feet. Photosensitivity needs to be bred into this variety to allow more flexible sowing dates. In particular, much of the drainage and flood relief problems can be solved if planting is done before the occurrence of seasonal floods. Improved deep water varieties would replace broadcast Aus/Aman mix. Preliminary results indicate that an additional 10 maunds per acre can be obtained over the current yield of the mix.

(e) Improvement of quality which will allow high yielding rice strains to compete with the best quality local varieties.

(f) The knowledge of impact of partial or full submergence of rice is needed for designing flood control structures.

In a similar manner the research needs of the other aspects of the agriculture and water sector programme will be checked against the adopted sector strategy and, in accordance with it, the research priorities will be established in detail. This will help to maximize the efficiency of staff and facilities by safeguarding against diversions into issues of minor importance.

The Bangladesh Rice Research Institute will immediately be strengthened by appointment of all the necessary research staff, BRRI will train AETI staff in practical rice farming. BRRI staff will also monitor the performance of HYVs released during the Plan period and their resistance to pest attack.

In jute photoneutral early varieties will permit harvesting of Tossa jute well ahead of Aman transplantation. Research will also be directed to problems of irrigation practices, and to biological control of pests and diseases of major crops that cause serious loss to crops.

Research will be intensified in the field of livestock and fisheries, particularly in the field of poultry development and inland fisheries. Steps would be taken to modernize the Agricultural Research Institute at Dacca and provide it with proper experimental farms and other

field facilities. The Livestock Research Institute at Mohakhali, and Fisheries Research Institute at Chandpur, also require to be strengthened. Research facilities in different research sub-stations will have to be improved with competent research personnel, laboratory and field equipment. Establishment of special research stations which will be concerned with one or more crops (tobacco, cotton, pulses, oilseeds, etc.) or with special problems in fisheries and livestock will be other steps by which research capability will be expanded. The objective would be to plan applied research on a problem oriented basis so that sustained development in the agricultural sector becomes possible.

Research in crop forecasting, cost of cultivation, economics of alternative rotations, price response, yield estimation etc., requires to be intensified. Steps will be taken to strengthen the statistical and arithmatical base of research in all fields to improve the programming and interpretation of data.

Research on new crops,oil-palm (Elaeis Guineesis), rami, safflower-flax, etc., will be undertaken to broaden the agricultural base for crop diversification and export.

A. Centralized Agricultural Research Organization

The lack of a centralised organisation in Bangladesh responsible for research in agriculture and broadly conceived to cover crops, soils, water, horticulture, crop protection, livestock, agricultural engineering, forestry, fisheries and economics and social studies is a definite handicap in effective development planning. This affects both the collecting of specific and dependable information regarding the feasibility of setting certain development goals and also the development of new technology in achieving such goals. It is appreciated increasingly that the problem is not merely a matter of "Co-ordination". Concerns about co-ordination are usually directed at the elimination of apparent duplication. The real need is to strengthen research capabilities since the coordination of obviously deficient resources does nothing to eliminate such inadequacies. Bangladesh has recognized the need to free agricultural research from restraints of usual Government procedures in establishing the Rice Research Institute and the Jute Research Institute as autonomus bodies. However, it would not be desirable or feassible to establish separate autonomous bodies or institutes for each aspect of component of agriculture. As such, it has been decided to establish a consolidated "Bangladesh Agricultural Research Council" responsible for research in agriculture in the broad sense with the following objectives;

(i) to identity the problems limiting productivity and development in all segments of the agricultural sector and draw up short-term and long-term programmes of agricultural research necessary for the solution of these problems;

(ii) to conduct research in production, processing, utilisation, marketing and in economic and social aspects of agriculture and rural development;

(iii) to establish and develop agricultural research field stations, laboratories and other facilities to provide for research attention to the specific problems in the various agricultural regions of Bangladesh;

(iv) to plan and carry out a staff-development programme for research scientists and for supporting personnel.

TABLE VIII-33

Estimated Cost of Agricultural Research and Education.

(Taka in crore.)

Name of Project/Sub-Sector.	Total Plan Allocation.	
	Estimated cost.	Foreign Exchange component.
Research:		
Fisheries	3·40	·820
Livestock	3·50	·910
Forestry	3·00	·735
Directorate of Agricultural Research	3·00	·720
Jute Research Institute	3·00	·600
Rice Research Institute	4·05	1·050
Soil Fertility and Soil Testing Institute	1·50	·380
Soil Survey Interpretation Unit	·80	·160
Bangladesh Institute of Biological Control	·10	·020
Zonal Centre for New Sugarcane Varieties	·15	·030
Agriculture Research Council:		
(a) Council Organization (new)	·50	·010
(b) Research on special projects on crops/agricultural economics/statistics/soils/forestry/fisheries/livestock and poultry.	4·5	1·010
Sugarcane Research Institute	1·5	·380
Poultry Research Institute (new)	·60	·120
Sub-Total	29·60	6·945
Education:		
Agricultural College (including shifting)	2·00	·275
Bangladesh Forest College	·60	·080
Fellowship	·80	·530
Sub-Total	3·40	·885
Grand Total	33·00	7·83

8.3.11 Agricultural Implements and Mechanisation

Farmers in Bangladesh have been using much the same implements for hundreds of years. This suggests that these implements are well suited to the traditional environment. But the environment is also undergoing basic changes with the introduction of HYV and the development of irrigation facilities which have changed the production techniques and the cropping pattern.

Any mechanisation programme including introduction of new agricultural implements must keep in view of the changing technology in production, the farmers' financial ability to adopt the implements and the likely effect of those equipment on employment in the rural areas. The new seed based technology and the associated irrigation facilities call for quick preparation of land and more timely farming operations. These are hardly possible to accomplish with only manual labour and outmoded techniques. On the other hand, surplus labour in the rural areas require creation of more productive work in the villages. Small size of farms and traditional poverty of the farmers in Bangladesh preclude individual ownership and operation of costly implements on large scale basis. When these conflicts are taken into account, the dilemma becomes apparent.

8.3.12 Tractors and Power Tillers

As far as the draft power is concerned, it must be admitted that the situation has already been unsatisfactory. The animals, the main source of farm power in Bangladesh, are generally small and weak. With little success in breeding and with uninterrupted slaughter of bullocks, the animal draft power has been gradually decreasing, whereas the need for increasing draft power is much greater on account of higher cropping intensity. On the use of mechanical equipment in tilling, the experience in this country has not been very happy. Although mechanised cultivation was started in the late 1950's by the Department of Agriculture and later taken over by BADC, the programme was not a success. The operation of these tractors and power tillers remained confined mostly to *haor* areas, agricultural development estates and government seed farms. Tractors in many areas were used more for hauling than for tilling.

The performance of tractor cultivation by BADC was poor both in terms of area covered and the recovery of hire charges. Comilla-based co-operative operation proved more successful mainly because of proper organization, maintenance and workshop facilities; their operation outside Comilla areas proved unsuccessful. The major problems were lack of operators skilled in maintenance, servicing, operation, spares and accessories, etc.

Records of tractor fleet (162 tractors and 562 tillers) operating in cyclone affected areas show that about half of the machine were beyond repair after only 200—300 hours of work.

After liberation, there was general shortage of draft power in many of the border districts where a large number of bullocks and draft animals were either devoured or killed by Pakistan Army during the War of Liberation. For immediate rehabilitation of farming operations in these districts, 180 tractors and 648 power tillers have been distributed to the different districts and subdivisions. District-wise distribution figures are shown in Table VIII-34.

TABLE VIII-34

District-wise Distribution of Tractors and Power Tillers.

	Tractor.	Power Tillers.
Dacca	..	5
Mymensingh	4	—
Faridpur	—	4
Tangail	—	4
	4	13
Barisal	100	197
Patuakhali	—	357
Kushtia	..	4
Jessore	..	5
Khulna	12	38
	112	601
Chittagong	..	4
Chittagong Hill Tracts	..	3
Comilla	..	4
Sylhet	..	5
Noakhali	56	4
	56	20
Rajshahi	4	—
Rangpur	..	4
Dinajpur	4	—
Bogra	..	5
Pabna	..	5
	8	14
Grand Total	180	648

The experience gained up till now shows that scattered operation of tractors and tillers is likely to prove unsuccessful. Since the past records of tractor and tiller cultivation did not give conclusive results in favour of introducing large scale mechanisation programme in Bangladesh and innumerable operational problems were identified, it is considered advisable to gather more meaningful data on technical and economic aspects of mechanised cultivation before launching a bigger programme. To determine the realistic size of operation in the different areas, effective improvements needed for proper repair and maintenance facilities, to evolve procedures regarding realisation of hire charges of tractors/tillers in different areas and undertake cost and return studies, there is need for a pilot project with 20 tractors and 35 tillers each in three pilot areas as discussed below:

(a) in the irrigated areas where multiple cropping is now likely to be practised.

(b) in the haor areas where bullocks cannot be used for reclamation of land.

(c) in the integrated rural development areas where cooperative societies are already developed or even in those areas where cooperative farming by pooling of land is contemplated.

On the results of experiments made in these three pilot areas future policy of mechanisation would be drawn up. If tractors and tillers are found to be useful and economical more of these equipment will be imported. Adequate provision for the same has been made in the Plan. During the first two years the results obtained from the experiments will be analysed and decisions will be taken accordingly.

As far as the existing tractors and tillers are concerned their operation will also be carefully watched and evaluated before further expansion is considered. Import of sufficient spares and accessories and training of drivers and mechanics will continue in order to keep the existing tractors and tillers in operation.

Hire charges for existing and potential tractors and tillers will cover the full cost to Bangladesh of foreign exchange needed to import the tractors and tillers, *i.e.* depreciation plus 10 per cent return on capital, operating charges on fuel and spare parts, labour cost of delivery, maintenance and drivers' wages etc. This will approximately amount to Taka 75 per acre for two ploughings. In selecting and training the drivers and mechanics preference will be given to the landless cultivators' sons and relations. In selecting machinery suppliers the Government will give preference to firms that can provide necessary assistance to mechanics and operators or (better skill) set up demonstration workshop themselves.

2. Other Farm Implements

On other farm implements, the prospect of manufacture of lighter plough to be drawn preferably by one bullock may be explored. Rotary weeder, peddle thresher and hand sprayers have already proved attractive to the farmers. These may be manufactured in large numbers and sold to the farmers at reasonable price. Large-scale manufacture will reduce cost per unit. Chinese transplanter, comb-toothed or spike-toothed harrow and small paddy driers may be experimented to test their acceptance by the farmers. Since the new implements will have little initial demand some subsidies are proposed during the initial years of the Plan. Other improved implements over the ones generally used by the farmers in harvesting, weeding, and levelling and raking, may also be introduced by the Agricultural Engineering Section of

Agricultural Department and the Agricultural Engineering Faculty of Agricultural University, Mymensingh. Locally used agricultural implements namely sickle, scythes, spade, harrow, khonta, plough and jute cutting implements, etc. will require to be manufactured in large numbers by the manufacturing firms and cottage industries in the villages. Improved design and specifications of these implements as evolved by the above organisations would be provided to the manufacturers. Adequate loans/grants will be provided to them for manufacturing these implements on large scale basis. About Taka 1·0 crore has been provided in the Plan for the purpose. The distribution of improved farm implements will be linked with the proposed organisations of landless agricultural labourers as teams of workers under village cooperatives as described in the section on institutional policy and IRDP.

The estimated cost for mechanisation and agricultural implements is Taka 3·0 crore and the foreign exchange is Taka 2·225 crore. Annual phasing of the cost is shown in Table No. VIII-35.

TABLE VIII-35

Annual Phasing of Cost for Mechanisation and Agricultural Implements.

(Taka in lakh.)

	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.	Total.
Tractors	20·0	..	5·0	5·0	..	30·0
Power tillers	15·0	..	20·0	10·0	..	45·0
Spare parts	5·0	..	8·0	7·0	..	20·0
Loans/grants to small factories for hand and animal implements.	50·0	60·0	50·0	30·0	10·0	100·0
Subsidies to adopters of new implements.	10·0	15·0	12·0	10·0	3·0	50·0
Research into new implements	20·0	15·0	10·0	5·0	5·0	55·0
Total ..	120·0	90·0	105·0	67·0	18·0	300·0

For tractor, power tiller and spare parts, the entire amount has been estimated to be in foreign exchange. For loans and grants to small factories for implements and for research implements 50 per cent has been assumed to be in foreign exchange. Total foreign exchange thus works out at Taka 2·225 crore out of total cost of Taka 3·0 crores.

8·4 POLICY ISSUES

8.4.1 Agricultural Pricing Policy

The general level and pattern of agricultural prices play a critical role in determining the allocation of resources in the agricultural sector to various crops and providing incentive to farmers to use improved inputs. Major reliance will, therefore, be placed upon prices to promote: (a) the efficient utilization of improved inputs and (b) the desired production targets for specific commodities.

With regard to input pricing, the current subsidies on fertilizers, seeds, pesticides and water will either be reduced or eliminated during the plan period as discussed in the specific sections dealing with these inputs. Farmers have been exposed to these inputs for a number of years and have become increasingly familiar with the appreciable benefits which can be derived from their use. The expansion in the use of these inputs is placing an increasingly severe burden upon government financial resources. The high level of subsidy which is even 100 per cent in the case of pesticides, encourages wasteful and inefficient utilization of these inputs. At the same time as subsidies on inputs are reduced or eliminated the provision of credit, particularly to small farmers, will have to undergo a considerable expansion to provide farmers with the means of purchasing improved inputs.

As is made clear in the discussion on jute policy, measures will be taken to ensure that it pays the domestic farmer to produce enough jute to meet plan targets, while the external price will be kept competitive. In the world market for jute and allied fibres, measures such as marketing agreements and buffer stock arrangements will be explored as means of ensuring a regular supply of jute at competitive and remunerative prices. Bangladesh enjoys comparative advantage in the production of jute and will seek to capture an increasing share of the expanding world market. In domestic agricultural production, the most important alternative crop to jute is broadcast aus and aman paddy. These crops can be grown on the same type of land as jute with the exception of certain low-lying areas. The farmer's choice to grow jute or rice in a particular season is influenced by the relationship between jute and rice prices.

The attractiveness of rice relative to jute has increased since 1970 as a result of the sharp rise in rice prices and the spread of improved varieties which give higher returns for rice than for jute. The effect of prices and returns to improve practices for the two crops is particularly great in the case of irrigated areas where jute is unlikely to compete with rice even with a major change in the output-price relationships. The situation is not as unfavourable for jute in the non-irrigated areas where feasible adjustments in jute/paddy price relationships would be sufficient to ensure the competitive position of jute.

The Government will make adjustments in the minimum price of jute during the Plan period in order to ensure its competitive position vis-a-vis rice. In addition, the promotion of the use of improved practices for jute, which will reduce costs per unit of output, will be intensified and the subsidies on inputs which favour rice will be reduced or eliminated as described in the sections dealing with jute and inputs.

The primary objective of the Plan is the achievement of self-sufficiency in grain production. The maintenance of remunerative prices for rice will provide the most powerful stimulus for the expansion of grain production. Bangladesh will remain dependent on import of grain to meet domestic requirements particularly during the early years of the plan period. The release of supplies of imported grain which is the responsibility of the Food Department will be timed so as to act as a stabilizer of domestic grain prices between cropping seasons and years.

As the country reaches self-sufficiency in grain, the importation of grain will be terminated which will deprive the Government of an important mechanism for stabilizing domestic grain prices. Favourable weather conditions may produce an actual surplus of grains which would

be accompanied by sharp decline in prices in the absence of any corrective measures. In such an event, the Government will undertake to have supplies withdrawn from the market to maintain prices above an acceptable minimum level. The Food Department will utilise its resources and storage facilities to operate a guaranteed minimum price scheme particularly in major grain surplus areas. A revolving stabilization fund amounting to Tk. 20·0 crores has been provided for this purpose.

Realisation of the objective of grain self-sufficiency also has very significant implications for the pattern of distribution of grain within the country. Certain areas will become exporters of grains while other areas will become importers. This regional imbalance in production and consumption demand will call for complementary investments in marketing and storage facilities.

The private sectors will continue to play a major role in the marketing, storage and processing of grains. In addition, cooperative marketing and storage will play an increasingly important role. Pubnic sector investment will be made in developing transport facilities, particularly to serve the prospective grain surplus areas and to improve the efficiency of existing marketing channels in general. The Food Department will continue to serve as the distributor of grain imports in the near future and will programme its transactions in grain to achieve greater stability in grain prices. Credit will be made available to local government agencies in support of feeder road development under the Rural Works Programme and construction of cooperatively owned storage and processing facilities.

Efforts will be made to develop and promote the use of improved practices for minor crops as means of maintaining or improving their positions *vis-a-vis* rice. As discussed in the individual commodity section no major shifts in acreage under various crops is envisaged with the exception of increase in acreage under wheat and rice. Special promotional efforts which will include arrangements for the purchase of output at guaranteed prices will be continued or instituted for cotton, tobacco and sugarcane.

In view of the importance of agricultural prices for production and their inter-relationship with production policies, an Agricultural Price Commission will be set up to advice the Government on crop pricing policies. The Department of Marketing Intelligence will continue to improve its system of data collection for crops and price movements which will serve as the major source of information for the Agricultural Price Commission.

8.4.2 Nutrition

The diet of an average Bangalee is inadequate and poorly balanced. According to the 1962-64 Survey, malnutrition affects the health and well-being of at least half the population of Bangladesh. This causes most harm to pre-school children, whose physical and mental development can be permanently retarded, and to pregnant and lactating women. An UNROD assessment reveals that the south-eastern area comprised of Chittagong, Comilla, Noakhali and Sylhet have the highest percentage of malnourished children. The 1962-64 Survey Report also shows that the lowest income group (0—99 Taka per house-hold per month) are most affected by malnutrition. The caloric and protein intakes in rural areas of Khulna, Noakhali, Faridpur and Mymensingh and in urban areas of Khulna and Kishoreganj are extremely inadequate. Since 1962-64, the situation has worsened as food availability has not kept

pace with population growth. Annual growth of food production has been slightly above 2 per cent while the population growth has been more than 3 per cent. Moreover, the per capita income in real terms is lower now than it was in 1962-64 and may be less equally distributed.

The best sources of complete protein are animal products. But, due to shortage of land, it is very difficult to increase animal production to any considerable extent. The main purpose of keeping animals in Bangladesh is to use them as draught animals. The feeding of animals on a large scale in Bangladesh is uneconomic because of the relatively low conversion rate of animals. Pulses and groundnuts are popular and relatively inexpensive sources of protein of high biological values. Production of pulses in Bangladesh has remained more or less the same over the past few years. Probably there is a less incentive now for the farmer to grow pulses because he can get better prices for rice. The prospect of groundnuts is better than that of pulses because of its favourable per acre return and per acre calorie content. When peanuts form the basis of an oil industry, there is no reduction of protein in the resulting defatted groundnut. Research should be carried out to utilise this defatted groundnut for human consumption. The production of groundnut is expected to rise from the bench-mark production of 14·4 lakh maunds to 52·0 lakh maunds in the terminal year. This will increase per capita availability of groundnut from 1·8 gm/day in the initial year to 5·7 gm/day in the terminal year. Considering that the protein content of groundnut is about 23 per cent protein improvement in the population will be about 1 gm/day.

It is desirable to increase production and consumption of cheap fish. But here again it is very difficult to increase substantially the intake of fish protein within a short time. About 26 per cent increase in fish production is envisaged in the first plan, which will only restore the per capita consumption of fish at 1963-64 level. Fish protein concentrate (FPC) which has proved to be a cheap and effective source of protein may help to meet the situation partly. The protein content of F.P.C. is about 80 per cent. It is cheap because the cost per gram of F.P.C. is only 0·5 paisa as against an average 6 paisa of protein from such products as milk, meat, eggs, and fresh fish.

Acceptability of F.P.C. to general population, particularly in rural areas, has not been tested on a large scale, and until that is done large scale distribution of F.P.C. may not be advisable. But a selective distribution programme aimed at the vulnerable groups, namely, school-going children, invalids, sick, pregnant and lactating women, will be tried on a pilot scale. The estimated net cost of the programme will be Taka 4·50 crore during the plan period. If the pilot programme shows promising results during the initial years, the size and allocation for the programme will be further expanded.

UNICEF is now operating a school feeding programme in Bangladesh. Through 9000 elementary schools, 25 lakh students are fed with specially blended protein-rich food. This food is primarily prepared from wheat and corn, and 20 per cent of it is protein. Every 100 gms. of it provides 370 calories. UNICEF also distributed high protein food to 5 lakh pre-school children through Bangladesh Red Cross. Arrangements should be made with the UNICEF so that this programme is continued, and if possible expanded by using the available funds to feed cheaper proteins and calories to more children, particularly in the rural areas.

The plan aims at foodgrain self-sufficiency by replacement of wheat import by domestic rice output. But wheat contains 10 per cent protein while most local and HYV rice contains 7 per cent protein. Cereal supplies over three-quarters of the protein intake of a poor man in Bangladesh and since the initial protein deficiency is about 19 per cent for the poor, the problem will be serious consequent upon the replacement of wheat by rice, especially in the wheat eating urban areas. A protein replacement policy is, therefore, needed as wheat gives way to rice. Bangladesh Rice Research Institute (BRRI) is testing a cross between IR-20 and a local variety, the per acre yield of which will be the same as that of IR-20 but will contain 10·3 per cent protein. It is expected that in about 2 to 3 years' time, this new variety may be ready for fielding. This would lessen the protein gap to a great extent. The BRRI will be asked to give special emphasis on the rapid development and distribution of satisfactory protein-enriched high yielding varieties. Nitrogen fertilizer can raise protein content by a further 1-2 per cent and therefore it has a special importance.

While protein malnutrition needs urgent attention, protein supplementation alone will be of less value unless matched by increased availability of cheap calories. Bangladesh now produces sweet potatoes, a good source of cheap calories, but many of them go to waste for reasons of storage, transport or acceptability, and many more are processed for industrial use. Expert advice on low-cost measures to overcome these defects, and on possible improvement in sweet-potato farming, and to draw up projects for inclusion in the subsequent plans will be necessary.

Since cereals and starchy roots are important calorie and protein sources for those at nutritional risk, it should be our policy to provide help to this group. It is necessary to prepare a least cost diet for such people. A research team on nutrition besides evaluating the effectiveness of certain nutrition programmes may advise the government regarding formulation of programmes. Such a national applied-nutrition programme would become an integral part of an established national food and nutrition policy combining in a national way the interests of the food producers and the food consumers. To achieve and maintain maximum gainful employment is an important aspect of a national food and nutrition policy Such a policy calls for joint efforts from agriculture, fisheries, industry, etc., as well as research, especially applied research, organisations supported by the Government. To achieve all this, food production for domestic consumption as well as food and agricultural trade (export and import) has to be seen not only in relation to quantities and prices but also in relation to the nutritional needs of the nation and in terms of cost/benefit ratios within the nations total planning economic development.

8.4.3 Employment

One of the basic objectives of the plan is to increase employment in agriculture at levels of productivity which permit rising incomes. Since the population of the country is overwhelmingly dependent on agriculture, and it is not possible to bring about a major structural change in the economy within a short period, agriculture will have to continue to provide the bulk of employment. In the present state of the economy such employment generation in agriculture appears quite feasible. Faced with a large food shortage Bangladesh needs to increase food production rapidly. With an abundant labour supply, agricultural development should be oriented to labour intensive techniques. Through development of

irrigation, increased application of fertilizers and raising multiple crops, particularly high yielding rice varieties, there is a great potential for labour using modernisation of agriculture in Bangladesh.

The present approximate level of agricultural employment in Bangladesh is shown in Table VIII-36.

The figures for per acre labour use by farmers have been derived from the available farm studies and are particularly valid for major crops like rice, jute, potato, sugarcane etc. For minor crops, the per acre labour demand was estimated in consultation with farm managers of government farms and extension officials of the Department of Agriculture. In case of livestock and fisheries, studies conducted by some researchers indicate that the employment in these sectors is about one-third of the crop-sector. Employment in processing, marketing and other agricultural services is assumed to be 10 per cent of that in the crop sector. Estimates of employment in works programme and agricultural projects are based on past expenditures and their employment investment coefficients.

TABLE VIII-36.

Employment of Agricultural Labour in Bangladesh, 1972-73.

Sector.	Normal Gross cropped area. (Lakh acres).	Man-days per acre.	Normal total man-years. (Lakh).
Crop Sector—			
Rice (HYV)	26·0	98	10·6
Rice (Local)	221·40	52	48·0
Fibres	22·00	100	9·2
Sugarcane	4·00	110	1·8
Tea Plantations	1·10	300	1·4
Other crops	47·90	42	8·3
Total crop sector	322·4	..	79·3
Livestock and Fisheries	..	..	26·4
Forestry	..	..	3·5
Processing, Marketing, etc.	..	..	8·0
Works Programme	..	..	2·0
Agricultural Projects	..	..	6·0
Total Agriculture	..	..	125·2

Note– 240 man-days are assumed equal to one man year.

The present population of Bangladesh is estimated at 7·4 crore. According to the population and labour force survey in mid and late sixties, the labour force in the country constitutes 35·1 per cent of the total population, and 76·3 per cent of the labour force is agricultural. On this basis the present agricultural labour force is 1·982 crore. The present requirement of agricultural labour is 1·252 crore man years. Thus the estimated present underemployment and unemployment work out at 36·8 per cent (Table VIII-37). In this context underemployment does not, however, mean that these people can be transferred out of agriculture without making any organisational change in agriculture. The underemployed people do not represent visible unemployment. A substantial portion of this 36·8 per cent of the agricultural labour force do not have work for 240 days in a year, which have been assumed to be equivalent to a man-year. As long as the farms operate within the present institutional frame work most of this underemployed and unemployed workers can not be shifted out of agriculture without affecting production. In the present system of land holding, neither the small farms offer full-time employment to the available workers on such farms, nor do the large farms generally follow a pattern of land utilisation so as to permit intensive labour use. Thus wasteful labour use is an inherent feature of our land system. Lack of any gainful employment and underemployment are more visible in slack seasons and among the underprivilaged groups. Not all the unemployed, etc., however, represents people wanting work, much of it consists of farm families who find that with the traditional technology the extra income from weeding, excavation of channels, composting, etc., is not worth the effort. The higher yields made possible by new technology will make such employment more attractive by raising the reward.

The employment objective of the plan is to bring down the present rate of unemployment and underemployment in agriculture from about 37 per cent to about 32 per cent by the end of the plan period. The agricultural employment suituation at the beginning and end of the plan is shown in table VIII-37.

TABLE VIII-37.

Agricultural Employment Situation, 1972-73 and 1977-78

Items.	1972-73.	1977-78.
Population (Crore)	7·400	8·540
Total Labour force (Crore)	2·597	2·993
Agriculture Labour force (Crore)	1·982	2·284
Agricultural Employment (Crore)	1·252	1·562
Unemployment and underemployment in agriculture (Crore) ..	·737	·722
Rate of unemployment and underemployment (%)	36·8	31·6

In the calculation of the agricultural labour force in 1977-78 the rate of participation has been assumed at 35·1 per cent and the proportion of agricultural labour in the total labour force has been assumed to be 76·3 per cent. In our estimation of the employment situation in the country during the first plan period, it is assumed that the effect of the increasing participation rate will be balanced by the effect of declining ratio of the agricultural labour force to the total labour force. From Table VIII-37 it will be seen that for bringing down the rate of agricultural unemployment and under employment to about 32 per cent in 1977-78, it is necessary to generate a total of 156·2 lakh man-years of work in agriculture. This involves providing about 31 lakh extra man-years of work over the level of employment in 1972-73.

The new varieties of rice and wheat have been found to increase yields and labour requirements. For growing these varieties controlled irrigation and retained soil moisture is essential. Therefore, the key to rapid output and employment growth lies in rapidly enlarging the acreage under irrigation and multiple cropping. A rapid advance in this regard can generate more jobs in the plan period than the new addition to the labour force. In the first plan a very high priority has been attached to development of irrigation facilities in the country. Controlled irrigation facilities will be expanded from a little over one million acres in 1972-73 to about 40 lakh acres in 1977-78. In addition, the new high yielding rice varieties will be introduced in the areas where indigenous methods of irrigation are prevalent and in selected areas with sufficient retained soil moisture under rainfed conditions. The new rice varieties will be grown in an area of 94·4 lakh acres in 1977-78 compared to 26·0 lakh acres in 1972-73. Foodgrain production will contribute 14·90 lakh man-years out of an additional 18·60 lakh man-years (Table VIII-38) of employment estimated to be generated in crop sector.

However, the extent of employment generation in crop sector will depend on the labour intensity of the technique used and the kinds of crops expanded. The labour intensity of the technique used in cultivation being so important for employment it requires special attention. In order to realise the full potential of the labour using modernisation of agriculture labour saving mechanisation has to be strictly avoided. Mechanisation can only be adopted where specific bottlenecks can be removed by such means. Even in such specific cases the recourse to mechanisation should precede exploration of alteranative means which are less labour saving. In general, mechanised techniques and weedcides reduce labour intensity and, should not therefore, be made available except at hire charges reflecting the full cost of their import to Bangladesh; perhaps, some additional charges should be levied on the use of these machines and chemicals to prevent their negative impact on employment. Extension workers should instruct farmers in such productive and labour intensive techniques as composting, switch over from broadcasting to transplanting, improvement of irrigation channels, etc. HYV and fertilizers raise the amount of net product added by such techniques, and render their spread easier.

The creation of additional man-years of employment in various field of Agriculture Sector is shown in Table VIII-38. From the table it will appear that next to crop sector, Livestock and Fisheries, execution activities of Agricultural projects, and works programme are important sources of employment generation. Increased production of foodgrains will call for improved draft power for cultivation. In the plan, stress has been laid on increasing the number of

TABLE VIII-38

Estimated Employment of Agriculture Labour in 1977-78.

Sector.	Cropped Area in lakh acres.	Man-day per acre.	Total man-year (lakh).	Additional over benchmark (lakh).
Crop Sector				
Rice (HYV)	94·4	96	37·8	27·2
Rice (Local)	164·9	52	35·7	—12·3
Fibres	22·0	110	10·1	0·9
Sugarcane	4·0	115	1·9	0·1
Tea plantations	1·1	300	1·4	0·0
Other crops	58·0	45	11·0	2·7
Total crop sector	344·4	..	97·9	18·6
Livestock and Fisheries	..	..	32·0	5·6
Forestry	..	..	3·7	0·2
Processing Marketing, etc.	..	..	9·6	1·6
Works programme	..	..	4·0	2·0
Agricultural Projects	..	..	9·0	3·0
Total Agriculture Sector ..	..	..	156·2	31·0

draft animals and improving the quality of stock. Back-yard poultry and duck raising have also been stressed. All these activities will substantially raise employment, particularly in under employed farm households. In the fisheries sector, the additional employment generation will be more in marine fishing for which initial infrastructure has been provided. Exploitation of Kaptai lake and reclamation and stocking of big inland fisheries are also expected to generate some additional employment. Employment generation from direct project execution activities is estimated to be substantial. It is estimated that an additional 3·0 lakh man-years of employment will be generated in these areas. Examination of past irrigation projects indicate that about 60 per cent of the jobs can only be filled by skilled workers (skilled being defined as those with any formal or informal training or education). Efforts would be made to prepare projects which will economize skilled manpower so that skilled unskilled ratio falls further.

Another important source of employment generation is the works programme. Available studies indicate that a total expenditure of about a thousand million taka during the period 1962-68, generated about 0·7 million man-years of employment in rural Bangladesh. However, employment generation through works programme is seasonal. During the first plan of Bangladesh the allocation for works programme (excluding component of expenditure which are for pump and tube-well subsidy) will be more than double the corresponding allocations in 1965-70. Considering the effect of general price rise, the expanded allocation in works programme during the Plan period will create an additional 0·20 million jobs for agricultural labour force by the end of the Plan. Unlike the past activities items of works under the programme will be oriented towards capital construction. The details of such works have been elaborated in the relevant section of this document.

In summary we can say that a high employment policy in agriculture will raise the income level and hence demand for food and non-food agricultural commodities which will be produced in large quantities. This in turn will provide further scope for employment generation. During the First Plan period the rate of agricultural unemployment and underemployment will be reduced from 37 per cent to about 32 per cent. This improvement, though substantial, still leaves a high rate of underemployment and unemployment. A continuous and conscious policy of labour intensive modernisation of agriculture will, therefore, remain to be an important guiding strategy for future agricultural development.

However, even if the overall unemployment and underemployment situation in agriculture improves, there might be regional and seasonal imbalances.

Provision of irrigation will bring about a shift in the cropping pattern with creation of additional peaks in labour demand in the winter season and intensifying further the existing peaks. This will tend to reduce labour absorption potential over the year. Spread of labour requirement seasonally through choice of crop combination is desirable in such areas. Such choice of crop-combination will have to be induced through an appropriate price policy.

The distribution of potential irrigated acres among different areas and corresponding population distribution (hence labour force) indicate that labour scarcity might be a serious problem in the haor areas of Sylhet, Comilla and Kishoreganj and in the districts of North Bengal. To meet the shortage, the market can be relied on to push up wages in shortage areas; the state, therefore, must intervene to ease out the situation. For facilitating transfer of labour from the relatively labour surplus areas to shortage area, wage infomation, arrangement of contacts, transport, and temporary shelters would be essential. The Ministry of Labour will set up a small seasonal Migration Assistance unit with an approximate annual budget of about 5·0 lakh taka for these purposes.

Landless agricultural workers could best be utilised in gainful employment through land reform by redistribution of land. Moreover, works programme in slack seasons and agriculturally depressed regions will be of much help.

8.4.4 Land Policy

Bangladesh has adopted socialism as one of the four fundamental state principles. The transition towards a socialist form of economy will require a series of institutional reforms in which land reform will be a focal point. Already some steps have been taken in this direction.

The ceiling on land holdings per family has been fixed at 100 bighas. Steps are being taken to acquire excess land and distribute it to landless cultivators. Planning Commission's report on land reforms contains detailed analysis on the land system of the country.

Experience in Bangladesh and similar countries shows that under the traditional system of technology, small farmers are more efficient than farmers with larger holdings. Small farmers make intensive use of the country's most abundant labour resource in achieving higher yield per acre. The smaller farms depend much less on hired labour or on rental income. Higher utility of income forces them to adopt intensive use of both land and family labour. However, efficient use of resources by small farms under the existing condition does not guarantee that they will continue to be so under a new set of technology. Here again we have to see the nature of new tchnology. The seed-fertilizer technological revolution has so far been a scale neutral one. With conscious institutional programmes there is no reason to believe that the small farms will be less efficient under the new technological production conditions in agriculture. In fact, there is some evidence in Bangladesh that small farmers are quick to adopt improved practices and use modern inputs when institutional reforms promote access to credit and collective adoption of indivisible inputs such as pumps and tube-wells. The small farms employ more labour per unit of land than the large farms when labour replacing mechanisation is avoided. These evidences suggest that suitable changes in the distribution of land will not only contribute towards higher agricultural productivity but will also generate a substantial amount of additional employment in agriculture. Therefore, land reform measures should be directed towards a lower ceiling on land holdings, small but viable units, and at first on a pilot scale co-operative management of small farms. The present ceiling on land holdings, TIP groups, and the service and credit co-operatives are initial steps in this direction. But more is required.

In order to formulate an effective land policy and develop appropriate organisational mechanism for its implementation a number of steps are required.

(a) Census, surveys, and studies should be undertaken to determine the precise nature of distribution of land ownership, land utilisation, differential fertility, constraints on land productivity due to flood, drought, etc., effects of irrigation on productivity, fragmentation of holdings, tenure relationship, etc., so that regional variations in land productivity and distribution of income from land can be identified. This information is vitally needed to formulate a rational and equitable policy on reforms of land tenure.

(b) An appropriate organisational framework is to be developed so that effective and speedy implementation of land reform programme already under way or may be proposed in the future is ensured. This will require that local organisations of the people benefitted by land reform measures actively participate in, and assume responsibilities for implementing the land reform programme. The speed and nature of reforms has to be consistent with the objective socio-political realities, administrative and institutional pre-requisite and short run objective of avoiding dislocation.

In the mean while, system of share cropping now prevailing in Bangladesh needs substantial reforms. Measures need be taken to secure the right of the share cropper to cultivate rented land as long as he wants it, if rent is paid, to ensure compulsory registration of tenancies, and to significantly improve the share of tenants in the produce of the land. This is essential from the point of view of not only equity but also of efficiency considerations, since it is inherent in the strategy of the Plan that one who cultivates the land must have a positive and adequate stake in improving its productivity.

8.4.5 Implementation

Most developing countries have experienced serious shortfalls in agriculture, because implementing institutions have lacked both real authority and contact with the field. It has often been difficult to co-ordinate and control the overlapping agencies in agriculture, water, land reform, rural co-operative, etc., and these agencies have been remote from the farmer. Failing prompt action on these twin points Bangladesh's plans too may remain merely paper plans. Many of the existing signs are rather ominous. Irrigation policy is scattered around Ministries and agencies, in BADC, TlP, BWDB and RWP. Extension is similarly split.

To implement its target, one of the world's biggest ever sustained national boosts in rice production, Bangladesh requires a clear, short and effective chain of command. The Planning Commission will vet, before implementation, institutional and major financial proposals from Ministries and Agencies and from Local Government bodies. The Planning Commission will maintain necessary check both on expenditure level and on physical progress towards output and input targets. The Planning Commission should not duplicate or take over the executive functions of Ministries, but the importance of agricultural co-ordination, monitoring and implementation requires an Inter-Ministerial Committee.

Appropriate institutional and organizational arrangements will be made to ensure inter-ministerial and inter-agency co-ordination at the national, district, and thana levels. The functions of the co-ordinating bodies will be to ensure the implementation of plan targets. The Co-ordinating body at the national level will have powers to send directives in consultation with the Planning Commission to Ministries/Agencies and to some extent to local bodies for corrective actions if targets are not being met. This will be done on the basis of evaluation and progress reports received from ministries, agencies, local bodies as well as Planning Commission. The co-ordination body will need, therefore, the authority to ask for reports from all independent reporting bodies, e.g., executing ministries, agencies and local development institutions.

The Planning Commission will use its allocative authority over the development funds in effecting a desirable performance standard on the Executive Agencies. Depending on how an agency performs during the year, the Planning Commission will increase or reduce resource allocation for the next year for the agency and/or area, and increase or decrease its projects programmes accordingly. This applies particularly to irrigation; command areas must be improved before the money for new schemes is released.

The local institutions will be responsible for implementation, and increasingly for project preparation. For years to come, in discharging the latter responsibility the local bodies would need expert assistance, particularly from engineers, agronomists and economists. Four teams of these experts will, therefore, have to be set up at the present Divisional Headquarters and their services made available to local-level project-formulating bodies in the respective areas. Each team will consist of at least two engineers, two agronomists and two economists with supporting staff.

The local level programmes before they are incorporated into annual plans require to be clearly identified and translated into specified projects. Existing projects that have direct or indirect contribution to the Plan targets may need revision, which will be undertaken immediately after this plan is finally approved. The new projects with similar contribution should be prepared as early as possible. Once the portfolio of local projects is ready they will need ranking in

terms of their contribution to the output target and their implementation sequence. While preparing the annual plan, local level as well as other priority projects must receive financial allocation fully commensurate with physical targets. Release of fund for them needs to be made exactly in accordance with their resource need and absorption capacity.

TABLE VIII—39.

Ministrywise Break-up of First Plan Agricultural Development Outlay

(In crore Tk.)

Plan Allocations.	Total.	Ministry of Agriculture.	Ministry of Livestock, Fisheries & Forestry.	Ministry of Flood Control & Water Resources.	Ministry of Rural Development.	Other Ministries.
A. Water :						
1. Large Scale ..	309·50	..	..	309·50	..	..
2. Tube-wells ..	183·07	183·07	..	..	..	..
3. Low-lift	74·00	74·00	..	..	..	..
4. Small scale ..	11·70	..	..	11·70	..	..
B. Fertiliser	36·08	36·08 (415·25)	..	..	..	..
C. Pesticides	80·92	80·92 (180·77)	..	..	..	..
D. Seeds	6·88	6·88 (44·66)	..	..	..	..
E. Special Crops ..	25·00	25·00	..	..	..	..
F. Forestry	26·73	..	26·73	..	..	..
G. Livestock	38·28	..	38·28	..	..	..
H. Fisheries	30·98	..	30·98	..	..	..
I. Institutions:						
1. IRDP	31·00	..	..	..	31·00	..
2. Works Programme ..	109·47	..	..	..	109·47	..
3. Training, etc. ..	9·50	..	..	..	9·50	..
4. Agriculture Extension	12·79	12·79	..	..	..	..
J. Agricultural Research and Education.	33·00	18·92	14·08	..	..	..

TABLE VIII—39—*Concld.*

(*In crore Tk.*)

Plan Allocation.	Total.	Ministry of Agriculture.	Ministry of Livestock, Fisheries & Forestry.	Ministry of Flood Control & Water Resources.	Ministry of Rural Development.	Other Ministries.
K. Credit	..	..	..	..	..	..
L. Policy:						
1. Employment ..	0·25	..	..	..	..	0·25
2. Price stabilization ..	0·50	..	..	..	..	0·50
3. Nutrition ..	..	..	..	..	..	..
4. Land reforms ..	..	..	..	..	..	..
M. Agricultural Implements	3·00	3·00	..	..	..	..
N. Storage and Marketing ..	18·44	18·44	..	..	..	..
Total ..	1041·09	459·10 (975·90)	110·07	321·20	149·97	0·75

Note—1. Figures in bracket indicate gross cost.

2. Storage and marketing cost includes only for storage of Fertilizers, Seeds, Pesticides and Marketing scheme.

3. Cost of Land Reform is envisaged to be financed from Revenue budget.
Nutrition cost is excluded and to be financed from social welfare sector.

CHAPTER IX

INDUSTRY

9.1 REVIEW OF THE INDUSTRIAL SITUATION IN BANGLADESH

9.1.1 Industry in Pre-Liberation Days

Manufacturing industries of Bangladesh today contribute about 10 per cent to the nation's GDP. The contribution of the large-scale manufacturing sector amounts to about 6 per cent of GDP while the remainder is made up of small scale and cottage industries. The number of registered factories in 1968-69 were 3,130 of which 791 were in textiles, 576 in chemicals, 406 in food manufacturing, 257 in metal products, 207 in footwear, wearing apparel and made up textiles, and 149 in leather and leather products. There are also many unregistered units. In 1969-70, 587 thousand tons of jute goods, 106 million lbs. of cotton yarn, 59 million yards of cotton cloth, 94 thousand tons of sugar, 40 thousand tons of cement, 96 thousand tons of fertilizer, 57 thousand tons of paper and 58 million lbs. of tea were produced. Much of these were produced either in the public sector enterprises or in private enterprises enjoying concessions from the government.

9.1.2 Damage in Liberation War

During the Liberation War there had been widespread dislocation in the manufacturing sector with damage to buildings, loss of tools and equipments, vehicles, raw materials, stores, spares and finished goods. A provisional estimate by the Planning Commission puts the replacement cost of such assets and properties at Tk. 29·15 crores of which Tk. 22·35 crores was in the public sector and Tk. 6·8 crores in the private sector.

9.1.3 New Perspective

The emergence of Bangladesh radically changed the whole pattern of industrial ownership and policy. The Government took over all units abandoned by the Pakistanis and absentee owners, nationalised jute and cotton textiles and sugar mills and proceeded to establish sector corporations, one each for Jute Mills, Textile Mills, Sugar Mills, Steel Mills, Engineering and Shipbuilding, Paper and Board, Food and Allied Products, Gas, Oil and Minerals, and Fertilizer, Chemicals and Pharmaceuticals. Forest Industries Development Corporation, Small Industries Corporation, Fisheries Development Corporation and Film Development Corporation were set up before liberation. Tanneries Corporation was subsequently set up and a Cottage Industries Corporation is being set up. Besides, Sena Kalyan Sangstha and Mukti Jodhya Welfare Foundation were given a number of industrial units to be operated under their management. The public sector, so constituted, owns an estimated Tk. 517·00 crores of fixed assets in terms of their original book-value in 313 industrial enterprises, as on 30th June, 1973.

9.1.4 The Current Industrial Performance

Data on the performance of the key industries are presented in Table IX-1. Most of the industries included here relate to the public sector. Figures are not always reliable and 1972-73 figures sometimes are not adjusted for changes in capacity. A look at data in Table IX-1 points, however, to some significant trends which merit observation:

(i) Except in sugar, pharmaceuticals, newsprint, cement, beverages and processed wood all the main sectors recorded an expansion in output between the first and second half of 1972.

TABLE IX-1

Production in Selected Public Sector Industries

Group of Industries.	No. of Units.	Capacity in 1972-73.	Monthly average Jan-June, 1972.	Monthly average July-Dec., 1972.	Monthly average Jan-March, 1973.	Monthly Average April-June, 1973.	Monthly average during 1969-70.	Production in 1969-70 (Total for the year).	Production in 1972-73 (Total for the year).	Capacity utilization in 1972-73 (in percentage).	Capacity utilization in 1969-70 (in percentage).	Production in 1972-73 as percentage of Production in 1969-70.
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Jute (tons) ..	74	7,92,000	28,140	40,697	31,173	36,545	48,957·25	5,87,487	4,46,348	56·35	74·18	76
2. Textile:												
(a) Yarn (lac lbs) ..	44	1,344	43·89	71·52	60·79	63·66	88·00	10·56	808·53	60·16	78·57	76
(b) Cloth (lac yds)	..	1,212	22·18	47·61	47·04	54·23	49·00	588	589·52	48·64	48·95	100
3. Sugar (tons) ..	15	1,69,000	*5,903	**5,551	2,735	Nil	7,810·83	93,760	19,335	11·44	55·47	21
4. Fertilizer (tons) ..	2	4,46,000	3,547·33	15,828	22,294	38,163	7,992·25	95,917	2,76,788	62·06	90·50	288
5. Steel (Steel Mills (tons)	1	2,50,000	3,199	6,050	4,509	6,029	4,511·50	54,138	67,917	27·17	21·65	125
6. Engineering Industries:												
(a) Diesel Engines	1	3,000	111	159	2	130	107	1,284	1,353	45·10	42·80	105
(b) Ship building (worth Tk. in lac current price).	2	N.A.	N.A.	10·74	19·51	12·10	9·00	108·0	159·40	..	..	147
7. Newsprint and paper :												
(a) Paper (tons) ..	1	30,000	2,091·66	1,543	1,779	2,050	2,573	30,753	20,768	69·20	102.20	67
(b) Newsprint (including mechanical print) (tons).	1	52,000	3·091	2,307	2,527	2,307	3,677	44,266	28,351	54·52	88·52	64
8. Cement (Lac tons) ..	1	1·50	·030	·015	·040	·030	·030	·40	·32	21·33	26·67	80
9. Food and Allied Products:												
***(a) Tobacco (lac sticks)	6	63,900	·524	505·21	270	2,525	1,034·25	12,411	11,438	17·89	48·10	92
***(b) Oil products (tons)	8	34,818	431·15	748	249·87	1,374·48	892·08	10,705	9,562·07	27·46	30·75	89
(c) Food products (tons)	2	59,400	464·22	1,088·40	554·21	..	..	..	26,875	45·24	..	..
(d) Fish processing (lac lbs.)	2	69·00	0·11	1·18	..	..	2·08	25·02	11·15	16·16	36·46	44

TABLE IX-1—Concld.

Production in Selected Public Sector Industries

Group of Industries.	No. of Units.	Capacity in 1972-73.	Monthly average Jan-June, 1972.	Monthly average July-Dec., 1972.	Monthly average Jan-March, 1973.	Monthly Average April-June, 1973.	Monthly average during 1969-70.	Production in 1969-70 (Total for the year).	Production in 1972-73 (Total for the year).	Capacity utilization in 1972-73 (in percentage).	Capacity utilization in 1969-70 (in percentage).	Production in 1972-73 as percentage of Production in 1969-70.
1	2	3	4	5	6	7	8	9	10	11	12	13
(e) Cold storage (lac lbs.)	2	59	0·44	1·24	0·37	1·92	1·06	12·67	11·81	20·00	21·55	93
(f) Beverage (lac bottles)	1	43	2·15	0·89	N.A.	N.A.	N.A.	N.A.	39·60	92·00	62·83	..
10. Chemicals (tons) ..	3	26,108	651·50	83·90	805·41	..	..	..	3046	11·66	..	..
11. Glass (lac sft.) ..	1	75	..	6·30	5·67	..	..	..	72·45	97·33	62·83	..
12. Pharmaceuticals :												
(a) Tablet (lac No.)	3	7,700	1,04·74	65·30	70·47	326·96	2·72	32·64	980·90	12·72	10·36	300
(b) Injectables (lac amp.)	3	56	1·05	0·74	0·61	·48	3·82	45·85	8·36	14·92	114·60	18
(c) OLP (lac bottles)	3	65	2·12	1·41	1·90	4·91	..	..	28·95	44·53	..	..
(d) Capsule (Lac No.)	3	192	10·07	5·02	4·81	8·29	..	..	77·98	40·61	..	..

*Monthly average over 4 months, *i.e.*, Jan.-April, 1972.

**Monthly average over 2 months, *i.e.*, November-December, 1972.

***Number of reporting units have increased for the last quarter of 1972-73 and for annual total production.

(ii) In contrast, a positive downturn was recorded in average output between the second half of 1972 and the first quarter of 1973 especially in jute, cotton textiles, steel, food and allied products, diesel engines and oil refining.

(iii) Sectors which have maintained an upward trend during early 1973 were sugar, shipbuilding, fertilizer, pharmaceuticals, chemicals, paper, newsprint, cement and gas.

(iv) Sectors which have exceeded or come close to pre-liberation output may be identified as weaving of cloth in large mills, steel, shipbuilding, fertilizer, glass, soap, fish processing, beverage, newsprint, cement and gas.

The above indicates a mixed performance of the sectors over time. Each industry's problems merit special analysis and no generalisation about the overall trend of performance of the nationalised sector is possible.

It is, however, apparent that some key sectors have performed well and even lagging sectors such as jute and textiles have demonstrated a potential for performing far better than what they have done. This, however, is not to say that a major effort will not be required to realise this potential. Below is presented a brief review of performance in particular sectors.

A. *Jute*

The industry was nationalised in March, 1972. The monthly average production increased from 28,140 tons in the first half of 1972 to 40,697 tons in the second half. The latter figure is around 83 per cent of the 1969-70 monthly average. This promising beginning was frustrated by decline in output from January onwards so that the average for the first quarter of 1973 fell to 31,173 tons. However, monthly average production increased to 36,545 tons in the second quarter of 1973.

In spite of production difficulties and rising costs the industry has managed to improve its export performance and keep its order books full. Exports increased from 124,643 tons in the first half of 1972 to 202,715 tons in the second half of 1972. Although production declined during the first quarter of 1973 exports amounted to 115,930 tons.

If the 1972 trend had been maintained one could have expected by now full recovery to at least the 1969-70 position. The special factors which caused the sharp decline in output in early 1973 may be isolated as follows :

(i) The industry lost heavily due to power failures. Mills in Khulna were closed for over a month due to a closure of the Goalpara Power Station. Computed losses due to power failure for this period account for 13,248 tons or an average of 4,416 tons per month.

(ii) Labour relations took a particularly bad turn within the industry during this period.

Even apart from these short term factors the industry does, however, face some serious problems which may be summarised as follows :

(a) Loss of markets during the period of the liberation war.

(b) Much more intense competition from synthetics.

(c) A rise in production costs from Taka 2,170 to Taka 3,463 per ton for hessian and from Taka 1,304 to Taka 2,529 per ton for sacking.

(d) A sharp increase of idle looms.

(e) Shortage of shipping space compounded by slow loading at the ports.

(f) A managerial vacuum arising from the departure of non-Bangalees who played a key role in the entrepreneurial side of the industry.

(g) As a result of the lower amounts of Taka per dollar of export and a much higher taka cost of raw Jute per dollar of export, Jute Textiles to-day have much lower effective protection than in pre-liberation days. Much of the loss sustained by the industry during the past year can be accounted for by this factor alone.

B. *Cotton Textiles*

Table IX-1 indicates that cloth production which had risen sharply from 22 lakh yards in the first half of 1972 has been averaging 47 lakh yards a month since July 1972 compared to a 1969-70 average of 49 lakh yards. Indeed for the months of July, August and December 1972 production figures exceeded the monthly average for 1969-70. The production of cloth increased to 54 lakh yards in the second quarter of 1973.

Recovery in yarn has, however, been disappointing. After a spectacular recovery from a monthly average of 44 lakh lbs. to 71·5 lakh lbs. between the first and second half of 1972 production slumped to 61 lakh lbs. in the first quarter of 1973. It increased to an average of 66 lakh lbs. in the second quarter of 1973. Here again, in August 1972, a peak figure of 83 lakh lbs. was realised.

Whilst mill-made cloth traditionally met only a small proportion of Bangladesh's requirements, yarn output accounted for a much larger share of the consumption of our handloom weavers. This slowdown in recovery is thus bound to have an impact on the supply of handloom cloth unless it can be supplemented by substantial yarn imports. So far only 27,000 bales have been imported. This along with slowdown in recovery of output explains the current cloth crisis.

The basic problems facing the industry are several. First traditionally poor efficiency has deteriorated further. While installed capacity increased somewhat over the pre-liberation level, there has also been an increase of idle loomage and spindles. Similarly, shortage of spares and slow arrival of programmed imports have been a problem. Disruption in the supply of cotton from traditional source also hampered production and caused programming difficulties since equipment and workers had been geared to utilise a particular type of cotton.

C. *Sugar Industry*

The industry has 15 units with an annual capacity of 169,000 tons. In the post-liberation period the production performance has been poor with capacity utilisation averaging 11 per cent compared to a pre-liberation average of 55 per cent.

The basic reason for this very poor performance is due to the fact that the crop for 1972 was sown at the peak of the Liberation War and the poor sowing of 1971 meant that the harvest of 1972 was very poor and this in turn affected output. Deliveries of cane for crushing to mills were even lower due to relatively high price of *gur* which diverted

cane to *gur* producers and away from the mills. Raising the purchase price of cane from Taka 3 to 4 per maund improved procurement but was not enough to secure a more decisive transfer. This has recently been raised to Taka 6 per maund which is expected to improve procurement.

Yield from the sugarcane has been well below the yield in other countries. This has made sugar costly to produce.

The fact that the factory price were kept artificially low by the monopoly purchaser, the Food Department, has passed the burden of subsidising the consumer on to the sugar industry which in turn became commercially unviable.

D. *Steel*

The steel industry revolves round the Chittagong Steel Mill; the Steel Mills Corporation has also acquired a number of abandoned re-rolling units, while some re-rolling mills remain in the private sector.

The steel mill has had an inherited legacy of under-capacity operation and losses. In 1969-70 capacity utilisation was only 22 per cent. In 1972-73 capacity utilisation rose on an average to 27 per cent. Due to a sharp acceleration in production, the plate mills, which had been lying idle for several years, were brought into production and in 1972-73 produced 10,751 tons of plate. Unfortunately, however, there has been a downturn in production during 1973.

The recovery in production during 1972 was due to inherited stocks of raw materials, a big demand for steel and full support to the sector. Whilst inventories lasted, the steel mill not only raised output but, for the first time in its history, could generate a cash surplus. This was helped, in contrast to other sectors, by the steel mill charging a more realistic price for its products. A successful wage settlement with the workers played a critical role in achieving record production levels. In 1973 much of this trend was reversed due to the fact that the union reneged on the wage agreement and resorted to periodic go-slows. There has also been shortage in raw materials such as limestone and scrap due to delays in delivery.

E. *Shipbuilding and Engineering*

1. SHIPBUILDING

The shipyards in the public sector traditionally operated below capacity. Since liberation a major effort was made to activate them by commissioning the yards under BESC at Khulna and Narayanganj to take up a major part of the requirements of BIWTC's fleet. In addition the yards have accepted considerable repair work. As a result it has done business averaging Taka 19·5 lakhs per month in the first quarter and Taka 12·10 lakhs in the second quarter of 1973 compared to Taka 10·74 lakhs in the second half of 1972. Its current performance exceeds the pre-liberation average. As and when deliveries to BIWTC begin revenues are expected to increase substantially. Some additional business has been forthcoming through use of facilities at the yards to manufacture power pumps for BADC.

The industry, however, faces problems due to shortage of some raw materials and components required from abroad for fitting IWT vessels as well as some uncertainty in the delivery of plate from the steel mill due to 'go-slow'. There is also the need to ensure that the steel mill can provide steel of required quality and specification.

2. DIESEL PLANT

During 1972 the Diesel Plant's production performance rose from a monthly average of 111 engines in the first half to 159 in the second. Both figures exceeded the pre-liberation average of 107 engines. However, there had been a slump in the first quarter of 1973 when only 2 pumps were turned out. This was due to virtual suspension of work in January and February. Production of late has been picking up; 202 engines were produced in April. Also 750 CKD engines which were under shipment began to arrive during the period which will further aid recovery in output. The average turnout during the second quarter was 130 engines exceeding the pre-liberation average.

3. MACHINE TOOLS FACTORY

By now the war damage has been substantially made good and steps are underway to make more effective use of capacity by initiating a programme to manufacture deep tube-wells. The plant is still under-utilised due to the fact that it is incomplete and needs to be balanced.

4. OTHER SECTORS

Other units under the sector producing motor cycles, fans, metal cans, fluorescent tubes, electrodes and electric cables have been highly sensitive to the availability of imported raw materials. Where they have been available the units have performed satisfactorily. However, in all cases capacity remains substantially under-utilised because of shortfall in supply of raw materials. If raw material inventories could be restored to pre-liberation levels production could be expected to exceed pre-liberation targets. This position is expected to be realised in most units by the beginning of the new financial year.

F. *Fertilizer, Chemical and Pharmaceuticals*

Based upon returns from the enterprises, efficiency in this sector has been as follows during the past year:

Efficiency of operation.	Number of enterprises.	Percentage of enterprises.
Less than 25%	6	25
25% to 49%	8	33
50% to 74%	6	25
75% or more	4	17

Efficiency has been calculated against a standard output defined as maximum output attainable under conditions prevailing in Bangladesh.

The sector has been highly sensitive to availability of imported raw materials. Wherever this has been at hand production figures have tended to exceed 1969-70 figures. Unfortunately, shortages have still not been made good due to inadequate provision of foreign exchange compounded by delay in programming and shipment. This explains the variation in efficiency reported above.

Fertilizer has been a vital sector in the Corporation. Consequently, the attention of the Corporation has been directed towards raising and maintaining production of fertilizers. The Urea plant at Ghorasal went into trial production in August, 1972, after completion of repairs. It did not begin full production till November, 1972. It's output exceeded 170,000 tons by the end of the 1972-73 financial year. In contrast the older plant at Fenchuganj has operated at much below capacity due to extended maintenance. The sharp increase in production at Ghorasal has taken fertilizer production well above pre-liberation figures.

Chemicals and pharmaceuticals have a substantial private component with subsidiaries of international companies having a dominant position. There are a number of Bengali-owned units but only a few are currently capable of producing products of an acceptable standard. The international subsidiaries have performed very well and some have attained record production levels. If adequate raw materials were available the performance could have been even better.

It may be noted that the vacuum created by disruption of supplies from Pakistan created a sellers' market which these companies have attempted to exploit within the limits of raw materials availability. Raw material supplies have, however, still fallen far short of domestic demand for pharmaceuticals although the industry has been licensed at 100 per cent entitlement for the July-December, 1972 shipping period and 150 per cent for January-June, 1973.

G. *Forest Industries*

This Industry has traditionally operated below capacity. Units in FIDC processing wood products in 1969-70 operated at 15 per cent of capacity and those fabricating wood products at 28 per cent. of the capacity. However, the post-liberation situation has led to a singularly poor performance for wood processing which fell to 1·6 per cent of capacity in 1972-73. This owed essentially to a serious disruption of supplies of timber due to a ban on extraction from the Sundarbans and the Chittagong Hill Tracts forest areas. The move was designed to conserve forest resources which were being depleted at a rapid rate by indiscriminate extraction by private sources. The recent lifting of the ban is expected to improve the situation.

On the other hand, wood products have performed better due to the large demand for furniture and household fixtures. As a result the monthly average for the second half of

1972 rose to 4,104 sq. ft. compared to 2,866 in the first half of 1972 and the half-yearly average of 2,800 sq. ft. during 1969-70.

H. *Paper and Board*

1. NEWSPRINT

Khulna Newsprint Mills achieved a monthly average production of 3,091 tons in the first half of 1972 and 2,307 tons in the second half of 1972. Output rose further up to 2,527 tons in the first quarter of 1973 but slumped again to 2,307 from the second quarter of 1973. This may be compared with the 1969-70 monthly average of 3,677 tons. The industry is, however, still operating below its peak capacity of 4,000 tons a month.

The critical problem facing the industry stems from the loss of the Pakistan market. The search for new markets has yielded some dividends but the situation is highly competitive. The domestic pricing of newsprint remains unremunerative and has made no allowance for cost changes dating back even before liberation. Uncertainties in timber supplies from the Sundarbans have also affected productivity.

2. PAPER

The Karnaphuli Paper Mills' production has recorded a steady increase from a monthly average of 1,543 tons in the second half of 1972 to 1,779 tons in the first quarter of 1973, and 2,050 tons in the second quarter. This is still below the 1969-70 average of 2,573 tons.

Here again the main problem have been the loss of the Pakistan market and a serious shortage of bamboo, due to supply and transport difficulties, as well as shortage of imported raw materials.

The North Bengal Paper Mills has suffered from a shortage of power supply which has prevented the commissioning of the plant. Lack of critical spares and equipment has also raised problems while the poor sugarcane crop has reduced supplies of bagasse, the raw material of the Mills. The basic difficulty, however, remains a contraction in the market.

I. *Food and Allied Products*

1. EDIBLE OILS

Production is highly sensitive to supply of imported oil seeds or crude soyabean oil. Fluctuations in the performance of this sector recorded in Table IX-1 reflected the arrival of imports and the stock position of the industry. The industry has, however, operated at well below capacity and even in 1969-70 only 30·75 per cent of capacity was utilised. A larger availability of raw materials would not only raise the performance of the sector but go a long way in meeting the needs of the market today.

Inappropriate and uneconomic pricing of the corporation products has prevented the sector from taking any advantage of the sellers' market. The large scarcity margins have been eaten up by the new permit holders who have not only made high profits but also adulterated the products of the corporation.

2. TOBACCO

This sector is dominated by the private sector. Units under the BFAPC contributed only about 7 per cent of output in 1969-70. Performance of this sector as a whole cannot be measured for the full period due to shortage of data. However for the first 4 months of 1973 production averaged 8,557 lakh cigarettes per month which is about 58 per cent of the average monthly output in 1969-70. The data in the table refers only to the public sector part of the industry.

Inadequate and irregular supply of raw materials including tobacco, foil and packing material still continue to plague the sector. While unremunerative pricing has kept the BFAPC's profits down it had, at the same time, added to the permit holders' premium in today's sellers' market.

3. FISH AND COLD STORAGE

Capacity utilisation in this sector was traditionally low averaging 37 per cent in 1969-70. In 1972-73 it fell to 16 per cent. The critical problem remains the general shortage of fish and the smaller share coming to the units. The competing demand from private exporters and the trawling under Fisheries Development Corporation have aggravated the BFAPC's difficulties.

J. *Minerals*

The main units under this corporation, the cement plant at Chattak, had for sometime been operating at well below capacity due to shortage of limestone. In 1969-70 capacity utilization was 26·67 per cent.

In the post-liberation period limestone supplies were still inadequate in spite of the opening up of access to traditional sources in Meghalaya in India. The problem of transport which affected supplies from Takerghat also affected the Meghalaya supplies. This problem will persist till the aerial ropeway connecting the plant at Chattak with Kommorah limestone quarries across the border is fully commissioned. Once this is done the plant may begin to operate at close to its full capacity of 150,000 tons. The monthly average output of nearly 4,000 tons for early 1973 exceeded the 1969-70 average while production in second quarter of 1973 approximated 3,334 tons. But this is a long way from capacity and merely reflected the availability of limestone at the crusher.

9·2 PROBLEMS AFFECTING RECOVERY OF INDUSTRIAL OUTPUT

The recovery of industrial output has been slow. More important, in certain major industries, *e.g.*, jute and cotton textiles, there has been a down-turn from recent peaks. Difficulties impeding the return to full production can be enumerated as follows:

9.2.1 Institutional Factors

The sudden expansion in the public sector due to the inheritence of abandoned enterprises and nationalisation programmes of 26th March, 1972 had its impact on industrial revival. The development of such institutions as the sector corporations and the delineations of responsibility between the corporations and the mills and between the corporations and the Ministries have taken time.

9.2.2 Management

Production in key sectors such as jute and cotton has been affected by the exodus of skilled persons and top factory managers. The managerial problem deserves special attention because of the expanded role of the nationalised sector where socially committed and dedicated people are required to harness the resources of the country. Industries are short of general managers and organisers, economic analysts, higher level accountants and marketing specialists.

9.2.3 Labour Problem

The labour unrest and the inability to motivate workers is a significant factor affecting the recovery of industrial production. The problem is examined separately in a latter section where a possible labour policy is spelt out.

9.2.4 Disruption in Linkages

Some of the material inputs, intermediate goods, and consumer goods were previously imported from Pakistan. The sources of supply of these have not been fully stabilized resulting in shortage of raw materials, increase in cost and uncertainty of arrival. Most of raw cotton, yarn and thread, tobacco, rape and mustard seeds, cement, some of pharmaceuticals and other chemicals fall in this category.

Similarly import of raw materials from abroad has still not been properly sorted out. The problem is accentuated because of the worldwide shortage of shipping space and lack of proper inventory management. The shortage of diesel or furnace oil, for example, can alone have a crippling affect on the economy. The port facilities are not yet adequate to handle imports and exports; internal transportation has also been inadequate.

9.2.5 Shortage of Power

Losses from power failure bulk large as a factor in industrial performance. Poor power supply has been a traditional problem but the damage to the power system during the liberation war has made supply even more irregular. There has been a general power scarcity in the western grid. The problem has been magnified due to shortage of diesel and furnace oil. In the eastern grid the situation is no better. The frequent power failures, load shedding and fluctuation of voltage have resulted in waste of raw material and sometimes closing down of the enterprises. The power sector has faced its own problems of

labour motivation which has led to poor maintenance and operation of power plants. Loss of managerial skills at various levels due to departure of non-locals has had its impact on revival. This is discussed more fully in the power sector of the plan.

9.2.6 Shortage of Spares and Consumables

Shortage of spares and consumables due to inadequate and untimely import authorisations has caused a large reduction in output of mills and enterprises. Due to lack of engineering and servicing facilities within the country, spares and replacement supply could not be reuglated from domestic sources either. The problem has been accentuated by the neglect and poor maintenance of machinery during the liberation war which made demand for spares larger than in normal times.

9.2.7 Finance

For various reasons the financial position of most of the enterprises is still precarious. The working capital requirement of many enterprises especially those based on imported raw materials has not been met while in some of the on-going projects action has been postponed and construction could not be resumed as no credit was available. Generally, this is due to the fact that the financial institutions until recently were not clear as to their specific role and field of action which impeded their operations. Again the creditworthiness of many of the enterprises is dubious because of their past debt liabilities, present management structure and lack of a definite government policy in this regard. Some of the enterprises have not been able to utilise their foreign exchange entitlement because of delay in import authorization.

9.2.8 Loss of Market

Disruption in the vital material linkages of the enterprises and a sudden breakdown of former inter-industrial markets have created a general uncertainty and depressed the demand. In certain sectors such as paper and newsprint, rayon, matches, wires, tea, tanned leather, timber and pharmaceuticals, the loss of traditional markets has caused a sudden surplus in capacity. The disruption of links with the traditional export market even for such exports as jute has been a major cause of worry. However, some progress has been made by tapping the export possibilities. Similarly, rayon has been successfully blended with cotton in the handloom sector so that its marketing problems could be regarded as transient. The problem has inherent difficulties and the solution cannot be found in the short-term. If an outlet in the foreign market is not found or adequate domestic demand is not created some of these units may need to be reorganised or closed down.

9.2.9 Lack of Transportation

Even with the restoration and repair of a large number of bridges the transportation problem has not yet been solved. The damages and loss in the railways, inland water transport and in buses and trucks have been significant. In the railway and road sectors the shortage of fuel has affected the movement of goods. The special problem raised by

massive food imports has put a heavy strain on the disrupted transport. As a result the commercial and industrial enterprises have not been in a position to move their inputs to the factories and their output to the market expeditiously. Stores are bulging with finished goods or they are piled up at the port for want of shipping space. International shippers are still not calling at Bangladesh ports with their traditional regularity. This has delayed both imports and some decline in working efficiency has led to an increase in turn round time and poor capacity utilisation. This has aggravated problems of scarce capacity and the need for quick movement of goods.

9·2·10 Inadequate Flow of Maintenance Imports

The reasons for the disappointing performance in the industrial sector need also be traced to the inadequate flow of maintenance imports. The following facts speak for themselves:

(a) To ensure utilisation of industrial capacity at single shift capacity, annual import of roughly Tk. 318·00 crores is required. For the three shipping periods for January 1972 to June 1973 this comes to Tk. 477·00 crores.

(b) Against this the Government allocated in its import policy for three shipping periods a sum of Tk. 283·00 crores, while the issue of license and L.Cs. opened up to April 15, 1973 have amounted to Tk. 194·00 crores and Tk. 126·00 crores respectively. Imports during this period have been much lower than the L.Cs. opened due to time lags in shipment.

(c) It is thus quite apparent that the industrial sector has faced something of an import famine in relation to its estimated annual requirement for effective capacity utilization of industry. A poor production performance is thus more easily understandable.

The reasons for this poor import performance are as enumerated below:

(i) Foreign exchange scarcities led to postponement in declaration of January-June, 1972 import policy till May, 1972, while slow-down in issue of licenses for July-December, 1972 period led to the bulk of the licenses being issued in the last part of the shipping period. Again suspension in April 1973 of issue of import licenses and revalidation of unutilised licenses for all except a few essential industries will also take their toll during the next few months.

(ii) Foreign exchange scarcities were compounded by delays in issue of licenses due to the cumbersome licensing procedures and some administrative delays.

(iii) Inexperience of industrial importers in handling licensing procedures.

(iv) Departure of non-local business houses who handled imports of many industries.

(v) Time lost in illegal trading of licenses by many industries.

(vi) Disruption of import links with Pakistan was not immediately compensated by increase in import entitlements. Time was further lost in substituting these links. This led to both shortfall and delays in imports.

(vii) Capital flight through under invoicing led to lower import arrivals than licensed for.

(viii) The entry of TCB into the import of industrial raw materials led to delays due to :

—Inexperience of TCB in this field.

—Excessive burden on TCB.

—The cumbersome decision making procedures led to loss of business due to inability to make snap decisions.

9.3 OBJECTIVES OF PLANNED INVESTMENT

The government has set for itself the task of realising a level of development where people will be assured of adequate food, clothing, shelter, health care, education, transport and such other basic needs. The industrial plan can only be viewed as a part of this endeavour. In achieving this goal, it is also expected that the broadened industrial base of the economy will generate substantial surplus, create additional employment and income and usher in a self-reliant economy through utilization of the nation's own resources.

The essential ingredients of the above objectives are :

(i) to increase supply of key agricultural inputs such as fertilizer, power pumps, tubewells, pesticides, sprayers and tillers ;

(ii) to utilise domestic resources such as jute, sugarcane, tobacco, fish, leather, timber, gas, clay, limestone, fruits, vegetables, fish and livestock products ;

(iii) to gradually develop a capital goods industry starting from simple operations and developing through linkage effects to feed inputs to other sectors (*e.g.*, transport) or other industries (*viz.*, machinery and parts).

(iv) to encourage growth of indigenous and semi-indigenous technology through research and adaptation ;

(v) to encourage small, cottage and village industries for spatial dispersal and for promotion of private sector efficiency ;

(vi) to aim for economic self-reliance by building up export-oriented and import substituting industries; and

(vii) to aim at a balanced geographical distribution of industries for wide dispersion of income and employment effects.

9.3.1 Inputs for Agriculture and Agro-based Industry

Breakthrough in agriculture and self-sufficiency in foodgrains are major objectives of the Plan. To provide a minimum quantum of food for 8·54 crore people without large import dependence require, *inter alia*, large quantities of chemical inputs in the form of fertilizer, insecticides and demands utilisation of improved implements for increasing per-acre yield of foodgrains and other crops. Development of industries for the production of fertilizer, pesticides, pumps, tubewells, sprayers, and tillers, etc. are given due emphasis in the industrial sector plan.

9.3.2 Utilisation of Domestic Resources

Utilization of available domestic resources, both natural and man-made, is a prime objective of industrialisation. The resource base is however limited to jute, sugar, fruits and vegetables, tobacco, tea, fish, leather, timber, gas, clay, and limestone. Jute, sugar, tobacco, tea and leather have found extensive use in the early industrialisation of the country. But efforts in respect of other resources have been limited. In particular natural gas offers vast opportunities for industrial development, especially for that of a petrochemical industry.

9.3.3 Development of Capital Goods Sector

The high externalities, provided by capital goods industry, provide a good case for their development. Investment in the engineering sector will permit a modest beginning in the capital goods sector which may be expected to grow through the linkage effect. Facilities or production of tools, tackles, equipment and machinery of various sorts are being created during the plan period.

9.3.4 Small Industries

Small industries are to play an important role in the Plan. In many spheres capital/output or labour/output ratios are more favourable in this sector. The location of units can be more easily and widely dispersed. This sector will thus help to realise the plan objective of employment generation and development of less developed areas.

9.3.5 Rural and Cottage Industries

Cottage and village industries, handloom and handicraft can go a long way in offering opportunities of employment and cater to the needs of the rural areas. These units, properly integrated with the community and with proper industrial assistance, can contribute much towards the economic resurgence of rural Bangladesh.

9.3.6 Export Oriented Industries

Export-oriented industries as well as efficiently selected import-substitution industries which contribute to diminishing strains on the balance of payments deserve special consideration. However, indiscriminate import-substitution leading to sub-optimum allocation of resources should be avoided. Initially, the possibility of diversifying export seems limited. Hence more emphasis has been placed on import-substitution. However, attempts have been made to promote newer products (*e.g.*, urea) for export wherever possible.

9.4 STRATEGY FOR INCREASING INDUSTRIAL OUTPUT

9.4.1 Nationalised Sector

The nationalised sector is now the dominant factor in the industrial sector. Failure to manage these enterprises efficiently will jeopardise our industrial plan, and prejudice our commitment to a socialist economic system. Hence complete re-appraisal of the problems and organisation of the nationalised sector has been attempted in the plan.

9.4.2 Private Sector

The government's Investment Policy delimits the role of the private sector in Bangladesh to small and medium-sized units with assets not exceeding Tk. 25 lakhs. The Plan provides for a policy of direct assistance and inducement to enable the private sector to realise the

ambitious investment targets set for it in the Plan. This policy also seeks to prevent the emergence of a new class of big capitalists operating in the areas of large scale industry left outside the orbit of the nationalised sector.

9·4·3 Foreign Investment

The policy towards foreign investment seeks to reconcile public ownership of all large scale industry with the need for scarce capital, foreign technology and scientific know-how. Foreign investment is thus welcome as minority partners of the government though any association of foreign capital with the private sector is excluded.

9·4·4 Geographical Dispersal

In the interest of widely dispersing income and employment generating effects of investment, geographical dispersal of industrial units is an objective of industrial development. This will be realised through a policy of incentives and administrative direction to locate units in less developed areas.

9.4.5 Choice of Technology

The limited resource base and the need to support a growing population as well as reduction in their pressure on land has led to emphasis on adoption of labour intensive technology in the industrial plan. In certain spheres adoption of modern technology is, however, imperative and these will be capital intensive (*e.g.*, Petro-chemical).

9·4·6 Increased Capacity Utilisation

Capacity has remained chronically underutilised in the industrial sector. The plan places considerable emphasis on fuller utilisation of capacity through ensuring a steady supply of spares and materials and more efficient utilisation of domestic capacity. The plan emphasises the need to improve efficiency and quality of production through enforcement of standards, institution of quality control, increase in labour efficiency, reduction in idle machine hour and encouragement of research in product design, technology and management. Balancing, modernisation and replacement of equipment will play an important part in the industrial strategy since they permit fuller and more efficient utilization of capacity.

9 4.7 Growth Through Linkages

Plan strategy for new investment aims at growth through linkages. Linkage here connotes not merely what is ordinarily meant by external economies and complementarities but is also extended to include a systematic effort to trace out a sequential path for action which will maximise these advantages. Thus if emphasis on agricultural development creates demand for fertilizer, we move to produce fertilizer subject to efficiency considerations. If a number of fertilizer units come up one could justify setting up a unit to provide spares for the factory. If several such units in various sectors are to be set up and consequent demand for a machinery complex justifies creation of a machinery complex appropriate investments need to be made.

9·4·8 Development of Management and Skill

There had been practically no investment in developing skills. This gap has to be filled by improving existing training institutions and developing new ones.

9·5 THE INVESTMENT PROGRAMME[1]

The industrial plan envisages an investment outlay of Tk. 8,946·910 million to achieve the objectives outlined in the sectoral plan. Out of the total investment in the industrial sector, Tk. 456·55 crores or about 51·03 per cent will be required in foreign exchange. A total allocation of Tk. 152·14 crores is made for projects which are on-going but not yet completed. The allocation comes to 17·00 per cent of the total investment and will mostly concentrate in the first half of the plan period. The emphasis on new industrial projects is by far the largest and the allocation of Tk. 623·17 crores comes to 69·65 per cent of the monetary outlay in the industries sector. Balancing, modernisation and replacement along with reconstruction and rehabilitation of the industrial assets will require an investment of Tk.104·80 crores or 11·71 per cent of the industrial investment. Research and development including feasibility studies and provision for certain technical institutions in the industrial sector will require an expenditure of Tk. 14·58 crores which comes to 1·63 per cent of the total investment in the industrial sector.

9.5.1 Nationalised Sector

Table IX-2 gives a summary of the total development allocation and foreign exchange component for each of the seventeen sub-sectors along with their percentage in the total and foreign exchange allocation. Petrochemicals with an outlay of Tk. 162·00 crores including Taka 90·00 crores in foreign exchange out of total estimated investment of Taka 263·35 crores including Taka 143·72 crores in foreign exchange, envisages new capacity creation for urea, synthetic fibre, PVC and other by-products and will claim 18·11 per cent of the total industrial investment and 19·61 per cent. of the total foreign exchange requirement. In terms of investment, the next highest claim is made by cotton textiles which will require Tk. 107·35 crores or 12·00 per cent of the total and 11·97 per cent of the foreign exchange allocation, followed by iron and steel and engineering industries with a planned investment of Tk. 100·00 crores and Tk. 93·81 crores or 11·17 and 10·54 per cent of the total and 10·67 and 9·29 per cent of the foreign exchange respectively. No significant expansion envisaged in jute, shipbuilding, and sugar, their respective share being 3·26, 3·98 and 1·59 per cent of the total investment. Some moderate expansion is expected to be achieved in chemicals and mineral based industries with 6·42 and 7·03 per cent of the toal investment allocation respectively.

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[1] The investment programme includes all development outlay in addition to fixed investment.

TABLE IX-2

Development Outlay Among Sectors

Sl. No.	Sub-Sector.	Total Development outlay (in crore Taka.)	F.E. Component (in crore Taka.)	Sectoral Investment expressed as a % of total development outlay.	Sectoral F.E. Component as a % of total F.E. outlay.
1	2	3	4	5	6
1	Jute	29·124	16·295	3·26	3·55
2	Textile	107·352	54·930	12·00	11·96
3	Engineering	93·813	42·626	10·54	9·29
4	Shipbuilding	35·611	17·924	3·98	3·91
5	Iron and Steel	100·000	48·962	11·17	10·67
6	Chemicals	57·437	30·132	6·42	6·56
7	Petrochemicals (Fertilizer, Fibre, PVC and other by-products).	162·000	90·000	18·11	19·61
8	Paper and Board	36·694	25·691	4·10	5·60
9	Forest	9·676	5·690	1·08	1·24
10	Mining and Mineral based industries.	62·865	33·915	7·03	7·39
11	Sugar	14·279	6·877	1·59	1·50
12	Food and Allied Products ..	8·010	4·100	0·89	0·89
13	Leather	7·130	2·741	0·80	0·60
14	Film	4·001	0·645	0·45	0·14
15	BSIC and CIC	24·500	1·768	2·74	0·38
16	Others	2·700	1·370	0·30	0·30
	Total—Public Sector ..	755·192	383·666	..	..
17	Private Sector	139·500	72·880	15·59	15·96
	GRAND TOTAL ..	894·692	456·546	..	..

9.5.2 Private Sector

A total investment of Tk. 1,39·50 crore with a foreign exchange component of Tk. 72·88 crores has been programmed for the private sector. This comes to around 15·59 and 15·96 per cent of the total and foreign exchange resources in the industrial sector respectively. Tk. 121·60 crores will be invested in small industry and Tk. 17·90 crores in cottage industry. Together with the Small Industries and Cottage Industries Corporation's direct expenditures, the small and cottage industries' share in the total development outlay comes to 17·56 per cent.

The private sector in most cases will supplement rather than compete with the public sector. Areas of operation where the private sector will invest in small industries are engineering industries (23·54 per cent), food and allied products (14·92 per cent), service industry (7·11 per cent.), textile goods (7·99 per cent), printing and publishing (5·38 per cent), chemicals (7·57 per cent) and leather and rubber products (4·60 per cent). Traditionally, these are sectors where profitability is high, demand is assured, employment creation is significant due to higher labour intensity of operation and technology involved is simple.

9.5.3 Sectoral Programme: General Comments

Sectoral priorities are fairly well represented by the allocation of resources attached to them except for certain sectors which, because of their capital intensity, require a higher allocation. Table IX-3 gives a breakdown of the sectoral allocation along with their classification in terms of on-going, new projects, balancing, modernisation and replacement and research and study.

Consolidation of existing units to attain a better utilisation of capacity will be the prime objective in jute, paper and sugar industries and no significant capacity expansion is envisaged in these sectors. Certain on-going schemes in the engineering sector will claim a sizable portion of the investment in this sector, *e.g.*, the Machine Tools Factory and General Electric Manufacturing plant. In the shipbuilding sector the completion of Chittagong Dry Dock and Narayanganj Dry Dock is given priority and no new scheme is contemplated here. Other sectors with a considerable amount of investment for on-going schemes are pharmaceuticals in the chemical sector, cotton mills in the textile sector and a paper mill in Sylhet in the paper and board sector.

Investment in new projects would be made in textiles to provide yarn for handlooms, and in engineering industries to provide engineering goods such as industrial fasteners, pipe fittings, type writers, etc., and transport equipment such as three-wheelers, bicycles and auto accessories. In the chemical sector, new capacities will be created for fertilizer, pesticides, man-made fibre and other chemicals. The petrochemical complex envisages production of urea, synthetic fibre, PVC and other by-products. The food and allied industry and leather would also register new capacity.

Major investment commitment for balancing, modernisation and replacement will be in the textile, iron and steel, paper and board and sugar industries.

A total investment of Tk. 12·782 crores (or 1·70 per cent of sectoral investment) for various research institutions, feasibility studies and other research has been proposed.

TABLE IX-3

Sectoral Investments as Percentage of Total Investments

(Taka in crore)

Sl. No.	Sub-Sector.	On-going.		New.		Balancing, Modernisation & Replacement.		Research and Study, etc.	
		Actual.	%	Actual.	%	Actual.	%	Actual.	%
1	2	3	4	5	6	7	8	9	10
1	Jute ..	4·924	3·24	8·440	1·35	15·000	14·31	0·760	5·21
2	Textile ..	16·000	10·52	80·500	12·92	9·852	9·40	1·000	6·86
3	Engineering ..	57·126	37·55	25·244	4·05	9·687	9·24	1·756	12·04
4	Shipbuilding ..	33·250	21·85	..	..	2·346	2·24	0·015	0·10
5	Iron and Steel ..	..	..	86·426	13·87	12·550	11·97	1·024	7·02
6	Chemicals ..	9·059	5·95	46·144	7·40	1·547	1·48	0·687	4·71
7	Petrochemicals ..	..	..	161·000	25·83	..	..	1·000	6·86
8	Paper and Board..	9·833	6·46	12·420	1·99	14·441	13·78	..	..
9	Forest ..	1·526	1·03	7·300	1·17	0·850	0·81	..	..
10	Mining and Mineral based industries.	0·800	0·53	60·121	9·65	0·864	0·82	1·080	7·41
11	Sugar	5·140	3·38	1·800	0·29	6·739	6·43	0·600	4·11
12	Food and Allied Products.	..	..	7·450	1·19	0·400	0·38	0·160	1·10
13	Leather ..	..	..	5·830	0·94	1·000	0·95	0·300	2·06
14	Film	0·486	0·32	2·515	0·40	..	..	1·000	6·86
15	BSIC and CIC ..	14·000	9·20	6·000	0·96	2·000	1·91	2·500	17·14
16	Others ..	..	..	..	..	..	..	2·700	18·52
	Total—Public Sector	152·144	100	511·190	82·03	77·276	73·74	14·562	100
17	Private Sector ..	..	..	11·980	17·97	27·520	26·26	..	..
	GRAND TOTAL ..	152·144	100	623·170	100	104·796	100	14·582	100

9·6 TIME PROFILE OF INVESTMENT

Phasing of expenditure must take into account product, technical and resource complementarities as well as financial availabilitiy. Lumpiness of investment at either end of the plan may lead to complexities which can be avoided through a programmed approach. An ideal situation obtain when investment is phased out to achieve a material balance consistent with the gestation period so as to achieve a progressive rate of growth.

Products that are on-going will require investment at the beginning of the plan period. Most of the new projects will have longer gestation periods and some of them will spill over into the next plan. Balancing, modernisation and replacement will, however, concentrate in the beginning of the plan period. The summary of the investment time-profile of the sectoral programme during the Five-Year period is given in Table IX-4 and is expressed below as a percentage of total outlay split into foreign exchange outlay and local currency expenditure:

	1973-74.	1974-75.	1975-76.	1976-77.	1977-78.
Total	11·07	18·40	22·55	23·47	24·51
Foreign Exchange ..	8·74	19·31	23·16	24·34	24·45
Local Currency ..	13·51	17·45	21·91	22·56	24·56

In the jute sector, investment would taper off from Taka 10·625 crores in 1973-74 to Taka 5·139 crores in 1974-75, Taka 5·000 crores in 1975-76 and 1976-77 and Taka 3·360 crores in 1977-78. This is primarily because new investments is not significant here and more effort will be devoted to consolidation of the present capacity and to market oriented research.

In the cotton textile sector, investment increases with time and higher investment is concentrated during the latter years of the Plan. Thus investment increases constantly from Taka 12·911 crores in 1973-74 to Taka 20·000 crores, Taka 22·000 crores, Taka 25·000 crores and Taka 27·441 crores in 1974-75, 1975-76, 1976-77 and 1977-78.

In the engineering industries where two on-going schemes, Machine Tools factory and Electrical Manufacturing plant will take the bulk of investment, the total investment phasing shows an increase and then a decline. In 1973-74 the total investment in this sector comes to Taka 17·472 crores which increases to Taka 18·355 crores, Taka 23·470 crores and Taka 24·371 crores in 1974-75, 1975-76 and 1976-77 respectively, and then goes down to Taka 10·145 crores in the terminal year. Similar is the case in shipbuilding where investment increases from Taka 4·360 crores in the first year to Taka 7·900 crores in 1974-75, Taka 8·755 crores in 1975-76, Taka 8·575 crores in 1976-77 and then falls to Taka 6·021 crores in the terminal year.

In iron and steel investment shows a constant increase from Taka 2·097 crores in the beginning to Taka 25·173 crores in 1976-77 and then declines to Taka 19·500 crores in the final year.

In the chemicals sector including petrochemicals, where new investment is the dominant factor, investment will grow with time such that it will increase from Taka 8·077 crores in 1973-74 to Taka 36·598 crores, Taka 52·595 crores, Taka 52·250 crores and Taka 69·917 crores in the five-year period respectively.

In paper and board, investment will fluctuate concentrating on first and last years. In leather, investment is concentrated on the first three years and then it falls gradually in the last years of the Plan.

The effect of the various forces of on-going, new, modernisation, balancing and replacement and research projects is reflected in the total investment which shows a compound growth rate of 22 per cent per annum.

TABLE IX-4

Sectoral Phasing of Investment

(Taka in Crore).

Sector.	1973-74.		1974-75.		1975-76.		1976-77.		1977-78.	
	Total.	F.E.	Total.	F.E.	Total.	F.E.	Total.	F.E.	Total.	F.E.
1. Jute	10·625	3·137	5·139	3·910	5·000	4·170	5·000	3·561	3·360	1·517
2. Textile ..	12·911	8·619	20·000	10·292	22·000	11·292	25·000	11·475	27·441	13·252
3. Engineering ..	17·472	7·706	18·355	7·976	23·470	10·345	24·371	10·740	10·145	5·959
4. Shipbuilding ..	4·360	1·990	7·900	4·320	8·755	4·224	8·575	4·370	6·021	3·020
5. Iron and Steel ..	2·097	0·945	24·776	12·517	28·454	16·500	25·173	16·000	19·500	3·000
6. Chemicals ..	7·177	1·637	14·498	8·550	19·595	10·536	8·250	4·859	7·917	4·550
7. Petro-chemicals ..	0·900	0·100	22·100	12·600	33·000	18·000	44·000	23·200	62·000	36·100
8. Paper and Board	10·103	5·449	5·180	4·092	5·131	4·000	7·400	5·920	8·880	6·230
9. Forest Industries	2·310	1·015	1·340	0·750	1·760	1·142	2·100	1·260	2·166	1·523
10. Mining and Mineral based.	2·713	1·008	13·155	7·549	14·700	8·013	15·300	7·822	16·997	9·523
11. Food and Allied Products.	0·769	0·424	0·645	0·272	·868	0·410	2·602	1·390	3·126	1·604
12. Leather ..	1·086	0·220	2·000	0·801	1·655	0·536	1·651	0·884	·738	0·300
13. Sugar ..	2·723	1·190	2·200	0·820	2·757	0·700	3·005	1·624	3·594	2·543
14. Film Development	0·315	0·150	1·411	0·295	0·710	·060	0·700	0·040	0·865	0·100
15. BSIC and CIC ..	3·051	0·112	4·500	0·400	5·449	0·556	5·500	0·400	6·000	0·300
16. Others ..	0·472	0·190	0·405	0·206	0·540	0·274	0·573	0·300	0·710	0·400
Total Public Sector ..	79·084	33·889	143·604	75·350	173·844	90·658	179·200	93·845	179·460	89·911
17. Private Sector ..	20·000	6·000	21·000	12·800	29·900	15·072	30·800	17·300	39·800	21·708
GRAND TOTAL ..	99·084	39·889	164·604	88·150	201·744	105·730	210·000	111·145	219·260	111·629

9.7 ECONOMIC BENEFITS OF THE INDUSTRIAL PROGRAMME

9.7.1 Incremental Production and Production Target

Target production at the end of the Plan period and incremental production during the Plan for the public and private sectors are presented in Tables IX-5 and IX-6. Production in the public sector industries is mostly on a one-shift basis except for jute, cotton textiles and chemicals where two or three shifts are operating. In the private sector two-shift operation is assumed as a matter of policy. Increase in production during the Plan would be both by expansion of capacity and efficient utilization of the existing units. In some cases, such as jute in the public sector and handloom in the private sector, output will increase largely through increasing shift operations. In making inter-sectoral comparison of incremental output from investments it is necessary to take cognisance of various ways identified above in which output within the sector will increase.

Since production data was not available for the private sector, normal capacity utilization figures were assumed for the existing units as a benchmark. This was then adjusted to reflect 70 to 90 per cent utilization in the future. Similarly for the new capacities created during the Plan in the private sector, capacity utilization was assumed to be 70 to 90 per cent for different industries.

In jute and sugar industries sectors the increment at the terminal year over the benchmark production will be about 30·5 per cent and 30 per cent respectively. In the textile industries sector there will be an increment of about 170 per cent in cloth production over the benchmark production and about 82 per cent in yarn production.

The increment in target production at the end of the Plan over the benchmark production (estimated) varies from 20 per cent in the mining and mineral sector to about 462·50 per cent in the iron and steel sector. In the engineering sector the increment of target production over the benchmark production will be about 279 per cent in case of units for which targets were shown in tons. For others the increment will be about 656 per cent.

In the chemicals sector the increment at the terminal year will be about 176 per cent over the benchmark production. In the pulp and paper sector there will be a moderate increment of about 84 per cent over the existing production. The increment in the food and allied sector will be quite considerable, the increment over the benchmark production being 214 per cent. In the leather industries the increment at the terminal year over the benchmark production will be about 171 per cent.

TABLE IX-5

Benchmark, Target and Incremental Capacity

Sl. No.	Sub-Sector.	Units.	Public Sector.			Private Sector.			Total (Public and Private).	
			Bench-mark capacity.	Target capacity.	Incre-mental capacity.	Bench-mark capacity.	Target capacity.	Incre-mental capacity.	Target capacity.	Incre-mental capacity.
1	Jute	Tons	7,22,346	10,45,713	3,23,367	..	..	..	10,45,713	3,23,367
2	Textile :									
	(a) Yarn	Crore Lbs.	13·950	21·970	8·020	0·005	0·010	0·005	21·980	8·025
	(b) Cloth	Crore Yds.	12·672	20·052	7·380	41·296	73·166	31·870	93·218	39·250
	(c) Ready-made Garments	Crore Tk.	..	..	..	2·000	9·700	7·700	9·700	7·700
3	Engineering	Tons	17,000	47,700	30,700	3,55,515	5,59,015	2,03,500	6,06,715	2,34,200
		Crore Tk.	8·500	27·810	19·310	25·877	84·227	58·350	112·037	77·660
4	Shipbuilding	Crore Tk.	2·120	15·455	13·335	..	..	..	15·455	13·335
5	Iron and Steel :									
	(a) Steel making ..	Lakh tons	2·50	5·50	3·00	2·00	2·00	..	7·50	3·00
	(b) Re-rolling ..	Lakh tons	2·00	4·50	2·50	..	..	..	4·50	2·50
6	Chemicals :									
	(a) ..	Tons	7,51,900	10,19,020	2,90,120	89,400	1,12,768	33,368	11,31,788	3,23,488
	(b) ..	Crore Tk.	65·250	101·250	36·000	45·245	70·245	25·000	171·495	61·000
7	Petro-chemicals ..	Tons	..	5,07,000	5,07,000	..	..	..	5,07,000	5,07,000
8	Pulp and Paper and Printing :									
	(a) ..	Tons	1,00,000	1,23,000	23,900	10,560	10,560	..	1,34,460	23,900
	(b) ..	Crore Tk.	..	..	..	10·200	12·100	1·960	12·100	1·960

TABLE IX-5—*Concld.*

Sl. No.	Sub-Sector.	Units.	Public Sector.			Private Sector.			Total (Public and Private).	
			Bench-mark capacity.	Target capacity.	Incre-mental capacity.	Bench-mark capacity.	Target capacity.	Incre-mental capacity.	Target capacity.	Incre-mental capacity.
9	Forest :									
	(a) ..	Tons	40,950	66,941	15,991	11,437	15,875	44,380	82,816	20,429
	(b) ..	Crore Tk.	..	..	..	4·200	6·394	2·149	6·394	2·149
10	Milling and Mineral based Industries :									
	(a) ..	Tons	3,00,000	13,30,000	10,30,000	11,57,350	15,70,350	4,13,000	29,00,350	14,61,000
	(b)	Crore Tk.	..	..	..	2·800	7·150	4·350	7·150	4·350
11	Sugar Industries ..	Tons	1,69,000	1,79,000	10,000	..	..	..	1,79,000	10,000
12	Food and Allied Products :			..						
	(a) ..	Tons	94,300	1,42,885	48,585	44,91,082	59,83,987	15,94,905	61,28,872	16,43,490
	(b) ..	Crore Tk.	12·772	12·872	0·100	68·445	141·965	73·520	154·837	73·620
13	Leather :									
	(a) ..	Crore sft.	7·413	13·453	6·040	4·940	6·040	1·100	19·493	7·140
	(b) ..	Crore Tk.	..	1·080	1·080	22·300	43·300	21·000	44·380	22·080
14	Miscellaneous Industries :									
	(a) ..	Tons	..	..	..	1,62,500	83,500	24,600	24,600	83,500
	(b) ..	Crore Taka	..	..	..	6·470	15·904	9·434	15·904	9·434
15	Service Industries :									
	(a) Hotel and Motels ..	Nos.	..	..	..	34	39	5	39	5
	(b) Cinema House ..	Nos.	..	..	..	120	220	100	220	100

TABLE IX-6

Benchmark, Target and Incremental Production

Sl. No.	Sub-Sector.	Unit.	Public Sector.			Private Sector.			Total (Public and Private).	
			Benchmark Production.	Target Production.	Incremental Production.	Benchmark Production.	Target Production.	Incremental Production.	Target Production.	Incremental Production.
1	Jute	Tons	5,87,000	7,66,000	1,79,000	..	..	..	7,66,000	1,79,000
2	Textile :									
	(a) Yarn	Crore lbs.	8·630	19·740	7·110	0·0025	0·0075	0·005	19·7475	7·115
	(b) Cloth	Crore Yds.	7·272	19·100	11·828	20·648	56·200	**35·552	75·300	47·380
	(c) Ready-made Garments	Crore Tk.	..	..	..	0·600	7·760	**7·160	7·760	7·160
3	Engineering :									
	(a) ..	Tons	5,555	33,800	28,245	1,06,655	3,91,300	2,84,645	4,25,100	3,12,890
	(b)	Crore Tk.	3·276	24·235	20·959	7·740	58·940	51·200	83·175	72·159
4	Shipbuilding	Crore Tk.	2·455	8·100	5·645	..	..	..	8·100	5·645
5	Iron and Steel :									
	(a) Steel Making ..	Lakh ton	0·80	4·50	3·70	..	..	..	4·50	3·70
	(b) Re-rolling ..	Lakh ton	1·50	3·50	2·00	0·50	1·50	1·00	5·00	3·00
6	Chemicals :									
	(a)	Tons	3,00,000	8,37,825	5,37,825	35,760	98,214	52,454	9,36,039	5,90,279
	(b)	Crore Tk.	66·275	71·000	4·775	18·098	56·196	38·098	127·196	42·873
7	Petro-chemical	Tons	..	3,88,000	3,88,000	..	..	..	3,88,000	3,88,000
8	Pulp and Paper Printing :									
	(a) ..	Tons	54,000	1,00,500	46,500	5,280	8,448	3,168	1,08,948	49,668
	(b) ..	Crore Tk.	..	..	..	7·140	10·944	3·804	10·944	3·804

*Incremental production is also due to increase in shifts of operation.

**Production data for private sector is not available. The Benchmark data is derived by estimating 30 to 50 per cent. of the capacity (generally on the basis of one shifts operaton) in the private sector.

TABLE IX-6—*Concld.*

Sl. No.	Sub-Sector.	Unit.	Public Sector.			Private Sector.			Total (Public and Private).	
			Benchmark Production.	Target Production.	Incremental Production.	Benchmark Production.	Target Production.	Incremental Production.	Target Production.	Incremental Production.
9	Forests :									
	(a) ..	Tons	11,500	79,500	68,000	9,150	12,700	3,650	92,200	71,650
	(b) ..	Crore Tk.	..	..	..	1·260	4·674	3·414	4·674	3·414
10	Mining and Mineral based Industries :									
	(a) ..	Tons	1,63,200	10,00,000	8,37,400	5,78,675	12,56,000	6,77,325	22,56,600	15,14,725
	(b) ..	Crore Tk.	..	..	..	1·400	5·720	4·320	5·720	4·320
11	Sugar Industries ..	Tons	1,06,470	1,48,000	41,530	..	..	..	1,48,000	41,530
12	Food and Allied Products:									
	(a) ..	Tons	19,920	99,875	79,955	13,47,000	41,90,000	28,43,000	42,89,875	29,22,955
	(b) ..	Crore Tk.	3·303	9·018	5·615	20·533	99·375	78·842	108·393	84·457
13	Leather :									
	(a) ..	Crore Sft.	4·485	12·108	7·623	1·776	5·328	3·552	17·436	11·175
	(b) ..	Crore Tk.	..	1·580	1·580	8·920	30·310	21·396	31·890	22·976
14	Miscellaneous Industries :									
	(a) ..	Tons	..	..	..	48,750	1,72,200	1,23,450	1,72,200	1,23,450
	(b) ..	Crore Tk.	..	..	..	1·941	11·130	9·189	11·130	9·189
15	Service Industries :									
	(a) Hotels and Motels ..	Nos.	..	..	..	34	39	5	39	5
	(b) Cinema House ..	Nos.	..	..	..	120	220	100	220	100

9.7.2 Value Added

Increase in value added due to new investment in capacity or better utilisation during the Plan is shown in Table IX-7 by sectors.

In the public sector net value added will increase by Tk. 128·449 crores and in the private sector by Tk. 110·800 crores, showing a total increase of Tk. 239·249 crores annually. This implies a rate of growth of about 8·5 per cent. per annum over the value added by large scale industry in 1972-73. Increase in value added will be highest in textiles (Tk. 77·607 crores) followed by engineering (Tk. 31·038 crores) and chemicals (Tk. 21·067 crores).

TABLE IX-7

Value Added from Additional Sectoral Output due to New Investment in 1977-78*

(Taka in crore.)

Serial No.	Sub-Sector.	Public Sector.	Private Sector.	Total.
1	2	3	4	5
1	Jute	15·738	..	15·738
2	Textile (including handloom) ..	30·807	46·800	77·607
3	Engineering	12·238	18·800	31·038
4	Shipbuilding	4·094	..	4·094
5	Iron and Steel	14·500	..	14·500
6	Chemicals	12·562	8·500	21·062
7	Petrochemicals	11·317	..	11·317
8	Pulp and Paper (including printing, paper converting, etc.).	4·127	6·200	10·327
9	Forest Products	2·050	0·800 (incl. furniture).	2·850
10	Mining and Minerals based Industries ..	7·312	4·000	11·312
11	Sugar	·575	..	·575
12	Food and Allied Products	4·934	7·500	12·434
13	Leather	5·020	3·000 (incl. rubber).	6·020
14	Handicraft, Rural or Village Industries ..	..	10·000	10·000
15	Miscellaneous	..	5·200	5·200
	Total ..	128·449	110·800	239·249

*Certain items in the miscellaneous category consist of non-manufacturing activities. Hence the total value added in this table is not strictly comparable with that in Chapter 2.

9.7.3 **Employment**

Employment creation is one of the primary objectives of industrial investment. In the public sector industries the technological constraint will limit the attainment of the objective in contrast to the private sector industries where new end use processing units will be forthcoming and the technology involved is simple. In the public sector, most of the employment creation will be due to new investment. It is estimated that about 1,11,000 new job will be created in the public sector whilst employment in the private sector will increase by 5,01,300 bringing the total to 6,12,300 new jobs created by the industrial investment plan. (*See* Table IX-8).

TABLE IX-8

Employment

Serial No.	Sub-Sector.	Public Sector.	Private Sector.	Total.
1	2	3	4	5
1	Jute	43,000	..	43,000
2	Textile	31,500	2,20,000	2,51,500
3	Engineering.			
	(a) Capital Machinery			
	(b) Engineering Goods			
	(c) Agricultural Implements ..			
	(d) Electrical Accessories	6,000	84,300	90,300
	(e) Intermediate Goods			
	(f) Consumer Goods			
	(g) Others ..			
4	Shipbuilding and Transport Equipment	3,000	1,000	4,000
5	Iron and Steel	4,000	500	4,500
6	Chemicals	10,000	20,000	30,000
7	Petrochemicals	5,000	..	5,000

TABLE IX-8—*Concld.*

Serial No. 1	Sub-Sector. 2	Public Sector. 3	Private Sector. 4	Total. 5
8	Pulp and paper (including printing, publication, etc.).	1,000	10,000	11,000
9	Forest Products	500	5,500	6,000
10	Mining and Mineral based Industries (including Cement).	3,000	9,000	12,000
11	Sugar	1,000	..	1,000
12	Food and Allied Products	1,000	25,000	26,000
13	Leather	1,000	10,000	11,000
14	Film	1,000	5,000	6,000
15	Miscellaneous Industry:			
	(a) Service Industry .. .. (b) Industry not elsewhere classified .. (c) Handicraft, Rural Industry ..	..	1,11,000	1,11,000
	Total ..	1,11,000	5,01,300	6,12,300

In the private sector handloom industries and handicraft and rural industries will generate by far the largest increase in employment. The textile sector programme envisages the activation of 2,50,000 handlooms which will be fed with enough yarn to keep them working throughout the year. Another 1,00,000 looms will be set up.

We assume that handloom cloth production will increase by over 35 per cent over 1969-70. Assuming a direct relationship between output and employment in this sector, the handloom sector will create an additional 2,00,000 jobs. We may assume that the textiles units in the small industries sector will create around 20,000 new jobs. In the handicraft, rural and village industry an additional employment of 50,000 is expected to be created. However, this would be a form of employment which may not take away the workers from their main agricultural occupation and will be in the nature of secondary employment. In other sectors of private industry around 2,31,300 jobs will be created out of which a large percentage will be due to better utilisation and more intensive use of the existing facilities.

Historically the highest proportion of employment is created in the building and construction sector. Since most of the projects in the public sector are expected to be turnkey, employment generation in construction and civil engineering works of the factories are not included. Roughly, around 30 to 35 per cent of the capital cost for setting up an industry is spent on civil engineering and payment of wages. If employment creation in this activity is also taken into account the incremental employment in the industrial sector will be considerable.

9.7.4 Export

In the industrial sector, there are few areas where the country enjoys a relative comparative advantage to be able to compete in the international market. Jute manufactures will continue to be the basic export earner. *Out of a total estimated export earning from the industrial sector of Tk. 270·290 crores, jute manufactures are expected to contribute around Tk. 225·200 crores or over 83·32 per cent of the total. Leather products and shoes will earn around Tk. 20·400 crores. Urea, iron and pulp and paper would contribute Tk. 9·000 crores, Tk. 4·500 crores and Tk. 58·5 lakhs respectively in the public sector, whilst food and allied industries will export goods worth Tk. 4·0 lakhs; fish exports would be the major item. In the private sector certain specialised textile goods, silk fabrics, etc., are expected to earn around Tk. 6·000 crores. Another 1·065 crore Taka is expected to be earned by the handicraft industry. In aggregate the private sector is expected to earn 20·565 crores taka in foreign exchange. (*See* Table IX-9).

TABLE IX-9.

Sectoral Export Earnings

(Taka In Crore)

Serial No. 1	Sub-Sector. 2	Public Sector. 3	Private Sector. 4	Total. 5
1	Jute	225·200	..	225·200
2	Textile	..	6·000	6·000
3	Food and Allied Products	0·040	2·000	2·040
4	Leather and Shoe	10·400	10·000	20·400
5	Pulp and Paper	0·585	..	0·585
6	Forest Products	..	0·200	0·200
7	Iron and Steel (1 lakh tons of sponge iron)	4·500	..	4·500
8	Chemicals	..	1·000	1·000
9	Urea	9·000	..	9·000
10	Miscellaneous	..	0·300	0·300
11	Handicraft Industry	..	1·065	1·065
	Total ..	249·725	20·565	270·290

* *See* chapter VI, Section 5·3.

9.7.5 Net Import substitution

Net import subsitution is derived by estimating gross subsitution at C & F cost of imports *minus* the import liability for current inputs including depreciation of capital stock imported. The net incremental import substitution in the public sector comes to around Tk. 175·725 crores while in the private sector it comes to Tk. 93·180 crores, the total adding up to Tk. 268·605 crores. Net import substitution will be high in engineering, iron and steel, chemical, textile, petrochemical and sugar sectors. These sectors will contribute over 80 per cent. of net import substitution in the industries sector (*see* Table IX-10).

TABLE IX-10

Net Incremental Import substitution of the Industries Sector

(*Taka in Crore.*)

Serial No.	Sub-Sector.	Public Sector.	Private Sector.	Total.
1	2	3	4	5
1	Jute	..	..	..
2	Textile	19·397	24·600	43·997
3	Engineering	17·062	32·700	49·762
4	Shipbuilding	3·327	..	3·327
5	Iron and Steel	49·000	...	49·000
6	Chemicals	30·558	19·000	49·558
7	Petrochemicals	22·460	..	22·460
8	Paper and Board	4·387	1·200	5·587
9	Mining and Mineral Based Industries ..	2·714	5·000	7·714
10	Sugar	20·200	..	20·200
11	Food and Allied Products	6·320	1·000	7·320
12	Leather Tanning and Rubber Products ..	..	1·500	1·500
13	Film	..	..	..
14	Forest Products	..	0·180	0·180
15	Other	..	8·000	8·000
	Total	175·72	93·180	268·605

9.7.6. Import Liabilities

Import liabilities of a recurring nature for current inputs are shown in table IX-11 which is derived for incremental output. A total of Tk. 164·915 crores is involved as import liability per year. Import liability in the public sector comes to Tk. 141·765 crores per annum while in the private sector it comes to Tk. 23·150 crores per annum. Important items of import in the public sector are cotton for the textile sector accounting for around Tk. 25·078 crores annually and chemicals and other raw materials in the chemical and petrochemical sectors where the import liability is to the tune of Tk. 50·737 crores per year. The three sectors of cotton textile, chemicals and petrochemicals together account for about 50 per cent. of the total public sector import liability.

In the private sector, textiles will claim Tk. 3·200 crores for imports mostly for synthetic yarn to be woven in the handloom sector. Once the petrochemical products become available the import liability will decline substantially. In the iron and steel sector the import liability of Tk. 6·000 crores will be due to more efficient running of the private sector industry rather than for creation of new capacity.

TABLE IX-11

Incremental Import Liability

(Taka in Crore.)

Serial No. 1	Sub-Sector. 2	Public Sector. 3	Private Sector. 4	Total. 5
1	Jute	2·500	..	2·500
2	Textile	25·078	3·200	28·278
3	Engineering	8·363	7·500	15·863
4	Shipbuilding	1·428	..	1·428
5	Iron and Steel	45·000	6·000	51·000
6	Chemicals	48·068	4·800	52·868
7	Petrochemicals	2·669	..	2·669
8	Pulp and Paper	0·592	0·400	0·992
9	Forest Products	0·391	0·125	0·516
10	Mining and Mineral Based Industries ..	3·421	0·225	3·646
11	Sugar	0·685	..	0·685
12	Food and Allied Products	3·045	0·400	3·445
13	Leather and Tanning	0·525	0·500	1·025
14	Film	..	..	..
	Total	141·765	23·150	164·915

9·8 INDUSTRYWISE PROGRAMME

9.8.1 Jute Industry

Jute is the leading industry in Bangladesh. The industry has 14,350 hessian, 8,151 sacking and 2,146 broad looms. It produced 5·9 lakh tons of jute goods in 1969-70 against a total capacity of 7·23 lakh tons, employing 0·2 million workers. The internal consumption of jute goods in Bangladesh in 1969-70 was around 25,000 tons, about 65,000 tons were exported to Pakistan and the rest was exported to other countries.

Major problems faced by the industry relate to:

(a) Serious threat of competition from synthetic products,

(b) High conversion cost,

(c) Very low efficiency rate relative to the machine rated capacity,

(d) Neglect of research and development in the field of product development, technology, management and promotion, and

(e) Lack of standardisation of equipment and machinery and thus of domestic capacity to manufacture spares.

The following programmes in the jute sector is envisaged:

(a) The strategy of the jute industry sector is inseparably bound up with decreasing cost in raw jute production and with increase in yield. It is estimated that, simultaneously with increased rice production programme, an intensive cultivation of jute covering 1·7 million acres by end of the plan is to be launched to realise a production target of 94 lakh bales.

(b) For 1972-73 the estimated production level of jute goods is around 430 thousand tons. The target for production has been set at 766 thousand tons in 1977-78. This will come mainly through increased efficiency. Domestic absorption will be around 72 thousand tons thus leaving a surplus of 694 thousand tons for export. For disposal of this surplus, the cost of production is to be lowered. This is to be achieved principally through reduction in raw jute cost, improved maintenance, better management. Research in product development and sales promotion will also contribute to the growth of this sector. Idle loomage has to be cut down through preventive maintenance, improvement in power supply, if necessary through installation of standby generators, scientific management and bonus for reduction in breakage. Cost may be reduced by reducing batch cost through utilisation of chemically softened and brightened low grade jute.

(c) With the completion of underway projects it is expected that 690 hessian looms, 255 sacking looms and 281 broad looms will be ready for operation in the first year of the Plan. In addition, 160 broad looms and 50 looms for speciality products and a jute carpet unit are also in the pipe line. Completion of underway and planned schemes will cost Tk. 13·360 crores. In addition, there is a replacement investment needed to the extent of Tk. 15·00 crores. If the prospects improve for jute exports revision of this programme will be considered.

(d) Investment in Research and Development through national and international effort are to be undertaken. The future of jute lies in finding new uses and in basic fibre modification.

(e) In addition, intensive management development schemes in the Jute Industry will be needed. Jute Industries Development Centre (costing Tk. 76 lakhs) is designed to perform this function.

(f) There is need to standardize machinery and develop capacity to manufacture fast running spares through obtaining license and patents. For this, basic capacity exists in the country. In order to improve export performance, standards have to be set and quality control has to be imposed. For export, it is also desirable to have a national shipping line to offset arbitrary increases in freights from Bangladesh.

Financial implication of the programme, excluding contribution to international efforts in the jute sector, is presented in the Table IX-12.

TABLE IX-12

Financial Implication of Jute Industry Programme

(Taka in Crore)

	Local.	F.E.	Total.
On-going	3·909	1·015	4·924
New	4·000	4·440	8·440
Balancing, Modernisation and Replacement ..	4·500	10·500	15·000
Research and Development	0·420	0·340	0·760
Total	12·829	16·295	29·124

9·8·2 Textile Industry

Of the import substituting industries in Bangladesh textile is the most significant. First set-up in 1898, the capacity in 1947 was 1,09,740 spindles and 2,717 looms. Of these, 99,000 spindles and 2,000 looms were in operational condition. The mills were composite in nature and did not serve the handloom sector. Capacity rose to 830,000 spindles and 7000 looms in 44 mills by 1972. In this expansion deliberate attempts were made to feed the handloom sector. The existing handloom capacity is estimated at 4 lakh looms of which

an average of 2·50 lakh looms are operative. There are 3,000 registered hosiery units of which 632 units are reportedly operational. Besides, there are various other units producing nets, socks, braid, etc. which make demands on yarn.

The most important problems faced by the industry are (a) lack of adequate and timely supply of raw cotton and yarn and (b) the need to cut down idle loomage.

The programme for the textile sector is as follows:

(i) The target is to supply around 8·8 yards per capita per annum at the terminal year for a population of 8·54 crore. Of this one quarter yards per capita may be in the form of wool substitutes. At that rate, total cotton (or cotton substitute) requirement will be 21·5 crore lbs. for 18·8 crore lbs. of yarn. The target for substitution by synthetics is 8·5 crore lbs., from cellulosic and acrylonitrile, which leaves a net requirement of cotton yarn for 10·3 crores lbs. To meet this requirement, the spindle capacity is to be expanded by 4 lakh at an investment of Taka 64·00 crores of which 50 per cent will be in foreign exchange. An addition of 4,000 looms is envisaged in integrated mills. Further expansion of the existing woollen mill and establishment of a modern knit fabric unit is also advised. These will require investment of another Taka 32·50 crores.

(ii) The new units should be widely dispersed. Currently the textile units are concentrated around Dacca and Chittagong.

(iii) The handloom sector has to be properly activated by ensuring supply of yarn and some of these looms may be gradually converted into power looms when electricity is available. Co-operatives may be organised for taking advantage of credit and marketing facilities. Without proper service and organisational support it will be impossible to realise the target of 56·2 crore yds. production in the handloom sector.

(iv) The existing mills operate at an efficiency much below the machine-rated one. The number of idle spindles and looms are staggering. This should be cut down through steady supply of power, cutting down on absentee labour, scientific inventory management for spares and improvement in other management practices. As in the case of Jute, it may be worth considering the setting up of a separate Institute of Management, Product Development and Research for textile industries.

(v) The technical people available are few in number and their quality needs improvement. A joint programme by the textile institute and textile corporations may help to improve the situation.

(vi) Plan strategy calls for standardization of machinery and the need for a know-how agreement with an internationally reputed firm for local manufacture of spares and components and assembly and progressive manufacture of machinery essential to the growth of the industry.

(vii) The standard for products has to be set and quality control practices are to be introduced in all producing units.

The financial implication of this programme is given in table IX-13.

TABLE IX-13

Financial Implication of Textile Industry Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	8·000	8·000	16·000
New	40·300	40·200	80·500
Balancing, Modernisation and Replacement ..	3·572	6·280	9·852
Research and Development	0·550	0·450	1·000
Total ..	52·422	54·930	107·352

9·8·3 Engineering and Shipbuilding

This is at present a relatively small but significant industry with large linkage effects. Even though the base is relatively small the structure of the industry is varied. The programme of the sector is as follows:

(a) The basic capacity to be developed is in the foundry and the forge in the partially completed Machine Tools Factory at Joydebpur.

(b) Units are planned to meet wholly or partly the requirements of transport equipment (bicycles, three wheelers, buses and trucks, river crafts and ocean-going vessels), machine tools, agricultural equipments (including sprayers and tillers), electrical equipments, office equipments, etc.

(c) Units are also planned to supply spares and components to existing or planned units, *e.g.*, textile machinery, industrial fasteners, electrical accessories, ball bearings, etc.,

(d) Consumer goods units besides those covered in the general category above, are limited to razor blade, watch and type-writer manufacturing units.

(e) An institute of industrial technology to secure, develop and foster proper growth of this sector is to be established.

(f) Sub-contracting between large and small units to foster mutual growth is to be encouraged and ensured.

Financial implication of the programme for engineering and shipbuilding sector is presented in Table IX-14.

TABLE IX-14]

Financial Implication of Engineering and Shipbuilding Sector Programme

(Taka in crore)

Sector.	On-going.			New.			Balancing, Modernisation and Replacement.			Research and Development.			Total.		
	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Engineering															
(i) Capital Machinery ..	17·724	10·856	28·580	..	..	..	0·658	0·450	1·108	0·008	0·007	0·015	18·990	11·313	29·703
(ii) Engineering goods ..	..	..	..	2·591	2·941	5·532	0·132	0·160	0·292	0·030	0·030	0·060	2·753	3·131	5·884
(iii) Agricultural Implements.	..	..	..	1·400	1·080	2·480	0·412	0·375	0·787	0·015	0·015	0·030	1·827	1·470	3·297
(iv) Transport equipments (excluding yards).	..	..	..	1·905	2·470	4·375	1·352	1·712	3·064	0·030	0·030	0·060	3·287	4·212	7·499
(v) Electrical accessories and equipments (including electronics).	16·346	12·200	28·546	1·615	2·080	3·695	1·693	2·058	3·751	0·030	0·030	0·060	19·684	16·368	36·052
(vi) Intermediate goods ..	..	..	..	..	..	..	0·365	0·320	0·685	0·015	0·015	0·030	0·380	0·335	0·715
(vii) Telecommunication, Cables and Instruments.	..	..	..	2·000	2·500	4·500	..	..	..	..	..	..	2·000	2·500	4·500
(viii) Consumer goods ..	..	..	..	2·252	2·410	4·662	..	..	..	0·015	0·015	0·030	2·267	2·425	4·692
(ix) Others ..	..	..	..	..	..	..	..	..	..	0·599	0·874	1·471	0·599	0·872	1·471
Total (Engineering) ..	34·070	23·056	57·126	11·763	13·481	25·244	4·612	5·075	9·687	0·742	1·014	1·756	51·187	42·626	93·813
2. Shipbuilding ..	16·284	16·966	33·250	..	..	..	1·396	0·950	2·346	0·007	0·008	0·015	17·687	17·924	35·611

9·8·4 Iron and Steel Industry

The base output of the iron and steel industry is much below established demand despite rapid growth between 1960 and 1970. In 1960 there were 12 re-rolling mills and the number rose to 27 in 1970 with re-rolling capacity at 3,50,000 tons and steel making capacity at 2,50,000 tons. Except for permanent construction, and to a small extent shipbuilding, steel consuming industries have not developed in Bangladesh. There is potential for manufacture of heavy steel structurals, rolling stock for railways, machinery including vehicles, cycles and other transport equipment. The estimated demand for iron and steel and metal products, in 1977-78 is 7,76,000 tons which allows for around 20 lb. per capita consumption.

The programme for the iron and steel sector is as follows:

(a) The existing steel mill's capacity is 2,50,000 tons although currently utilisable capacity is 200,000 tons; a continuous casting plant will further enhance its production.

(b) No new re-rolling capacity is needed. Instead investment for product diversification in the public sector units is suggested. This includes shaped and twisted rod manufacturing facilities at Chittagong, drawing and galvanizing facilities at Khulna. Balancing investment by installing an overhead gantry at Chittagong Steel Mills, forging and heat-treatment facilities at Muhammadi and billet cutting facilities at G.M. Steel are also suggested.

(c) Installation of a tinning plant is suggested as a move towards import substitution.

(d) Creation of capacity for manufacture of alloy steel on installation of available electric furnaces is suggested.

(e) A thorough feasibility study for the optimum method of creating additional steel making capacity is an imperative one. This should involve all alternatives including integrated steel mills starting with blast furnace or pre-reduced iron ore (sponge iron) as well as mini steel mills. This must also allow for the possibility of producing sponge iron for export to India by reducing Indian iron ore through use of our natural gas.

Total investment in these programme would be Taka 100 crores of which Taka 48·962 crores will be in foreign exchange. (*See* Table IX-15).

TABLE IX-15.

Financial Implication of Iron and Steel Industry Programme

(*Taka in crore*)

	L.C.	F.E.	Total.
On-going	...	...	...
New	43·805	42·621	86·426
Balancing, Modernisation and Replacement ...	6·977	5·573	12·550
Research and Development	0·256	0·768	1·024
Total ...	51·038	48·962	100·000

9.8.5 Chemical and Petrochemical Industry

The programme for the chemical industries sector is given below:

(a) Adequate capacity will be created for fertilizer and pesticides. This includes completion of TSP complex at Chittagong, a new 450,000 tons urea plant in the petrochemical complex, a new TSP unit at Khulna and modernisation of Fenchuganj Fertilizer Factory. A feasibility study is also underway for setting up a ten lakh ton plant for export of urea. To the extent that this is found feasible and necessary to commence implementation during the Plan period, adjustments will have to be made in the Plan to incorporate the consequential investment outlays.

(b) A phosphatic pesticides unit is to be implemented in three phases in collaboration with CIBA-GEIGY and another pesticides unit is also included in the Plan for implementation.

(c) Synthetic fibre production will be augmented through augmenting the capacity of viscose rayon at Karnaphuly Complex, Chandraghona to at least 35 tons per day and by installing a acrylonitrile plant of 36,000 tons capacity in the petrochemical complex. Capacity will be developed through new investment and modernisation to utilise these fibres and it is recalled that acrylonitrile can also be used in handlooms. Handloom products may further be finished in mills.

(d) Petrochemical complex will also include a 30,000 tons PVC manufacturing unit. Processing units will be developed both in private and public sectors. Co-existence and integration of large and small units in this sector will be encouraged. This will also be followed in rubber industries. A heavy tyre producing unit will be developed in the public sector.

(e) Essential pharmaceuticals capacity will be developed in the private and public sectors. It may be noted that the major part of the investment in the private sector is through foreign subsidiaries who, under the provisions of the investment policy, have to operate as partners of the Government. In the public sector an antibiotic complex, initially to produce streptomycine, will be completed and basic manufacture of fine chemicals for pharmaceutical use will be undertaken.

(f) A wide range of industrial chemicals such as dyestuffs, industrial salt, sulphuric acid, alum, methanol, acetylene, bleaching powder, caustic soda, soda ash will also be produced; some of these will be obtained as by-products in the petrochemical complex.

(g) Balancing and modernisation will be carried out in a large number of existing units including the DDT factory, Chemical Industries of Bangladesh, Eastern Chemical Industries, Kohinoor Industries, etc. Utilisation of by-product gypsum will also be explored.

(h) A centralised research institute for all chemical industries and a training scheme is envisaged.

The financial implication of this programme is given in Table IX-16.

TABLE IX-16

Financial Implication of Chemical and Petrochemical Industry Programme

(Taka in crore)

Sector.	On-going.			New.			Balancing, Modernisation and Replacement.			Research and Development.			Total.		
	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Chemicals:															
(a) Fertilizer (TSP) ..	3·468	0·868	4·336	4·177	3·337	7·514	..	..	..	0·100	0·100	0·200	7·745	4·305	12·050
(b) Pharmaceutical ..	3·013	1·710	4·723	0·810	0·350	1·160	..	..	..	0·050	0·050	0·100	3·873	2·110	5·983
(c) Pesticides ..	..	..	..	4·666	5·602	10·268	..	..	..	0·050	0·050	0·100	4·716	5·652	10·368
(d) Man-made Fibre (Rayon).	..	..	..	5·210	8·690	13·900	..	..	..	0·050	0·100	0·150	5·260	8·790	14·050
(e) Other Chemicals ..	..	..	..	4·964	8·338	13·302	0·710	0·837	1·547	0·037	0·100	0·137	5·711	9·275	14·986
Total (Chemicals) ..	6·481	2·578	9·059	19·827	26·317	46·144	0·710	0·837	1·547	0·287	0·400	0·687	27·305	30·132	57·437
2. Petrochemicals (fertilizer, fibre, PVC and other by-products).	..	..	..	71·600	89·400	161·000	..	..	..	0·400	0·600	1·000	71·000	90·000	162·000

9·8·6 Pulp and Paper Industry

The programme for the paper sector is given below:

(a) Consolidation of the existing units is the primay objective. As the projected demand of 56,000 tons of writing paper can be met from the existing units, no new unit is planned. The capacity will be augmented marginally through replacements in Karnaphuli and Khulna units.

(b) Existing newsprint capacity is more than required by internal demand; international price is lower than the current cost of production. No new capacity creation is envisaged but expansion is planned in this sector through balancing and modernisation. Exports will have to be promoted by reducing costs as well as incentives to the industry.

(c) Shortage of certain types of paper such as wrapping paper, tissue paper and of duplex board and cigarette paper will be met through installation of new capacity.

(d) Completion of on-going units will, however, be effected in the initial years of the plan.

Total investment programme in the paper and board sector during the First Five-Year Plan can be seen at Table IX-17.

TABLE IX-17

Financial Implication of Paper and Board Industry Programme

(*Taka in crore*)

	L. C.	F. E.	Total.
On-going	1·850	7·985	9·833
New	4·300	8·120	12·420
Balancing, Modernisation and Replacement	4·853	9·588	14·441
Research and Development	...	...	...
Total ...	11·003	25·691	36·694

9·8·7 Forest Industries

The programme for forest industries is as follows:

(a) In the agricultural sector, development of physical infrastructure in Sangoo Matamuhuri and Chittagong Hill Tracts area will be undertaken for scientific and mechanised extraction of timber; extensive plantation of timber trees in forest areas as well as homestead and roadside will be undertaken to meet the shortage of timber. The estimated demand is 6·295 crores cft. of timber and 7·1 crore cft. of firewood in 1977-78.

(b) New capacity to produce particle board and/or bagasse board is to be created.

(c) Optimum utilisation of existing units through efficient management, balancing and modernisation is proposed. Technical assistance for improvement of production in the existing saw mills and seasoning units is to be provided.

(d) Certain modern saw mills are to be established in the private sector consequent on the development of the Sangoo Matamuhuri area. New units to produce marine and commercial grade plywood and sports goods may be undertaken. Pencil producing capacity will be expanded and quality control will be enforced to make export possible.

(e) On-going units for wood treating and seasoning, decorating sliced veneer and timber processing will be completed in the public sector. New wood treating capacity will be created subject to development of the Sangoo Matamuhuri area.

(f) Vocational training facilities will be created for carpenters in the cottage industry sector.

The financial programme during the Plan period for this sector can be seen at Table IX-18.

TABLE IX-18

Financial Implication of Forest Industry Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	0·866	0·660	1·526
New	2·720	4·580	7·300
Balancing, Modernisation and Replacement	0·400	0·450	0·850
Total ..	3·986	5·690	9·676

9·8·8 Mining and Mineral Based Industry

The programme for this sector is given below:

(a) Survey of Mineral Resources of Bangladesh is detailed in the programme of the Natural Resources sector. However, reserves of quality glass sand (35 lakh tons) in Sylhet, Comilla and Mymensingh have been found. Sand processing units will be developed in the public sector and glass producing units will be developed in both public and private sectors.

(b) Deposits of China clay exist in Bijoypur (2·3 lakh tons) and also at Jaipurhat. Ceramic products and refractory units will be developed both in the public and private sectors. Clay washing unit and systematic exploitation of clay will be undertaken in the public sector and capacity to produce ceramic goods, particularly insulators, will be created in the public sector.

(c) Rock and gravel have been in short supply in Bangladesh. A scheme to quarry gravel in Dinajpur and to mine hardrock in Rangpur will be undertaken. In addition, synthetic aggregates will be produced from a number of plants in the public sector. A building materials complex is also planned.

(d) Limestone deposits exist in Takerghat, Bhangerghat, Lalghat, Baglibazar areas in Sylhet and Jaipurhat. Exploitation of limestone is a priority project as these are needed to feed existing industries and produce lime and chalk.

(e) Cement has been in short supply for many years. Peak supply has been 9 lakh tons. Demand is projected at 20 lakh tons by 1978. Present capacity is limited to the Chattak unit (150,000 tons); the Chittagong Clinker plant (300,000 tons) is under completion. Additional plant capacity for at least 750,000 tons will have to be built for which purpose the Jaipurhat scheme remains a serious possibility. A new unit at Chattak is also proposed.

The financial implication of the programme is given in Table IX-19.

TABLE IX-19

Financial Implication of Mineral Industries Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	0·500	0·300	0·800
New	27·152	32·969	60·121
Balancing, Modernisation and Replacement	0·803	0·061	0·864
Research and Development	0·495	0·585	1·080
Total ..	28·950	33·915	62·865

9.8·9 Sugar Industry

The programme for sugar industry is as below:

(a) Though the requirement will be more, the capacity of the sugar mills be frozen at 179,000 tons for the First Plan period. This includes completion of Faridpur Sugar Mills.

(b) Intensive cane development efforts through better agronomical practices, utilisation of fertilizer and pesticides, provision for better seeds and irrigation to cover 4·5 lakh acres in five years to increase the yield per acre and recovery rate are proposed in the agricultural sector plan. For this purpose the sugarcane research centre at Ishurdi is to be fully developed. Further, in-cropping with sugarcane may be encouraged to bring down cost of sugarcane and to improve the income of the farmers.

(c) Quality cane development and its duplication will be given due importance. This would require training of staff to carry out the package extension programme inclusive of technical assistance, inputs and credit. Cane development staff and mill management officials should undergo intensive training for carrying out extension work in the case of the former and for improvement of management practices in the case of latter. A programme for staff training is included.

(d) Modernisation of sugar mill farms will be undertaken on a priority basis to supply better cane to the mills and to demonstrate to the cultivators the impact of improved practices.

(e) Target of production of sugar is fixed as follows:

	Tons.	Recovery.
1973-74	90,000	7%
1974-75	90,000	7·5%
1975-76	125,000	8%
1976-77	130,000	9%
1977-78	140,000	9·25%

(f) Molasses is to be used as industrial raw material to produce alcohol, methylated spirit, yeasts and fodder etc., to bring down the cost of sugar production. Even bagasse offers interesting possibility in the face of timber shortage.

(g) Modernisation of wornout mills willl be undertaken during the Plan.

The financial implication of the above programme is given in Table IX-20.

TABLE IX-20

Financial Implication of Sugar Industry Programme

(Taka in crore)

	L. C.	F.E.	Total.
On-going	4·100	1·040	5·140
New	0·850	0·950	1·800
Balancing, Modernisation and Replacement.	2·072	4·667	6·739
Research and Development	0·380	0·220	0·600
Total	7·402	6·877	14·279

9.8.10 Food and Allied Industries

The programme of this sector is given below:

(a) While inland fisheries suffered from neglect, marine fishery is yet to be scientifically surveyed. The projected catch in 1977-78 is 91,000 tons of marine fish and 8,52,000 tons of fresh water fish. This would require construction of harbour, ice plants, freezing units, carrying vessels and processing units. Fisheries Development Corporation will build all necessary facilities. The Co-operative sector and private sector will also operate in the area. Only limited facility is proposed to be developed for fisheries by Food and Allied Products Corporation.

(b) Demand for edible oil is estimated at 2·85 lakh tons in 1977-78 based on *per capita* per month consumption of ¼ seer. Sixty registered units have a capacity of 1 lakh tons, besides there are a large number of ghanis. It is necessary to ensure supply of oil seeds for full utilisation of capacity. Introduction of hydraulic expellers and multiple extracting plants are suggested. These developments are to take place in the private sector. Public sector will step in only if private sector initiative is limited. However, public sector operation in the field of BMR will be undertaken both for edible oil and vegetable ghee. Possibility of production of bran oil will be explored.

(c) Bangladesh produces 16·6 lakh tons of fruits and 25·8 lakh tons of vegetable, a large part of which is wasted for want of storage facilities. To reduce waste, cold storage capacities will be created in the private sector, in the agricultural sector programme and marginally in the public sector industrial programme. Similarly fruit processing units are expected to come up in the private sector. In the public sector, plants in Sylhet and North Bengal are planned to process pineapple, mango, tomato, lichee and guava. Dehydration plants for banana and ginger are also intended.

(d) Starch is needed for industrial use as well as in food and pharmaceutical sectors. For this purpose Cassava production is to be increased since other raw materials are in short supply.

(e) Utilisation of molasses to produce Bakers' and Torrula yeast, spirit and alcohol is also planned. Possibilities for production of butanol, acetone, glycerine and B. glycol will also be explored.

(f) Tobacco manufacturing capacity is estimated to be sufficient to meet domestic demand. Capacity may develop through BMR and for production of quality cigarettes mainly in the private sector, curing of tobacco will also be undertaken.

(g) No new tea blending unit is to be established. Rehabilitation of existing tea factories is envisaged.

(h) Cocoanut product industry is to be rehabilitated through efforts of BSIC and through increasing supply of nuts.

(i) Storage and processing of grains will be developed in the private sectorand warehousing will be developed both in the private and public sector.

The financial implication of public sector industrial programme in food and allied products industrial units is given in Table IX-21.

TABLE IX-21

Financial Implication of Food and Allied Products Industry Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	...	...	...
New	3·624	3·826	7·450
Balancing, Modernisation and Replacement	0·240	0·160	0·400
Research and Development	0·046	0·114	0·160
Total	3·910	4·100	8·010

9.8.11 Leather Industry

The following programme has been proposed for the public sector leather industry:

(a) Establishment of new modern tanneries and modernisation of existing ones for manufacturing finished chrome leather with a capacity of processing 9 lakh pieces of cow-hides and 22·5 lakh pieces of goat skins of export quality.

(b) Creation of capacity to produce 5·4 lakh pieces of leather boots and shoes for export.

(c) Training of operatives and executives within the country and abroad and procurement of services of foreign technical experts.

(d) Establishment of a centre for research and product development.

(e) Utilisation of by-products of tanning industry.

The financial implication of this programme is as follows:

TABLE IX-22

Financial Implication of Leather Industry Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	...	...	...
New	4·076	1·754	5·830
Balancing, Modernisation and Replacement	0·300	0·700	1·000
Research and Development	0·013	0·287	0·300
Total	4·389	2·741	7·130

9.8.12 Film Industry

In the public sector, studio capacity will be expanded by completing the expansion of the studio currently underway and by establishing a second studio at Dacca and a subsidiary studio at Chittagong. Further, a film institute will be established to train technicians. It is expected that new cinema houses will be built in the private sector primarily in new townships. The financial implication of the public sector programme is given in Table IX-23.

TABLE IX-23

Financial Implication of Film Industry Programme

(Taka in crore)

	L.C.	F.E.	Total.
On-going	0·361	0·125	0·486
New	2·245	0·270	2·515
Balancing, Modernisation and Replacement	...	...	...
Research and Development	0·750	0·250	1·000
Total	3·356	0·645	4·001

9.8.13 Cottage, Rural and Small Industry

Public sector programme is limited to the following:

(a) Development of Industrial Estates in 18 centres and expansion and upgrading of professional and technical services.

(b) Training for improvement in skills in selected trades, industrial management, industrial extension, etc.

(c) Survey of small, rural and cottage industries.

(d) Supply of designs, prototypes and appliances to promote productivity and marketability.

(e) Provision for supply of institutional credit.

(f) Establishment of sales emporia and supply of essential raw materials, particularly for handloom and handicrafts.

(g) Consolidation and improvement of the quality of sericulture products, salt and other existing units such as the cheroot unit.

The financial implication of the foregoing programme is summarised in Table IX-24.

TABLE IX-24

Financial Implication of Cottage, Rural and Small Industries Programme

(Taka in crore)

	L.C.	F.E.	Total
On-going	14·000	..	14·000
New	5·000	1·000	6·000
Balancing, Modernisation and Replacement ..	2·000	..	2·000
Research and Development	1·732	0·768	2·500
Total ...	22·732	1·768	24·500

9.8.14 Private Sector

In the private sector a development outlay of Tk. 121·6 crores has been proposed. Of this, Tk. 75·36 crores will be in foreign exchange. Besides, it is expected that investment of cottage industries worth Tk. 17·9 crores will be undertaken in this sector (*see* Table IX-25).

In the food and allied sector emphasis has been placed on creation of capacities in cold storage, cigarette manufacture, wheat and grain milling, fish catching and processing, rice mills, edible oils. Further, dairy and poultry products, processing of fruits and vegetables, salt, beverage, will also require adequate expansion in capacity. In the leather and rubber sector, much of the private sector investment is expected to take place in footwear, tanning and rubber products.

In the textile sector large investments are planned in hosiery and knitted fabric, synthetic textile weaving, specialised textiles, spooling and threadball manufacturing and finishing and printing. It is to be recalled that much capacity for weaving will be created in the handloom sector and spinning and weaving capacity will also be created in the public sector.

In the chemical and pharmaceutical sector, large investments are planned for in the pharmaceutical sector followed by soaps and detergents, paints and varnishes, ink and plastic compound. In the mineral sector the private sector is expected to expand capacity in glass products, in building bricks and in ceramics.

In the engineering industries, large investment is expected in cast iron foundries, light engineering workshops, bicycle plants, aluminium utensil production, agricultural implements manufacturing units, metal structures, wire products, metal containers, hurricane and stove producing unit, locks and padlocks production, textile machinery parts, accumulator, etc. Investment in cinema houses, buildings, hotels, etc. is likely to be substantial.

TABLE IX-25

Financial Implication of Private Sector Investment

(Taka in crore)

Sector	Ongoing			New			Balancing, Modernisation and Replacement.			Research and Development.			Total		
	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total	Local	F.E.	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Food and Allied Products.	..	..	..	5·550	8·000	13·550	2·650	4·610	7·260	...	...	..	82·00	12·610	20·810
2. Textile goods	..	..	..	3·580	6·120	9·700	0·460	0·990	1·450	..	..	..	4·040	7·110	11·150
3. Forest Products and furniture.	...	..	...	0·580	0·600	1·180	0·120	0·150	0·310	...	..	..	0·700	0·790	1·490
4. Paper Printing and Paper Products.	..	...	..	2·390	3·410	5·800	0·550	1·160	1·710	...	...	..	2·940	4·570	7·510
5. Leather and Rubber Product.	...	...	..	1·820	3·450	5·270	0·410	0·740	1·150	..	...	..	2·230	4·190	6·420
6. Chemicals and Pharmaceuticals.	...	..	..	2·880	5·290	8·170	0·840	1·550	2·390	..	..	..	3·720	6·840	10·560
7. Mineral, Oil and Gas	..	..	..	1·450	1·680	3·130	0·560	0·920	1·480	..	...	..	2·010	2·600	4·610
8. Engineering Industries	...	...	..	13·280	18·010	31·290	3·010	5·520	8·530	...	..	..	16·290	23·530	39·820
9. Miscellaneous Industries	..	...	..	2·350	3·680	6·030	0·480	0·840	1·320	..	..	...	2·830	4·520	7·350
10. Industries not else where classified.	..	...	..	0·710	0·850	1·560	0·150	0·250	0·400	...	..	..	0·860	1·100	1·960
11. Service Industries	..	..	...	...	4·350	4·050	8·400	0·550	0·970	1·520	..	..	..	4·900	5·020	9·920
Sub-Total	..	...	...	..	38·940	55·140	94·080	9·780	17·740	27·520	..	...	...	48·720	72·880	121·600
12. Cottage Industries	..	..	..	..	17·900	...	17·900	...	...	..	..	..	...	17·900	..	17·900
Total	..	...	..	...	56·840	55·140	111·980	9·780	17·740	27·520	..	..	...	66·620	72·880	139·500

9.9 INSTITUTIONS FOR INDUSTRIAL DEVELOPMENT

Growth of requisite institutions are preconditions of planned industrial development. These institutions are needed for research in technology and product development, for technical and managerial training, for setting standards of products, for providing technical assistance in pre-investment studies, etc. Proposals are indicated below for growth and expansion of such institutional infra-structure. Financial Institutions are mentioned in other sections and scientific and industrial research is dealt with in the sectoral programme on scientific training and research.

9.9.1 Central Testing Laboratory

Central Testing Laboratory was established for assessing quality of materials purchased by various Government departments. This has helped in a very elementary way in rudimentary quality checks on finished products. There is only one laboratory at Dacca. To help the authority and to induce further awareness of quality control, it is proposed to establish one laboratory at Chittagong and, later, one in Khulna.

9.9.2 Bangladesh Standards Institution

It is necessary to prepare and promote adoption of standards for products, particularly industrial products designed for export, to eliminate waste, to rationalise varieties, and finally to co-ordinate efforts of producers and users for improvement of materials, processes and methods. To make this possible, it is essential to use the existing and expanded Laboratory facilities equipped with proper technical personnel of the Central Testing Laboratory. It is desirable to set standards for products and to institute quality control devices in all industrial units worth their name. If the small units cannot have their own quality control units, they can co-operate to have one jointly. Bangladesh Satndards Institution should establish standards and all sector corporations and other major industrial units should be required to install quality control units in their premises.

9.9.3 National Consultancy Institute

If the country has to minimise its dependence on foreign expertise and skills for planning and implementation of economic development programme for all time to come, some conscious efforts will have to be made to develop the local skills. Among others, the following will expedite the process:

(i) Each engineering organization should expand its planning and design departments and give them thorough training within the country and abroad.

(ii) A number of national organizations in the public sector for undertaking consultancy services would be set up as quickly as possible. These organizations should develop capability for undertaking economic and technical feasibility studies, large project planning, conducting surveys and studies of various descriptions, undertaking detailed designs and even providing field supervision for construction and commissioning. Initially they should be allowed assistance of foreign expertise for getting organised and starting work. Sectors such as medium and large industries, small and cottage industries, power development, water development, building and housing for both urban and rural areas, transport including highways and bridges, etc., are clearly identifiable areas where proposed consultancy organization can make significant contribution.

(iii) To this end a National Consulting Institute would be set up. The sphere of activity should not only include industry but also other identifiable sectors. It should not merely be an Investment Advisory Services but may also provide for Engineering and Management Consultancy Services. The Industrial Advisory Centre of Bangladesh will become nucleus of such an institute.

9.9.4 National Productivity Council

Substantial improvement of productivity in industry has to be attained. Studies indicate that not only the machine rated productivity has not been attained but there has been reduction in productivity levels compared to the past in some units. Increase in productivity is possible through labour discipline, judicious management, timely solution of 'bottlenecks', ensuring a steady supply of power, etc. A national productivity council and productivity units in each sector of the enterprises may render useful assistance.

National Productivity Council, a federated unit of all industrial research and development institutions, is proposed as a clearing house of information on productivity; a centre for cross fertilization of disciplines and joint consultation is also proposed to be set up during the plan.

9.9.5 Industrial and Technological Research

Investment in industrial research so far has been limited. Industries have lagged behind whilst the research institutions failed to create any interest within the industrial sector. There is an apparent lack of communication between the researchers and industry. The imperative need for stimulating scientific, technological and industrial research has to be recognised. Technological research should not only include product development but also development in respect of design, modification and adoption of technology. There seems to be ample justification and need to set up a separate institution for basic design. Financing of industrial research institutions need to be rationalised. In this regard financing through a body which is close to the industry and can direct, control and gear up research to the industrial needs for commercial exploitation, may be found helpful.

9.9.6 Institute of Industrial Technology

For the growth of the engineering industry it is essential to establish an institute to provide training for top and middle management in marketing, production planning, organisation and control techniques; to provide access to information and assistance for the acquisition and utilization of modern technologies and know-how; to establish and maintain contacts with firms and research institutes abroad concerning improved techniques and machinery, product design and development ; to conduct research on adoption and transfer of new technology; to provide facilities and guidance for research on development of new products from domestic resources; to provide on request, advisory services for machine selection; to supervise quality as established in consultation with Standards Institution; and, finally, to prepare programmes of sub-contracting in the sector itself. BITAC and LESI may preferably become the nucleus of such an institute. An institute so conceived may become a part

of the Engineering and Shipbuilding Corporation though its Board should be constituted on a broad basis to get the benefit of independent opinions.

9·9·7 Institute of Chemical Technology

In the chemical sector, particularly with the setting up of petro-chemical industries, chemical research institute for improvement and development of products, for design and adoptation of technology and for training of man-power is suggested. This should be under the BFCPC.

9·9·8 Leather Development Centre

To improve the quality of leather, to provide training to technicians, to develop products and to adopt technology a leather development centre, based at Hazaribag Leather Institute is suggested. This may be placed under the Tanneries Corporation.

9·9·9 Manpower Development

Development of manpower and skill through a programmed approach is needed. This not only implies reorientation of education towards skill development but also integrating man-power requirement with education. The technical graduates will be required to acquire working experience in industry for their degree. The management graduates and commerce graduates should also be similarly treated. Besides, growth through inservice training should be initiated. Training at the lower levels may remain specialised and concentrated on narrowly defined subjects but at higher level, a general understanding of interrelated problems and leadership qualities are essential.

9·9·10 Jute Industries Development Centre

Research and development has been a neglected sphere in the jute sector. As a result technology, management and promotion have suffered very badly in the past. The Jute Centre is designed to undertake research through national and international effort for the jute industry. It will explore new grounds as to the market and usage of jute products, as well as endeavour to organise intensive management development schemes in the jute industry. It is proposed that the JIDC be made an integral part of the Jute Mills Corporation.

9·9·11 Institute of Management Development and Research for Textile Industries

A textile institute on the lines of JIDC may go a long way in streamlining the problems of the textile industry. The problem in this sector has been acute in the development of skill. Training and personnel development and research in management practices and organisation is mostly inadequate. The institute should be a part of the Textile Mills Corporation.

9·9·12 Small Industries Technical Institute

A training programme for improvement in skills in selected trades, industrial management, industrial extension, rural area development and market analysis will be undertaken for different small industries.

A Small Industries Training Institute will be set up under BSIC to organize and train the existing and prospective enterpreneurs and the officers of small industries organisations and agencies in the technical, trade and industrial management courses. The trade oriented courses will be moulded to improve the skills of workers in small units and broaden their sphere of competence. The important fields of industrial management will indclude production management, financial management, cost accountancy, etc. Special courses such as financing of small industry, small industry production, training methods and skill and supervisory course for executive development will also be organised and conducted in this institute.

9·9·13 Film Institute

A Film Institute is proposed to be set up during the First Five Year pian. This will train technicians and artists in various trades of film making. For this the FDC has undertaken a programme which will result in finalising proposal for the said institute.

9·9·14 Sugarcane Research

A well equipped sugarcane research centre is essential for intensive cane development efforts to increase yield per acre and recovery rate. Quality cane development and its duplication is essential. Training of staff is required to carry out the package extension programme inclusive of technical assistance, inputs and credits. Incropping with sugarcane may be encouraged to bring down cost of sugarcane and to improve the income of the farmers. Modernisation of sugar mill farms should be given priority in order to supply better cane to the mills and to demonstrate to the cultivators the impact of improved practices. This has already been placed under the Sugar Mills Corporation.

9·9·15 Technical Assistance

Technical assistance will be required for financing of laboratory equipments, technical books, foreign experts/consultants, fellowship and training, and feasibilities, research and special studies. The assistance will be of a general nature and will not include those coming in for turnkey projects and a total requirement of Taka 10·00 crores for the Five-year Plan is estimated, all in foreign exchange. Almost an equal amount will be required in local currency to be met out of our own fund. In the industrial sector the breakdown of technical assistance comes to Taka 6·5 crores for foreign experts and advisors, Taka 0·6 crore for training of Bangalees abroad, Taka 2 crores for feasibilities, research and special studies and Taka 1·7 crores for laboratory equipments, technical books, journals and periodicals.

TABLE IX-26.

Financial Implication of Institutional Investment in Industrial Sector

(Taka in lakh)

Sector.	On-going.			New.			Balancing, Modernisation and Replacement.			Research and Development.			Total.		
	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.	Local.	F.E.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Bangladesh Standard Institution.	..	..	..	..	..	..	..	..	..	18·0	2·0	20·0	18·0	2·0	20·0
2. Central Testing Laboratory.	..	..	..	..	..	..	..	..	..	35·0	15·0	50·0	35·0	15·0	50·0
3. National Consultancy Institute (Incorporating I.A.C.B.)	..	..	..	..	..	..	..	..	..	40·0	60·0	100·0	40·0	60·0	100·0
4. National Productivity Council.	..	..	..	..	..	..	..	..	..	40·0	60·0	100·0	40·0	60·0	100·0
Total ..	..	..	..	..	..	..	..	..	..	133·0	137·0	270·0	133·0	137·0	270·0

9.10 PROBLEMS AND POLICIES FOR THE NATIONALISED SECTOR

Since the major part of modern industry is nationalised, the efficiency of the Public Sector is critical for the success of the industrial sector programme. The main factors currently inhibiting the efficiency of the nationalised sector are discussed below:

9.10.1 Employment Practices

Many corporations inherited a standing administrative staff from the old, pre-independence, public sector. Furthermore, as far as new recruitment is concerned, it is urgently necessary to devise appropriate rules for employment practices and terms of employment in the nationalised sector without delay. In its absence, responsibility for the poor performance of the personnel/staff cannot always be clearly defined. Whilst recognizing that there are some hazards in giving unrestricted freedom of employment to the corporations it must be recognised that the wisdom of selection must only be judged by the performance at years' end recorded in the balance sheet for which top management should be held fully responsible.

9.10.2 Purchases and Sales

The compulsory recruitment of purchases through public tender in all cases as well as the obligation to refer all tenders above Tk. 10 lacs for the prior approval of the Cabinet Sub-Committee have in many cases affected the smooth and efficient flow of imports and purchases in the nationalised sector. There are commodities which require quick decisions and spot purchases, specially in a situation of scarcity. These commodities suffer from the frequent price fluctuations and are traded in limited, non-competitive markets. It may be necessary to exempt many of them from requirements of public tender.

In the past centralised purchases by the Trading Corporation of Bangladesh of all items exclusively used by the nationalised industries led to the delays and lack of coordination. However, the recent policy of decentralisation, and delegation of authority for imports to corporations and enterprises is a step in the right direction. It is expected that possibilities of further decentralisation will be explored.

The sector corporation are to be encouraged to sell at prices which are profitable from the commercial point of view. Within the framework of guidelines to be set by the Government for public sector pricing each corporation should have flexibility in pricing decisions. In addition, the sector corporation should be left free to determine their own marketing and distribution arrangements subject to overall policy directives of the Government. Centralisation of procedures may have justification in relation to the operations of administrative departments where no alternative checks are easily available. In contrast the nationalised industries sector operate on commercial principles where performance is judged on results recorded in the balance sheet. If enterprises make procurements on other than commercial consideration this will be reflected in the profitability of the enterprise.

The appropriate approach to check corruption lies in seeing that the upper tiers of the corporations and chief executives of the enterprises are basically trustworthy. They must be checked through an efficient information and audit system which does not come in the way of quick decision making. In turn, their internal auditing system should provide a check on their employees.

9.10.3 Demarcation of Responsibility

The need for a clearcut demarcation of responsibility between the Minister as the policy maker, the sector corporation as regulating agency for the nationalised enterprises and the individual enterprises directly incharge of productive operations, can hardly be exaggerated. Absence of detailed rules of business relating to their specific functions as well as their inter-relationships contributes to delays in decisions making and difficulties in assigning responsibility for action and policies. In the absence of a clearcut demarcation of responsibility, it is difficult to implement the principle of accountability. It is expected that action already underway in framing the rules of business for the nationalised industries would go a long way in establishing the principle of accountability of different tiers of administration as well as increasing the efficiency of management in the public sector enterprises. Once the corporations are able to develop management boards in the enterprises and recruit adequate personnel, a greater authority could be delegated to the individual enterprises. It is expected that the problems of nationalised sector which is an important experiment and crucial for the success of the socialist transformation in Bangladesh are now appreciated and corrective measures under considerations must be implemented without delay.

9.10.4 Management Problems

Shortfalls in management performances stem from inadequacy in the availability of motivated and experienced managers. This deficiency is aggravated by lack of management guidelines within the nationalised sector. The main management problems facing the sector may be identified as follows:

(i) Clearly defined objectives must be set for each sector. Production targets, efficiency levels, cash surplus generation and other defined objectives should be spelt out for the corporations and by the corporations for the enterprises. Even within enterprises, objectives are needed to be set up for sections and even individual workers. Absence of precise targets makes it difficult to evaluate performance, motivate workers and identify and correct lapses.

(ii) Definition of objectives requires an efficient information system which keeps each tier of authority informed of the performance of the tier beneath them and finally provides a simple format of important and accurate information for the Minister to communicate to Parliament. The management consultants advising the nationalised sector have worked out a format for each corporation which has recently been put into use in varying degrees by the corporations. A uniform accounting system for all enterprises is also essential so that the basic data are generated in a form which feeds the information system. At the time of nationalisation the corporations inherited a diversity of accounting systems which now needs to be unified and adapted in all enterprises.

(iii) In a socialist economic system the top executives of the nationalised sector should not only be people of outstanding ability but should also be committed to the socialist goals of the country. These executives should be supplemented by socialist cadres distributed within middle management and workers whose role will be to motivate their colleagues to higher efficiency and who will act as watchdogs over corruption, mismanagement and sabotage of the nationalisation programme. In Bangladesh no such infra-structure was available.

In the initial transition phase professional skills of the managerial class are necessary to make a success of nationalisation even where such expertise has no particular political commitment.

They need to be motivated by material incentives and challenge of responsibility. Their salaries and benefits must ensure not just comfort and security but must compare with those enjoyed by their professional colleagues elsewhere in society. Where public policy makes it difficult to match the material rewards of the private sector, this must be compensated by giving our top management a sense of freedom and responsibility in their job. Finally, our public sector managers must be given the status and recognition traditionally enjoyed by the top bureaucrats. Indeed, since they are the productive elements in society they should be kept at the top of the social scale to compensate for any major decline in living standard once they enter the public sector.

Top executives in the corporation so far received fixed salaries on an ad-hoc basis. They consequently suffer from a sense of insecurity as to their income, prospects and lack of incentive to improve their performance. It is necessary now to spell out principles on which their future remuneration should be based. At the enterprise level apart from the question of remuneration for management, the need to relate their efforts to the performance of their enterprise has to be established through an efficient incentive system.

The Pay Commission has defined the upper salary limits of our socialist society where it is suggested the permanent employees of the nationalised sector have been kept at the top of the scale. This should be given effect along with an incentive programme which relates performance to remuneration. For non-permanent appointments all corporations and enterprises should be free to negotiate salary contracts with employees based on their worth and value to the organisation. Each corporation should be instructed to work out its own proposals for a management incentive system for each of the enterprises under its control. This may be related to profits, production norms or any other yardstick deemed expedient by the corporation. The various proposals emanating from each corporation should be reconciled at the level of the Minister and the Cabinet with a view to sorting out the divergences between sectors and enterprises.

(iv) A special problem arises with regard to the ex-owners who were asked to stay on at their enterprises under the nationalisation order but who have been not paid nor guaranteed any compensation. This leaves room for misuse of power. The corporations would need to undertake a scrutiny of the ex-owners in respect of honesty and efficiency at the earliest. Those who are willing to work sincerely and honestly for the public sector must be given the chance to prove their worth. Similarly, with respect to the administrators of the absentee/abandoned units, many of whom were appointed in the post-liberation period without reference to their experience or calibre, the relevant corporations should select the competent ones for appointment as permanent managers.

9.11 INSTITUTIONAL CHANGES IN THE NATIONALISED SECTOR

The nationalised sector needs to be reorganised so that the freedom of action and an efficient management system can be ensured. The relations between the various tiers of the sector need to be a clearly defined with a view to assigning specific responsibilities. The rules of business should be based on the following principles:—

(i) The individual corporation Chairman should have maximum commercial autonomy and be personally responsible to the Minister for the operation of his corporation.

(ii) Chairman should have either the appropriate status or the authority to enable them to have formal direct relationships with their Minister, other Ministers and their Secretaries. They should act as the Minister's Secretary for their own corporations.

(iii) Executive Control over any corporation should only be exercised by the Minister and the individual Chairman.

(iv) A Nationalised Industries Committee should be set up with the following composition:—

Permanent Members:

(a) The Minister for Industries as Chairman.

(b) Minister of State for Industries as Vice-Chairman.

(c) Member, Planning Commission, In-charge of Industries.

(d) The Concerned Corporation Chairman.

(e) Secretary, NID— Member-Secretary.

Ad-hoc Members:

For example, representatives of Ministries of Finance, Labour, Law and Commerce, investment bankers and industrialists invited by the Minister to contribute in discussion of particular items of agenda.

This committee should meet monthly, be deliberative and not executive, dealing with matters of common interest to all corporations.

(v) The functions of the Secretary to the Nationalised Industries Division (NID) should be as follows:—

(a) arranging that the Minister, acting on behalf of the Government as owner of the corporations, has the appropriate documents containing information about performance of the Nationalised Industries.

(b) communicating to the corporations the Government's social, economic and development policies on behalf of the Minister and obtaining for the Minister any general information that may be required to prepare industrial policy.

(c) analysing the half-yearly financial reports of the corporations and advising the Minister of any deviation in performance from budget so that the Minister can take the necessary action.

(d) arranging on behalf of the Minister that the presentation of financial information conforms to the procedure laid down.

(vi) The corporation is responsible for ensuring that the overall targets and objectives of the Nationalised Industries Sector are achieved. The corporations prime roles in relation to the enterprise are:

(a) guardian of the assets on behalf of the Government;

(b) supervisor of the performance of the enterprise;

(c) provider of practical advice and assistance to the enterprise to help it to optimise production quality and efficiency; and

(d) development of its Nationalised Industrial Sector.

The direct and formal link between the corporation and the enterprise should be the corporation nominee on the Enterprise Board. His role would be to:

(a) guide the Enterprise Board in determining policies to achieve its targets, objectives and budgets that are in line with basic corporation and Government policy.

(b) foster the spirit of entrepreneurship.

(c) identify areas where advice and assistance from the corporation would be beneficial and arrange for it to be given.

9.12 MANAGEMENT DEVELOPMENT PROGRAMME

9.12.1 Need for a Programme

Deficiencies identified earlier in the number, experience and motivation of public sector managers point to the need for an intensive management development programme specially designed for the nationalised sector. Such a programme, will need to impart both management skills as well as socialist values to new recruits as well as managers inherited from the old order. To develop these skills a programme of management development both within the corporations and in specialised training institutions has to be worked out. A committee has been set up to examine available facilities for management training and to work out programmes for developing existing and new institutions to cope with the responsibility of training managers for running socialist enterprises.

9.12.2 Existing Training Units

Facilities for management training in Bangladesh are modest. At present these are limited to the Management Development Centre (MDC) and Industrial Relations Institutes (IRI). The MDC offers training courses to the middle and higher level executives and the IRI to Trade Union Leaders and Labour Welfare Officers. Institute of Business Administration (IBA) attached to Dacca University offers Diploma courses to working executives and Degree courses to would-be executives. The National Institute of Public Administration (NIPA) also offers training courses in Administration, Economic Development and Planning to middle level executives. Facilities provided in all these institutions are limited and between them there seem to be no clear demarcation of spheres. It is to be admitted that these programmes did not create a visible enthusiasm amongst the enterprises or the trainees. A follow-up programme and evaluation of the programme are also absent. Since all these institutions catered to the needs of a capitalist system the changed social parameters may require some re-orientation in their approach. No industry or corporation has yet developed its own training programme.

9.12.3 Programme

Any comprehensive programme to develop management skills must await the recommendations and acceptance of the report of the Committee. The lines on which management development may take place may *ad interim* be tentatively indicated below:

(a) Creation of management cadres in all corporations.

(b) Entry into the lowest tier through competitive examination. Initial appointment to be as apprentice/trainee; horizontal induction may also be made with due consideration. Initially it will pay to recruit in large numbers to take care of dropouts and failures.

(c) Each large corporation or a group of small corporations together may institute a programme for on-the-job and in-service management training to train them further into the specifics of objectives of management, in the context of technology, production and social goals. Training in special fields (*e.g.*, budgeting, inventory control) should also be undertaken. Trainees should be brought back for refresher courses and training programmes be so graded that one who does well in the course and is able to apply it should get credit in his service record and be counted for promotion. In developing this programme the services of the management consultants currently advising the nationalised sector may be used.

(d) In-service training and a seminar/workshop of short duration is to be organised by a central body of the corporation or in the project, under the initiative of the corporations, to review, change and introduce improved management practices.

(e) A special workshop in each project has to be introduced to make labour and management understand the implications of "social management", the responsibilities under it, the participation of workers and the concept of joint effort.

(f) Industrial Relation Institute must train the workers, Trade Union Leaders, the members of the Works Committees and Corporation Labour Executives in the specifics of labour law, need for labour discipline, role of collective bargaining in a socialist economy, and the concept of socialist management.

(g) Management Development Centre (MDC) may continue with programmes detailing techniques of scientific management. But they should offer lectures to all trainees on socialist management. They should institute follow-up programmes and maintain close liaison with the corporations and enterprises.

(h) MDC will offer special intensive course to labour leaders on management so that they can fully participate on management matters in the enterprise management boards to be set up.

(i) The trainers, selected groups of trainees and a group of corporation executives may be sent to socialist countries to study their management procedures and their training programme. Similarly experts from socialist countries may be invited to advise and give courses on socialist management training.

(j) The Institute of Business Administration must be converted into the seed bed for providing socialist management cadres to the nationalised sectors. Their courses must be reoriented to this specific objective and all graduates must be absorbed into the nationalised sector. To enable them to immediately play a meaningful role in industry, from the outset, the IBA degree programme must be practical and involve close contact with industry throughout the course.

(k) Another institute at diploma level may be set up to train a larger number of socialist management cadres somewhat less intensively. Graduates from this institute may expect to go through a period of apprenticeship in the nationalised sector before being given responsible positions.

(l) Co-ordination in training programme of MDC, IRI, IBA and the new institute and corporations may be affected through a co-ordination committee for which MDC will provide the Secretariat. To give it both status and direct relationship to the Industries Sector all corporation Chairmen should be on this committee which should be convened under the Chairmanship of the Minister of Industries. It is proposed that MDC be placed under the Ministry of Industries (NID).

9.13 LABOUR POLICY

9.13.1 Problems

The success of the industrial enterprises in the achievement of national objectives depends to a large extent on the responses of the workers in the factories. A motivated labour force committed to raising productivity and sharing in the fruits of its effort was an essential premise for nationalisation. To realise this, the contradictions between labour and capital needed to be eliminated by associating workers in the management of their enterprise.

This assumption has not been fully realised. Instead workers have been a seriously dis-affected social group. Their disaffection has manifested itself in demands on the management of the ente prise for increased wages and improved benefits, along with redress from a variety of grievances, some inherited, some new. All this has led to a serious breach of communications between the managerial staff and the workers. Such a situation has had its inevitable impact on productivity and this has been an important factor inhibiting revival of the economy.

Some of the outstanding factors in the current period which have contributed to the dis-affection of the workers are identified as follows:

(a) Price inflation has eroded the effect of increase in money wages in 1972.

(b) Absence of integrity and competence, of some administrators who were appointed to manage the industries, abandoned by the Pakistanis, before the Nationalisation Order was implemented in 1972.

(c) Anomalies in the wage structure and lack of uniformity of wage rates between different enterprises in the same industry.

(d) Absence of a system of incentive payments related to the levels of productivity.

(e) The delay in putting into effect the proclaimed policy on workers participation and more specially the appointment of workers to the management boards had created misgiving in the mind of some workers.

(f) Others amongst workers see the implicit threat from workers participation to the priniciple of collective bargaining and are not at all convinced that the surrender of what they feel to be a fundamental right will be adequately compensated by the benefits emanating from workers participation.

(g) Within the current social milieu workers fee justified in staking their claim to a better life today notwithstanding the consequences to the economy. They feel that calls for restraint cannot in all conscience be made by a society which demonstrate inequalities in income and levels of living.

The administrative difficulties have been increased by the absence of trained socialist cadres or trade unions to serve as a bridge between the Government and the workers. These could have played an effective role in conveying the policies of the government to the workers and mobilising workers towards higher productivity where workers benefits would have come out of the incremental output.

The difficulty seems to have been founded in part in the history and character of the trade Union movement. Some of these difficulties may be summarised as follows :

(a) In a situation where trade unions are founded on political regional and even personal loyalties a variety of union and federations are today competing for the loyalties of the workers.

(b) In pre-nationalisation days this tendency was encouraged by the capitalists who adopted one of the factions or put up one of their own to devide the movement. By providing material incentives to some union leaders they brought peace or broke up workers movements.

(c) Today new groups seeking a foothold in the movement or to expand their support have put most groups into a competitive situation where they bid for the loyalties of the workers on the basis of what they can secure for them from the management.

(d) Thus whilst factionalism persits, the nationalised sector cannot resort to expedients open to the private sector to buy peace. The use of political instruments to substitute for these traditional techniques used by the employers has not been very effective.

(e) In such a situation the concept of the elected bargaining agent has not been very successful. The agents are under constant pressure from their defeated opponents to raise their own demands lest they lose their support. Agreements reached with such agents in many cases are undermined because of pressure from below. Of late this has been aggravated by splits in the various union and federation where bargaining agents themselves represent divided factions.

(f) Under these circumstances the scope for a constructively motivated union leadership capable of mobilising all workers in the enterprise to productive effort is seriously inhibited.

(g) The contradiction on the factory floor is projected into the national stage where a wide variety of factions put themselves forward to speak for the workers in any area industry profession or even factory so that any single agreement reached at a national level can be negated at various levels. In such a situation any national agreement has to involve all the major groups who speak for the broad mass of the workers.

9.13.2 Labour Policy

(i) Labour Policy is now being finalised and should be implemented as early as possible. The fundamental objective of this policy is to eliminate the contradiction between labour and management. To this end the policy needs to ensure worker's representation on the management boards where they can participate in policy making for the enterprise and also at the level of the work floor through works committees where they can participate in solving day to day problems affecting the enterprise.

(ii) Attempts must be made to break down the traditional social barriers dividing the managers and the workers and to develop a sprit of partnership in the nationalised enterprises including occasional participation in manual work on the part of the top managers.

(A) *The Role of the Trade Unions*

(i) Labour Policy should include a constructive role for the trade unions. The elected bargaining agent must, through the instrument of the works committee, act as the link between the management board and the workers. The union must not only convey the views and problems of the workers to the Board but must motivate them to reach the targets set by the Board.

(ii) It should be a goal of policy, that when the objective conditions permit, all workers when an enterprise should be represented by a single union. These unions should be turn federate at the industry and national level. This will enable workers at each stage to speak with a unified voice thereby enabling accountability to be established on the workers' representatives just as it is sought to define responsibilities within the management of the nationalised sector.

(iii) A unified trade union movement would make it possible and necessary to associate the industry federations in policy making at the corporation level and the national federation in framing the economic policy of the country.

(B) *Wage Policy*

(i) The Industrial workers wage commission had already submitted its report which has now been accepted by the Government. Problems arising out its implementation are now being examined. The wage commission has attempted to eliminate the widespread anamolies affecting the wage structure of various nationalised industries. Whilst seeking to ensure a minimum wage it has however recognised that complete uniformity of wages are not feasible. It has however sought to establish broad parities in the recommended wage scale for the various industries to the extent possible and considered fair.

(ii) The Commission has recognised that changes in cash wages must be supplemented by an assured supply of wage goods such as foodgrains, edible oil, kerosine oil, standard cloth and sugar at stable prices. Environmental support also needs to be provided in the way of housing medical and transport benefits along with facilities for workers education. Most important, retirement benefits to provide security for the worker's future should be provided for. These facilities need to be standardised for all workers but their provision should be integrated with the specific wage structures to be introduced for each industry.

(iii) Scope for rewarding efficiency has been provided for through acceptance of the principle of incentive bonus. Different standards, but based on uniform principles, will be provided for each industry and details of these should be worked out by the respective corporations concerned. In this way workers will directly benefit from harder and more efficient work and will have a direct stake in the production performance of their enterprise.

(iv) The wage commission has recommended that wage policy be reviewed every five years. In fact this review may be made to coincide with the commencement of a new five year plan since the implementation of the commission's recommendations are likely to be co-terminus with the beginning of the new five year plan. It should however be considered whether a standing wage board may be set up to resolve any disputes relating to wages and benefits which cannot be sorted out at the enterprise or corporation level.

(v) Policy for using the surplus from the nationalised enterprises needs to be worked out. This should work but the various shares to be realised by the exchequer and the enterprise. The enterprise share should be distributed between a fund for reinvestment in modernisation, balancing and expansion. The other share should constitute a worker's welfare fund to be used in such areas as providing share capital for worker's housing cooperatives and other environmental benefits.

(vi) Finally, it must be kept in mind that workers will always respond to other than material incentives. If efficiency and effort of both industrial workers as well as groups of workers are given social recognition this will constitute a powerful complement to proposals for material incentives spelt out earlier. This involves giving awards, wide publicity in the news media, regular contacts with public leaders and senior corporate officials for workers or even enterprises who perform above the norm. This social recognition for work will stimulate a spirit of healthy competition amongst workers and between enterprises. Each corporation may be asked to work but a programme for such non-material incentives which can then be co-ordinated by the Nationalised Industries Committee with the participation of the Ministry for Information who will have to gear the media to publicise the worker's achievements.

9.14 FINANCING THE NATIONALISED SECTOR

9.14.1 Financing Investment

Investment and financing functions with respect to both public and private sector enterprises have been streamlined to do away with the overlapping functions and anomalies.

(i) In order to make the system simple and more functional, the former IDBB has been merged with Equity Participation Fund to form the Shilpa Bank and entrusted with the task of financing mainly the private sector industries. The Shilpa Reen Sangstha was formed by merging the former ICB, NIT, BICIC and is to finance units with assets above Tk. 20 lakhs. This will cover mostly public sector units.

(ii) It has been decided that all existing projects in the public sector will have to guarantee a fixed return of 7·5 per cent of the original investment (irrespective of the book value) inclusive of loan and equity.

(iii) The enterprises will further be required to provide for standard 7·5 per cent rate of depreciation on the basis of original investment cost.

(iv) All the past debts of the existing projects on or before March 26, 1972 will be ascertained and will be written off or converted to long term loans.

(v) The Government will prescribe a formula to distribute any surplus after tax between workers' fund and reinvestible surplus or on any other head it deems necessary.

(vi) All project schemes will have to be submitted to the Planning Commission or financial institutions in the revised PC-I proforma of the Planning Commission. Project evaluation will be undertaken by the respective financing agencies. Projects submitted to the Planning Commission will go through the normal project approval procedure. For funds provided by the Government but administered by the financial institutions, the financial institutions will be allowed to charge a fixed commission over and above the fixed Government rate of 7·5 per cent.

(vii) All financial institutions will continue to finance the on-going public sector projects within their jurisdictions till they are completed.

(viii) All new projects costing below Tk. 50 lakhs but without any project aid lined up by the Government shall be financed by Bangladesh Shilpa Reen Sangstha (B.S.R.S.)

(ix) All public sector projects falling under the category of Balancing Modernisation and Replacement (BMR) shall also be financed by the B.S.R.S.

(x) The Bangladesh Shilpa Bank (BSB) will mainly be financing the private sector industries below Tk. 25 lakhs.

(xi) The lending procedures in the financial institutions are cumbersome and time consuming. It is suggested that the procedures should be simplified and loan operation should be made quicker.

(xii) Bangladesh Small Industries Corporation (BSIC) will also finance and help the small industries specially in promotional activities and in joint ventures. The financing requirement of debt equity ratio has been assessed at 70:30, *i.e.*, while the small investor is required to provide his own equity of 30 per cent, 70 per cent will be provided as loan by the BSIC.

(xiii) Projects costing Tk. 50 lakhs or more as well as those where project aid is lined up by the Government will be financed through Annual Development Plan (ADP).

9.14.2 Release of Funds

Public sector units often complain about delay in release of funds. This is a legacy of the past regime. Under the colonial system responsibility was not matched by trust and hence repeated checks were instituted often leading to higher consequential losses than the loss against which such checks were in the first place established. It was expected that at least our nationalised sector would be spared the traditional delays in sanctioning funds in deference to their commercial status. But they continue to be subject to multiple scrutiny in spite of the best efforts to simplify their problems. These added to the normal bureaucratic delay of getting a file to pass through a chain of functionaries causes immense problems for the units which are supposed to run on commercial lines. This may be seen from the procedures for release of funds enumerated below:

(a) Physical programme of expenditure during the year is to be submitted by the corporation. This is subject to scrutiny by the controlling Ministry and then the Division concerned in the Planning Commission whose recommendations are sent to External Resources Division (ERD) of the Planning Commission for foreign exchange release and to Ministry of Finance for actual release of both Taka finance and foreign exchange.

(b) External Resources Division after scrutiny of foreign exchange needs, sends its approval to Ministry of Finance for release of funds. ERD does its own exercise to determine whether the corporation's foreign exchange requirement will be met from barter, credit, grant or cash foreign exchange.

(c) Ministry of Finance is supposed to automatically release funds on instructions of ERD but, constrained by the state of the reserves, has tended to initiate its own scrutiny for schemes obtaining ERD sanction for cash foreign exchange.

(d) During 1972-73, NID also carried out its own scrutiny of allocations made in the ADP and has in many cases modified ADP allocations leading to further delays in release of funds.

9.14.3 Streamlining Release of Funds

In order to streamline release procedures the following principles should be followed:

(i) The corporations should receive and scrutinise the development expenditure budgets of the enterprises under them at least three months before the commencement of the ADP.

(ii) The consolidated budgets of the enterprises under the corporation should be presented with the approval of the Minister to the Planning Commission.

(iii) The Industries Division of the Planning Commission will scrutinise these budgets in joint meetings with the Corporations, Finance Ministry and External Resources Division (ERD) of Planning Commission.

(iv) During these meetings, ERD will indicate external resources position and the forms in which it can be made available to finance external requirements of the project.

(v) Funds will be released on a half-yearly basis. Funds for the first half will be released automatically at the beginning of the half-year as programmed in (iii).

(vi) Programme for the second half will be released subject to evaluation of utilisation in first half and resource position.

(vii) Review procedures will follow the same sequence as for the ADP.

(viii) Following on approval of revised ADP, allocations for the second half year will be released automatically.

(ix) Funds for balancing and modernisation will be processed through Bangladesh Shilpa Reen Sangstha.

(x) Foreign exchange for recurring costs of enterprises will be financed through import entitlements under import policy.

9.15 PRICING POLICY

9.15.1 Nature of Public Sector Units

Pricing policy of the public sector units have been viewed with concern. If the units are to operate on commercial lines, the demand for freedom to price their product cannot be withheld. On the other hand, Government is genuinely concerned that consumers get a fair price and that inefficiency is not covered by profit in a scarcity situation.

In certain cases the public sectors are single producers (*e.g.*, fertiliser, sugar, jute goods, paper, cement, etc.), where Government through imports and price control restrict their monopoly position. In dealing in other fields there are private sector units competing with the public sector. With the pricing policy, it is to be recalled that:

(a) Input prices are given either because Government pursues a price policy (*e.g.*, sugarcane, jute, furnace oil, power) or because they are imports and are bought at international prices.

(b) Salary and wages are largely determined by Government labour and wage policy and salary structure.

(c) Duties and taxes, depreciation and interest are also predetermined.

(d) Further, it has been decided to levy a fixed charge on fixed investment (7½ per cent).

9.15.2 Issues and Implication of Managed Price

Under these circumstances the corporation's freedom to fix prices of its choice is restricted by the circumstances enumerated above. This raises difficulties in using price and profits as a measure of the efficiency and performance of any enterprise.

If we wish our nationalised sector to operate on commercial principles then the market mechanism must be permitted to guide their production decisions within the limits set by social policy.

If the nationalised sector is left free to fix its prices then it will be dictated by cost and demand factors and its own estimates of profit maximisation. These will raise the traditional problems relating to monopoly suppliers, where through government investment and import policy certain enterprises emerge as single sources of supply. Freedom to fix prices of their choice will involve high profits at the cost of the consumer or buyer.

In the event that state policy wants to protect certain sectors of society from high prices a conflict of objectives arises as between the goal of compelling enterprises to operate on commercial principles and an obligation to the consumers. Here it may be argued that regulating prices of the enterprises is not an efficient or necessarily just way of compensating consumers. This should be done if so desired by budgetary subsidies and distributional controls. Budgetary subsidies will enable the government to identify the difference between the economic cost paid to the producer and the lower cost paid by the consumer. The amount of subsidy will then have its own economic and political opportunity cost which the people's representatives can assess when they determine the need and extent of the subsidy.

In the event that subsidised goods are to be provided to consumers at below their market price then suitable distributional institutions will need to be established to ensure against black-marketing and equal distribution of goods at controlled prices.

Notwithstanding this problem there remains a question of products sold even under normal condition on inter-industry basis or to consumers under monopoly conditions where the government may want to limit the exercise of the enterprises monopoly powers. To the extent that it also wants to regulate a wage/price spiral some intervention may be necessary.

9.15.3 Guidelines

The following guidelines to pricing policy are, therefore, proposed:

(i) All corporations/nationalised enterprises will be free to fix their prices up to a limit of 10 per cent over their costs of production. It is presumed that fiscal anomalies will be taken care of by other means than making domestic production bear higher tax incidence than imports.

(ii) There is nothing to prevent them from selling below this ceiling if dictated by mearket considerations.

(iii) Any fixation of price involving a mark up over 10 per cent will be referred to a special Prices and Tariff Commission for clearance. This clearance may be sought for a variety of reasons including the need for a higher rate of return on capital or the need to extract a higher level of revenue from certain classes of consumers. The Commission will examine all such cases and put up the facts and their recommendations to the National Economic Council for final decision.

(iv) In order to facilitate clearance, the National Economic Council may appoint a special prices sub-committee.

(v) The Prices and Tariff Commission will monitor all prices and costs of the nationalised sector on a regular basis. For this all enterprises should keep the Commission supplied with the prices and cost of production for every commodity on a quarterly

(vi) Where a particular enterprise or product is in need of a subsidy in order to compete basis.
in the export market or for meeting temporary difficulties whose solution is outside the ambit of the corporation, the case should be referred to the Commission. The Commission after due study of the problem and options will put up their recommendations to the prices sub-committee of the National Economic Council.

(vii) If any agency of government faces difficulties as a result of the free pricing policy by the enterprises they may put up a case to the Commission for subsidy. This case after study will be put up by the Commission along with their recommendations to the sub-committee of the National Economic Council.

(viii) Prices charged in the private sector may also be brought within the purview of the Commission and the case may be assessed on the same basis as for public sector prices.

9.15.4 Price and Tariff Commission

The Prices and Tariff Commission may be built around the existing Tariff Commission which should be suitably redesignated and its capabilities raised sufficiently to enable it to discharge the new responsibilities now invested on it:

(i) The Commission should, in addition to the functions of price review designated above, play the role traditionally assigned to Tariff Commission. This should aim mainly to examine all cases, for complete or partial ban of imports. All recommendations should be referred to the same sub-committee of NEC designated for prices.

(ii) The Commission should have necessary judicial powers to summon all parties concerned or records to their hearings. They should also have right of entry into all enterprises to verify facts needed to prepare the Commission recommendations.

(iii) The Commission should be located under the Ministry of Commerce. However, it should have enough authority to exercise its enhanced responsibilities.

9.16 FOREIGN INVESTMENT

Foreign equity investment had never played a significant role in the economy of Bangladesh during the last two decades. At liberation foreign capital controlled an insignificant part of fixed assets in the modern industrial sector. The major part of this investment was tied up in subsidiaries of international pharmaceutical companies and tea gardens which had been inherited from British India.

The need for foreign investment to bridge the foreign exchange gap is recognised as is the need for importing both technology and management. At the same time it is seen that within the framework of a socialist commitment, foreign investment cannot play an unrestricted role in our economy.

The Government's foreign investment policy was designed to reconcile any potential contradiction between these two objectives. The present policy, therefore, provides for 51 per cent ownership by the public sector which will be the sole partner of the foreign firm. At the same time it seeks through the agency of a management contract to give a free hand in management to the investor where their management and know-how is essential for the efficient functioning and growth of the project.

To give a sense of assurance to investors about their future earning prospects, the following facilities were provided by the investment policy:

(I) All foreign investment will be free to remit:

(a) All post-tax dividend on foreign capital.

(b) 50 per cent of net salary of foreign nationals subject to a maximum of £150 per month per individual.

(c) Savings from earnings, retirement benefit and personal assets of the individual.

(II) Repatriation of capital including capital gains and reinvestment out of profits will be permitted. However, within the first 10 years from the commencement of production repatriation cannot take place in one instalment but will have to be spread over a 10-year period.

(III) Government has extended a guarantee against nationalisation for a period of 10 years and also assures equitable compensation in case of nationalisation after this period.

(IV) Government has further expressed its willingness to enter into treaties to avoid double taxation.

It is now proposed that certain additional incentives be provided to investors. These include:

(i) A tax holiday for foreign investment in the joint enterprises for a period of five years after it goes into production provided that 50 per cent of the profits exempted from tax are ploughed back into the project.

(ii) Exemption from import and export duties, sales tax and excise duties on all imports for those enterprises which will export 100 per cent of their output. Special zones in the vicinity of our seaports may have to be designated for the location of such enterprises.

The sector corporations which will invest in joint-ventures with foreign investors will have to launch promotional campaigns among foreign investors to participate in our industrial development. They would seek to line up investors for projects which lend themselves to foreign collaboration.

9.17 GEOGRAPHICAL DISPERSAL

9.17.1 The Present Situation

Industrial activity has shown a pronounced tendency towards geographical concentration and thus exhibited widely varying rates of growth among the various areas of Bangladesh. The distribution of industrial activity is influenced by a variety of considerations. These include:

(a) Access to government decision-making agencies. This was particularly relevant in the pre-liberation period.

(b) Costs of procurement of raw materials, cost of distribution, and access to markets.

(c) Relationship to the entire system of spatial linkages between a given plant and other industries and location of physical infra-structure.

(d) In Bangladesh all these economic considerations operated in varying degrees. In the public sector, besides economic considerations, social and political interests also played a role.

The results of an analysis of the present pattern of industrial location show that:

(i) The district of Dacca with large industrial complexes at Narayanganj, Demra, Tongi, Joydevpur, Ghorasal and Narsingdi is the leading industrial centre of Bangladesh.

(ii) Dacca is followed by Chittagong.

(iii) The other two concentration areas are Khulna and Sylhet (mostly for tea).

(iv) The remaining districts fall much below average degree of concentration, the lowest being scored by Patuakhali and Barisal followed by Faridpur, whereas the highest in this low concentration group is scored by Chittagong Hill Tracts.

(v) Poor areas of manfacturing activity are also poor in transportation facilities and availability of power, whereas rich areas of manufacturing activity are not only fortunate in these respects but also exhibit a high degree of concentration in area indicating a market for products.

An analysis of spatial patterns of individual industries indicate:

(i) Cotton textiles exhibited a wide dispersal not for modern manufacturing units but because of handloom factories. Even then cotton textiles are mainly concentrated in the districts of Dacca and Chittagong.

(ii) Of the food manufacturing units, tea is concentrated in Sylhet, salt in Chittagong and Noakhali, fish processing in Chittagong, Noakhali and Khulna, fruit processing in Sylhet and Dacca, oil milling in Noakhali, Bogra and Dacca, whereas sugar and cold storages are widely spread.

(iii) In the chemical sector matches are concentrated in Khulna and Dacca, fertilizer in Sylhet, Dacca and Chittagong, pharmaceuticals in Dacca and Pabna, other chemicals in Chittagong and Dacca. Paper and Board is concentrated in Chittagong Hill Tracts, Khulna and Dacca; Pabna and Sylhet are to be added soon.

(iv) Basic metal industry exhibits concentration in Chittagong and Dacca, metal products in Dacca and to some extent in Bogra, non-metallic products in Sylhet, Dacca, Chittagong and Bogra, engineering industries and transport equipments exhibit concentration in Dacca, Khulna and Chittagong; miscellaneous industries in Dacca followed by Mymensingh.

(v) In printing and publishing Dacca leads the list, followed by Chittagong, Barisal and Bogra. In leather Dacca again tops the list followed by Chittagong, Khulna and Bogra.

(vi) The moderately diversified and intermediate categories are confined to the districts of high concentration for manufacturing. They are Dacca and Chittagong. In both cases jute textiles dominate followed by cotton textiles.

(vii) With the exception of sugar, tea, jute pressing and cement, most of the industries are market-oriented. Industries generally tend to concentrate in certain areas which have developed a tradition of manufacturing activity, possess skill, entrepreneurs, administrative and service facilities.

9.17.2 Location of Public Sector Units

In its choice of location of public sector industry the Government may be guided by a variety of criteria designed to serve the social goals it has set itself. Within the limits of these goals an attempt has been made to identify the dispersal of industries to be set up in the public sector during the Five-Year Plan. The location of a number of these is undecided. Locations will be determined after a fuller study of the various considerations involved. In the choice of location of a particular project the corporations will be guided by the following considerations:

- Development of backward areas.
- Social benefits.
- Availability of land.
- Nearness to market.
- Transport facility.
- Availability of power.
- Raw material, if local raw material is used.
- Port facilities if import or export oriented.
- Availability of sweet water (for chemicals and textile sectors).
- Inter-industry linkage.

9.17.3 Locating Private Investments

In the private sector the following inducements may be used to promote investments in more backward areas:

(a) Industrial estates have been identified as the main institutional mechanism for aiding the private sector. These may be used to promote development of backward areas. It is specifically proposed that:

(i) 50 per cent of all resources earmarked for the private sector within the industrial investment schedule be tied to utilisation in industrial estates outside Dacca, Chittagong and Khulna.

(ii) 20 per cent of investment will only be designated for industrial estates in Khulna, Chittagong and Dacca.

(iii) 30 per cent of investment will be left free to the choice of the enterpreneurs. Here it is expected that some investment will go to backward regions where there are no industrial estates.

(iv) In order to reflect the Government's basic priority towards various areas, it is proposed that a specific quantum of resources within the investment schedule be designated for each industrial estate. This will ensure a basic minimum of development within each region. In making this allocation the need for balance has had to reconcile in this transitional period with some concession to be made to the pull of market forces.

(b) It will not be enough to merely use the instrument of resource allocation to persuade investers to move to backward areas. The following additional steps are suggested:

(i) Fiscal and monetary inducements as spelt out in the section on private sector.

(ii) Over and above these specific incentives, general improvements in the infra-structure may assist in promoting the development of backward areas. These may include:

- An improved transportation network and increased carrying capacity.
- An increase in the distribution network for electricity and gas and water supplies.
- Specific sector programmes in the Five-Year Plan will seek to develop these facilities.

(iii) Improvement in the income earning potential of backward areas under the agricultural sector programme will provide a market incentive to investors by making areas more economically attractive than before. This will be supplemented by the special incentives and sectoral investments spelt out above.

9.18 ROLE OF THE PRIVATE SECTOR

The constitution has permitted operation of the private sector within the limits of law. In this context Private Sector includes co-operatives. Industrial enterprises organised in co-operatives, provided investment in them does not exceed the ceiling set for the Private Sector will be allowed to operate. The areas in which and the conditions under which private sector may operate have been spelt out in the industrial policy. Instead of delimiting the role of the private sector in terms of industrial sectors as in the case of mixed economies the Bangladesh Government has restricted the role of the private sector to small and medium sized industrial units below Tk. 25 lakh of fixed assets, including land.

Government has also given assurances that there will be a moratorium on nationalisation for 10 years from the date of publication of policy for old units up to Taka 25 lakh and from the date of going into production for new units set up during the First Plan. This is only subject to utilisation of capacity and efficient management. Government has left scope for expansion up to Tk. 35 lakh through reinvested profits.

As it stands within the modern industrial sector the private sector accounts for fixed assets estimated at Tk. 300 crores in 4236 units employing about one million workers. In terms of ownership of industrial assets the private sector accounts for about 30 per cent of fixed investment in modern industry.

Four hundred and fifty units with assets estimated at Tk. 50 crores are currently under disposal of the Disinvestment Board and may be potentially classified as part of the private sector. However, the provision that first preference in disinvestment should be given to worker's cooperatives make it uncertain as to how many of these enterprises will be disinvested to private owners.

Whilst the private sector is restricted to units below Tk. 25 lakh it is evident that in terms of number, dispersal and employment, the private sector still constitutes a significant component of the economy. If we take into account the more traditional cottage industries sector which is very roughly estimated to account for 50,000 units then industrial output from the private sector appears likely to play an important role in our attempt to meet the consumption and investment needs of the economy.

The importance of the private sector has been recognised in the Industrial Investment Schedule which earmarks Tk. 121·60 crores for private investment during the Five-Year Plan. This may be compared with a realised investment of Tk. 54·00 crores during the period 1965—70. Even allowing for price escalation and for the fact that traditional sectors such as jute and cotton are now nationalised this implies a substantial acceleration. If we keep in mind

that an estimated 50 per cent of fixed assets in the private sector in the past had been in the hands of non-Bengali elements, the claims on the resources and entrepreneurship of the local entrepreneurs are likely to be considerable.

This ambitious programme for the private sector must be seen in the context of the difficulties faced by the private sector in post-liberation Bangladesh. As of today no definitive information is available about the performance of the private sector. What evidence is at hand indicates that production performance is substantially below normal which in any case was itself well below the full capacity operation possible in most plants.

The reason for low levels of output in post-liberation Bangladesh may be enumerated as follows:

(i) lack of imported and local raw materials;

(ii) lack of spare parts and components;

(iii) disruption and dislocation of distribution and power systems;

(iv) sudden interruption of inter-industrial and market linkages with former West Pakistan;

(v) lack of proper organisation and management;

(vi) labour/management problems;

(vii) burden of debt in some enterprises due to unwillingness of banks to finance working capital;

(viii) high cost of production resulting in difficulty in exporting goods and fall in production;

(ix) lack of technical and professional services; and

(x) shortage of foreign exchange and Taka credit.

It is evident both from past and current performance that if the investment targets for the private sector are to be realised a very substantial effort will have to be made through government policy to supplement the efforts of private enterprise.

9.18.1 Policy Measures

A. *Credit*

(a) In the past several intermediaries were available for financing industrial development in Bangladesh. Presently Small Industries Corporation and Shilpa Bank are responsible for financing private sector industry in the country.

(b) Attainment of the investment goals in the private sector will require a continuous flow of taka loans and planned allocation of foreign credit, technical and advisory services.

(c) The break-up of the investment target, the requirement of Taka loans, foreign credit and equity financing is indicated below:

Investment in Private Sector Industry by Source

Source of Investment.	[*Taka in crore.*]
Taka Credit	20·00
Foreign Exchange Credit	65·60
Equity Financing	36·00
Total	121·60

(d) To diversify the source of credit and to meet the needs of industry, commercial banks have been brought into the field of long term credit. Bilateral agreements with the Commercial Banks and BSIC have been made for long term financing of private sector industry. The main terms of agreement between the BSIC and Commercial Banks are:

(i) BSIC will examine the technical and economic feasibility of the project, supervise and check the utilization of loan, arrange foreign exchange and foreign credit.

(ii) Commercial Banks will examine the credit worthiness of the applicant, arrange Taka fund and will be responsible for documentation, disbursement, the follow-up and recovery of loan.

(iii) The period of loan will not exceed 10 to 15 years.

(iv) Rate of interest will be 2—3½ per cent above the bank rate.

(v) BSIC will receive 50 per cent of the interest and Bank will retain 50 per cent.

(vi) The Consortium Loan Programme provides the Bank's financial expertise to supplement the BSIC's professional capability in technical and economic appraisal of the project.

(vii) Financing requirement of debt-equity ratio has been assessed at 70:30, that is, whilst the small investor is required to provide his own equity for upto 30 per cent of the total cost of the project, the loan of 70 per cent will be provided to him.

(e) Bangladesh Shilpa Bank will continue to discharge its traditional role of financing the private sector. To this end:

(i) Foreign credits will be placed at its disposal for disbursement to private applicants.

(ii) Taka funds will be raised by Bangladesh Shilpa Bank.

- through floating of loans from the Commercial Bank.
- borrowing from the Government.
- accepting direct deposits from the public.

(iii) Terms of lending will be determined as part of Governments policy to private industry.

(iv) Bangladesh Shilpa Bank will also play a promotional role analogous to BSIC in helping investors to formulate projects plan, design, install and commission their projects.

B. *Fiscal Incentives*

Fiscal incentives are designed to provide inducements to investors to conform to Government's industrial policy of helping small investors and dispersing industry to less developed areas. To attract private investment in the industrial sector the following incentives have been offered:

(i) Exemption from import and export duties, sales tax on machinery, spares and imported raw materials including excise duties for enterprises exporting 100 per cent. of their output.

(ii) A tax holiday for new local industrial investment for a period of five years after the unit goes into production, provided, subject to the ceiling of Tk. 35 lakhs, 60 per cent. of the profits exempted from taxes are reinvested in industry or invested in the purchase of Government bonds.

(iii) Payment of 50 per cent. customs duty on machinery may be deferred for a period up to six years from the date of import of the machinery.

(iv) A rebate of 5 per cent. of the customs duty may be allowed on capital machinery up to Tk. 10·00 lakhs against existing limit of Tk. 5·00 lakhs after the unit goes into production.

2. **Incentives for Geographical Dispersion**

The following additional incentives and fiscal concessions may given to the industries to be set up in areas other than the industrial zones of Dacca, Narayanganj, Chittagong and Khulna:

(i) The period of repayment of loan may be extended by an additional grace period up to 5 years.

(ii) A tax holiday for a period of five years after the unit goes into production provided 30 per cent. of the profits exempted from tax are ploughed back or invested in the purchase of Government bonds.

(iii) A higher percentage of debt equity than that obtaining in developed areas may be allowed.

C. *Industrial Estates*

(a) The Industrial Estates will be focal point for development of industries in the private sector. It will serve as a necessary base for an institutional framework for providing infrastructural facilities to the entrepreneurs. Eighteen industrial estates will be fully developed during the plan which will provide plots for setting up industrial units.

(b) To resolve time-consuming problems concerned with setting up and running as industrial project, the Small Industries Corporation, Shilpa Bank, Director-General of Industries, Controller of Imports and Exports and Commercial Banks need to be at hand. It is suggested that an administrative complex to house officer of these agencies be established in each Industrial Estates and that these agencies should post high enough officers who are in a position to take decisions on matters arising out of dealings with the enterprises. This delegation of authority is absolutely essential.

(c) In order to combine the objective of utilisation of the estates and geographical dispersal both domestic and foreign exchange resources should be devided up for utilisation on the basis of location. The areawise allocation for the industrial estates in the country which are intended to be developed as the main foci of industrial activity, are as follows:

Location.	Allocation of resources/ schedule provision.
(i) Estates located in developed area .. Dacca, Chittagong and Khulna.	Not more than 20 per cent.
(ii) Estates located in less developed .. area (all other estates).	Not more than 50 per cent.
(iii) Foot-loose industries (Industries .. located outside industrial estates .. and excluding Dacca, Chittagong .. and Khulna).	Not more than 30 per cent.

(d) Financing agencies should disburse funds for projects located in a particular area up to the limits defined for the area.

D. *Technical Assistance*

(a) The promotional, professional and technical services will be provided to the private entrepreneur and BSIC/BSB's consultancy services for pre and post-investment counselling will be strengthened and expanded :

(b) These will *inter alia* provide the following services to those requesting it :

(i) preparation of investment briefs;

(ii) feasibility reports;

(iii) project appraisal;

(iv) drawing up of specifications for machinery, selection of machinery and installation;

(v) drawing up of plant layout;

(vi) supervision in construction of factory building, trial operation, production and assistance in arrangement of imported raw materials; and

(vii) in-plant counselling.

E. *Industrial Association*

To establish closer liaison and authority over the private sector as well as to promote the co-ordinated and integrated development of public and private sector industries in government may consider grouping of all industrial enterprises in the private and public sectors together in industrial associations. Many industries such as cotton, jute, vegetable oil have their association. These have, with some exception, such as jute mills, been moribund organisation often dominated by a few individuals operating as a pressure group. To activate moribund associations and develop new ones in areas as yet uncovered, the following course of action is proposed:

(i) All industrial enterprises should be grouped into association.

(ii) Once an association is formed, membership should be made compulsory.

(iii) The Ministry of Industry in association with the representatives of the private sector and public corporations would delimit the associations.

(iv) Once the associations have been set up and all enterprises enlisted as members, a representative committee for each association should be set up. This should cover both private and public sector enterprises within the same industrial group as well as government, workers and political representatives.

(v) The association's office and administrative expenses should be financed out of a compulsory levy on all member enterprises, private and public, based on their size of assets.

(vi) All associations should be federated into a National Federation of Industries whose role should be to advise the government on all matters pertaining to industry.

(vii) The responsibilities of Industrial Associations will cover :

(a) Provision of up-to-date information on all matters pertaining to the industry such as data on production employment, license utilisation, export, inventories and to assist the Ministry of Industries in collecting what data they require.

(b) To see that government policies pertaining to the industry are carried out by all members.

(c) To formulate a common labour and wage policy for the industry and establish standards for working conditions in the enterprises.

(d) To identify problems afflicting the industry and to make recommendations to the government for their resolution.

(e) To promote the exports of the industry where relevant.

(f) To set and maintain production standards for the enterprises.

(g) To make recommendations about expansion of capacity at the time when the investment schedule is being formulated.

(h) To handle through the executive board, imports for those members of the Industrial Association whose entitlement are too small or whose experience too limited to warrant independent imports.

F. *Licensing Procedures*

(a) It is necessary to re-evaluate license entitlements in view of the devaluation, cessation of supplies from Pakistan and need to operate the units in multiple shifts.

(b) Public sector units should have their entitlements so revised and they should get their license directly.

(c) Licensing procedures should be simplified:

(i) Entitlements to import should be granted on an annual rather than half-yearly basis with built-in restrictions to limit utilisation all at one time. This will permit restrictions on utilisation in case there is a foreign exchange crisis.

(ii) Once issued, licences may be administered locally through banks or CCI&E offices in the industrial estates.

(iii) Bangladesh Bank should monitor utilisation of licences and keep policy makers regularly informed of utilisation.

G. *Administrative Apparatus for the Industrial Sector*

(i) As of now the private investor has to make reference to the following agencies of Government:

(a) The office of the Director-General of Industries in the Ministry of Industries who is responsible for:

- survey of industries
- fixing of import entitlements
- processing of new capacity
- secretariat work for Investment Board
- technical appraisal of schemes
- promotion of foreign investment
- information centre for industry
- running of certain vocational schools.

(b) The BSIC under Ministry of Industries provide credit and technical assistance and builds infrastructural facilities.

(c) The Shilpa Bank for credit.

(d) The Controller of Imports and Exports under the Ministry of Commerce for import licences.

(ii) All these agencies of Government need to function in close harmony if the entrepreneur is to function effectively. This does not always happen leading to needless harassment and delays as the investor is driven from one agency to another to solve his problems.

(iii) In order to streamline administrative procedures for the industrial sector, machinery at the local level tied to the Industrial Estates has been suggested, which will service the local investors. A corresponding simplification of measures is necessary at the national level.

(iv) This should be guided by the following principles:

(a) Specialised financial institutions should assess the feasibility of a project, finance it and assess its recurring requirements of foreign exchange.

(b) One administrative agency should deal with all promotional services involved in setting up and running an industry.

(c) Commercial Banks should administer import licence utilisation.

(d) The three agencies designated above should discharge their responsibilities from within a single administrative complex with locally delegated authority to take all routine administrative decisions and all except major policy ones.

(v) Such a simplification in procedures would involve considerable reorganisation within the administrative framework spelt out in (i). This may take time to implement but the task remains essential if the private sector is to be efficiently served to realise its plan targets.

9.18.2 Bangladesh Small Industries Corporation

The Bangladesh Small Industries Corporation (BSIC) will constitute the main institutional mechanism to assist the private sector. According to the units set by the investment policy of the Government for the private sector, the concept and scope of the small industries sector will be co-terminus with that of the private sector.

This will imply a redirection in BSIC's role towards promoting and supplementing small industries in the private sector.

Bangladesh Small Industries Corporation's main functions will cover:

(i) Provision of credit to the private sector. Here they will share with the Shilpa Bank the role of meeting the credit needs of the private sector.

(ii) The setting up and administration of the industrial estates. The role of these estates has been spelt out earlier.

(iii) Investment promotion for private investors. This will involve:

(a) Identifying projects from the investment schedule for investors.

(b) Where required, the working out of feasibility studies for projects. This should establish the economic viability of the project, design the plant and lay out of the machines, identify the necessary machinery and best source of supply.

(c) If it is further required BSIC must be prepared to supervise plant construction and installation of machinery and even assist the investor in the commissioning of the plant.

(d) In the early stages of operation, BSIC will provide technical advise, advise on marketing and procurement of raw materials.

(iv) BSIC may seek to set up a commercial wing to handle bulk imports of raw materials for small investors and procurement and marketing of their products. This move must again emerge as a result of the felt needs of the private investors and should only be attempted when BSIC is fully equipped for the task.

(v) BSIC should set up a small industries training institute which will seek to train managers of small industries in improved management practices and will impart technical training to improve the skills of the workers.

Bangladesh Small Industries Corporation will have to keep the closest liaison with the corporations on behalf of the small industries sector. This will involve:

(i) Identifications of projects which can feed the larger industries in the corporations and can utilise their output as an input in the small industries sector.

(ii) Once such projects are identified, BSIC should seek to promote contractual relations between the enterprise and the small industry which will guarantee a regular source of procurement or supply over a period of time.

(iii) Bangladesh Small Industries Corporation will seek to encourage the corporations to provide technical assistance to the small investors within the framework of the contract.

Apart from assisting private investors, BSIC will make some direct investments in industry. For this Tk. 3 crores has been provided for in the plan. These investments will be directed towards:

(a) Industries within the investment schedule of a priority nature where private investors are not forthcoming.

(b) Industries in the industrial estates of relatively backward regions where private investors are initially reluctant to come forward. Here it is hoped that pioneering efforts by BSIC will encourage investors to come forward once the external economics generated by the BSIC investment have been made apparent.

(c) Units set by BSIC and established as commercially viable concerns should be disinvested. In their disinvestment policy BSIC should establish the following priority:

(i) A co-operative formed by the workers of the enterprise in question.

(ii) Farmers Co-operatives organised at the level of Thana Co-operative Associations.

(iii) Local Government authorities.

(iv) Expatriate Bangalees willing to make non-repatriable investment in foreign currency.

(v) Local private investors.

(d) To run these enterprise efficiently BSIC should equip itself with professionally qualified personnel with commercial experience. The enterprises should be run as commercial ventures with maximum delegation of authority and should be free of bureaucratic interference.

9.19 COTTAGE INDUSTRY, HANDICRAFT, RURAL INDUSTRY AND HANDLOOM

Surveys show that there are an estimated 50,000 handicraft units which can be classified as cottage industry, employing 2·50 lakh artisans. However, cottage industries have been neglected in the past and this sector hardly showed any sign of progress. Cottage industries are not suited to modern capital intensive practices except in very few cases. Most units are characterised by limited specialisation in management and close integration with the local community. They suffer from a lack of market information, absence of institutional credit, use of obsolete tools, dearth of attractive designs and at times inadequate supply of raw materials. The quality of product needs improvement either through adaptation of better design or use of simple but improved tools. If an organisation can work on marketing outlets, provide credit, essential raw material and tools, the functioning of this sector can improve and the economic potential can be augmented. In an effort to provide self employment, it may also help if training is given to artisans to improve and widen their skills.

The establishment of a special corporation for the development of cottage industries indicates the importance attached by the Government to this sector.

(iii) INSTITUTIONAL SUPPORT

Government is establishing a separate Cottage Industries Corporation for effective implementation of the above functions.

(iv) OUTLAY

The Plan programme envisages an outlay of Taka 2·0 crore in the public sector.

9.19.2 Rural Industry

Stress has been laid on promoting intensive and extensive development of village or rural industries with the objective of enlargement of employment opportunities, diversification of rural occupations and development of agro-industries to support and boost agricultural production. A programme to provide technical assistance and consultancy services to the rural units is to be implemented by the Rural Industries Service under the Cottage Industries Corporation. RIS will work:

(i) Through extension of services by giving in-plant counselling to the existing units and investment counselling to the potential entrepreneurs from the primary stage of the selection of units up to the final stage of production;

(ii) By organising and imparting training courses in different trades both for existing artisans, to improve and up-date their skill, and for the new entrants so as to make them employable skilled labour. Both mobile and fixed training courses will be organised so that the benefit reaches to the rural artisans.

(iii) In order to perform the above functions efficiently, workshops fully equipped with adequate facilities for providing training in different trades will be established in the regions of Chittagong, Rajshahi and Khulna. For this purpose, existing vocational schools may be used.

(iv) The existing workshop at Narsingdi of Rural Industries Services Project of BSIC with its expanded facilities and personnel will serve as one of the centres for the Dacca region.

(v) The organisation of Rural Industries Service of the Bangladesh Small Industries Corporation will be strengthened and expanded. It is now inactive and has got to be activated for promotional work and technical assistance. This should be made available at the doorstep and without waiting for the owners to ask for it.

(vi) Workshop and infra-structural facilities will be provided in growth centres. The main advantage for establishing such workshop and training facilities is that it will create a congenial environment for investment growth in the depressed and underdeveloped rural areas.

(vii) Institutional credit and marketing services will be made available to village or rural industries through the various centres.

(viii) The promotional programme calls for an outlay of Tk. 15 lakh in the public sector.

(ix) It is expected that 7,000 production units of rural industries will be organised which will produce goods estimated at Tk. 1·50 crore.

9.19.3 Handloom

A programme to help the handloom sector in the following respect is proposed to be implemented by Cottage Industries Corporation :

(i) Provide credit for working capital loan and equipment loan from banking and financing institutions.

(ii) Effect regular supply of yarn and essential raw materials needed by them.

(iii) Training in power loom equipment and appliances.

(iv) Produce specified varieties of production in organised units.

(v) Sales centre and emporia to be set up.

(vi) Designs, prototypes and services of common facility will be made available for improvement of quality.

(vii) Efforts on priority basis will be made for the formation of effective cooperative societies and association of weavers in order to strengthen the organisational structure of the handloom sector.

In order to implement the above programme effectively it is proposed that :

(i) The Registrar, Cooperative Society will distribute yarn, dyes and chemicals to all handloom weavers.

(ii) Cottage Industries Corporation (Handloom Division) will distribute yarn, dyes and chemicals to handloom factory owners and other users.

(iii) A statutory high powered Handloom Board will be constituted with Minister for Industries as Chairman. The function of the Board will be :

(a) Determination of formula or ratio of distribution of yarn among cooperatives, handloom factory owners, hosiery and other users of yarn.

(b) Policy for pricing of yarn, dyes, chemicals and handloom products.

(c) Removal of bottlenecks and problems faced by the operating agencies.

(d) Coordination between concerned agencies like Cooperatives, Cottage Industries Corporation, Bangladesh Textiles Industries Corporation, and Consumers' Supply Corporation.

To develop weavers' cooperative societies there will be :

(i) An integration of all textile services and common facilities which should be put under one organisation.

(ii) The Registrar, Cooperative Society will conduct a complete survey of the existing facilities and identify the need for creation of any additional service facilities, if so required.

(iii) The Registrar will also complete the establishment of cooperative societies covering all the weavers of the country.

(iv) The cooperative should, presently, go for wholesale marketing. They may, however, open sales emporium in the Division Headquarters.

(v) Public retail outlets for the cooperatives may be provided by the consumer's corporation.

Handloom sector programme envisages :

(i) An outlay of Tk. 3·00 crore in the public sector.

(ii) The average production of 40 crore yards of cloth by handloom is expected to be increased to 56 crore yards by the end of the Plan period.

(iii) It is also anticipated that about 100,000 improved looms will be set up during the plan period in the private sector.

(iv) In addition 1000 synthetic/art silk power looms will be set up all over the country to supplement the production of handlooms.

9.19.4 Sericultures

The Cottage Industries Corporation will help to:

(i) consolidate and improve the existing nurseries and seed stations;

(ii) effect increased supply of mulbery plantations and healthy layings;

(iii) expand rearing facilities for silk works;

(iv) effect improvement of seedlings; and

(v) expand and strengthen extension services.

The programme includes:

(i) The intensification and expansion of the extension activities bringing in more land under mulbery cultivation by supplying mulbery saplings to private growers.

(ii) Expansion of the rearing facilities of the existing nurseries and supplying disease-free hybrid silk worms to private rearers.

(iii) Proper supervision and collection of the cocons and processing in improved filature basins and *charkas* to provide for increased production and better quality of silk yarn.

9.19.5 Salt

The promotional programme includes the extension and technical services for:

(i) The preparation of improved and scientific beds for increased production and improvement of quality of salt.

(ii) Production of industrial and refined salt in the new areas.

(iii) Exploring the possibilities for growing salt in the new areas.

(iv) The existing staff of the salt project of BSIC will be strengthened by additional professional personnel.

(v) The programme envisages an outlay of Tk. 50 lakh.

(vi) It is expected to increase the average annual production of 1·5 crores mds. to 2·50 crore mds. of salt.

9.19.6 Survey of Cottage, Rural Industries and Handloom

The programme envisages detailed survey of cottage industry, handloom and rural industry. Provision of Tk. 50 lakh has been made for this purpose.

9.19.7 Handicraft Institute

Handicraft Institute for cane and bamboo is proposed to be set up for:

(i) Training of the artisans for improvement of their skills and adaptation of new and improved processes.

(ii) Production of modern and attractive designs.

(iii) Production of diversified items.

(iv) The institute will be set up as a nucleus under Cottage Industries Corporation. More trades will be added to this institute according to the needs of the country.

(v) An expenditure of Tk. 1.00 crore is envisaged for this purpose.

9.19.8 Design Centres

Design Centres for development of designs have to be more effective than it has been in the past. For this assistance from countries that have successfully developed such centres for handicrafts may have to be sought. The present Design Centre has been developing modern designs and prototypes in selected trades such as handloom weaving and printing, doll making, pottery, cane and bamboo. The centre has been providing design service in a few concentrated areas. A programme has been drawn up for expansion of the product development wing and inclusion of additional functions of design, research, market survey and consumer tastes study.

9.19.9 Sector Programme

The total sector programme for cottage industries is projected at Tk. 26·9 crore.

Public sector outlay of Tk. 9 crore is estimated to be made for promotion, training, technical assistance, survey and such other essential activities.

In addition, a private sector outlay in cottage and rural industries is estimated at Tk. 17·9 crores. Out of this Tk. 10 crores is expected to be invested in handlooms by the weavers themselves as part of a programme of expansion, replacement and modernisation of their weaving facilities.

Plan Outlay for Cottage Industries *(Tk. in lakh)*

A. *Public Sector*	
Integrated Pogramme for Cottage Industry and Handicraft ..	200·00
Rural or Village Industry	150·00
Sericulture	150·00
Salt	50·00
Survey of Cottage Industry	50·00
Handloom	300·00
Sub-Total ..	900·00
B. *Private Sector*	
Handlooms	1000·00
Other Cottage and Rural Industries	790·00
Sub-Total ..	1790·00
Total ..	2690·00

CHAPTER X
TRANSPORT

10·1 OBJECTIVES AND STRATEGIES

10. 1·1 Introduction

An efficient and adequate network of transport system is indispensable to economic growth. It helps the growth of the economy by providing cheap and efficient services for movement of men and materials. Inadequate port facilities and transport connections thereto delay ships in ports, raise the cost of import, slow down the distribution of raw materials as well as the finished products of industry and restrict the timely supply of agricultural inputs to the farmer and farmer's produce to the market.

The geography of Bangladesh has given rise to a varied and complex transport system. Bangladesh is divided in the middle along a generally north south line by the Brahmaputra/ Jamuna river. The two parts are further divided into two parts by the Ganges and the Meghna. In addition, there are many smaller rivers, canals and water courses criss-crossed all over the country. These waterways, on the one hand, provided natural highways for riverine transport and on the other make construction and maintenance of railways and roads highly difficult and expensive. Consequently there exists both in the rail and road systems a number of unbridged gaps which are linked by ferries.

Transport network in Bangladesh consists of railways, waterways, coastal and ocean shipping, ports, road transport services and aviation. In view of the geography and terrain movement of persons and goods often involves inter-change between two or more modes and selection of the best means of transport among several alternative routes, on the basis of costs, is difficult.

Due to the subsistence nature of the economy major demand for transport is for arterial movement. The arterial traffic flow is dominated by movement of imports and exports between the two major ports of the country and a limited number of other points. In volume, imports are substantially greater than exports, the ratio being 4:1. By and large rail and water transport share almost the entire arterial traffic. Because of an inadequate road system, relatively small size of the road transport fleet and the primitive state of the road industry itself, the share of road transport in arterial traffic is small. Road transport services are provided mostly for movement of short haul traffic. Consequently, prior to the War of Liberation the pattern of arterial traffic flow was such that railways used to carry three times as much north bound out of Chittagong as south bound to Chittagong, and the waterways used to carry twice as much south bound from Narayanganj to Chalna as north bound. The net result of these imbalances by mode and direction is a higher transport cost and poorer service standard than necessary.

One of the major weaknesses of earlier transport planning efforts was lack of overall planning. This reflected an acute lack of basic data in the transport field. Consequently the various transport sectors developed in an isolated manner without being complementary to each other and adequate to meet the total demand for transport.

10.1·2 War Damages and Reconstruction

Due to continued neglect during the 25 years of Pakistani rule, an adequate transport system could not be built up. In addition, the transport network was completely shattered and disrupted during the War of Liberation. In addition to damages to railway workshops, signalling, telecommunication, locomotives and other installations, about 299 railway bridges and 274 road bridges were either destroyed or damaged. The sea ports and the inland channels were blocked by sunken vessels and war debris. Equipments and installations of the sea ports and the inland ports suffered heavy losses. Quite a sizeable portion of the fleet of road transport vehicles was damaged. Airports and other installations were heavily damaged and Bangladesh was left with no aircrafts. Similarly no ocean-going ship was available to Bangladesh on gaining independence. Besides, a good number of key operational personnel were lost. A summary of war damages and progress in reconstruction is presented in Table X-1.

TABLE X-1

Progress in Repair and Reconstruction up to March, 1973

(Figures in Number).

Serial No.	Description of Items.	Extent of damage and loss during the war.	Progress up to 30-6-1972.	Progress up to 31-3-1973.
1	2	3	4	5
	RAILWAY			
1.	D.E. Locomotives	45	4	32
2.	Steam Locomotives	95	6	43
3.	Passenger Carriages	722	55	543
4.	Freight Wagon	1484	150	1474
5.	Bridges:	299		
	(a) Permanently repaired		82	194
	(b) Temporarily repaired		198	102
	(c) Not passable		19	3
		..	299	299

TABLE X-1—*Concld.*

(*Figures in Number*).

Serial No.	Description of Items.	Extent of damage and loss during the war.	Progress up to 30-6-1972.	Progress up to 31-3-1973.
1	2	3	4	5
	ROADS AND HIGHWAYS			
1.	Bridges:	274		
	(a) Permanently repaired		55	90
	(b) Provided Bailey		67	83
	(c) Temporarily repaired		96	96
	(d) Ferry		7	5
	(e) Diversion		16	..
	(f) Not passable		33	..
			274	274
2.	Ferries:	66		
	(a) Repaired		40	55
	(b) Acquisition of new uniflote ferries		20	20
		..	60	75
	ROAD TRANSPORT			
1.	Buses	1952	..	627
2.	Trucks	4244	1400	1724
	INLAND WATER TRANSPORT			
1.	Oil Tanker	5	..	5
2.	Coasters	7	..	3
3.	Self-propelled Barges	16	..	5
4.	Tugs	11	..	4
5.	Barges	29	..	17 (Batty barges)
6.	Ferries	8	..	4

10·1·3 Institutional Changes

The role of the Government in providing transport services in various fields has undergone a radical change after liberation. Prior to liberation, the Government was responsible for management and operation of railway and air services. In regard to road and water transport, Government's responsibility was limited to providing infra-structure facilities such as roads and navigational facilities. Ownership of the equipments and their operation were mostly in the private sector; Government's participation was nominal through the erstwhile EPRTC and the EPSC. After liberation about 50 per cent of the mechanised IWT fleet have been nationalised and expansion of the private sector has been limited to small vessels having DWT capacity up to 300 tons only. Similarly the Government has decided to assume much larger direct responsibility in the operation of road transport by expanding the services of the BRTC in a big way and setting up a Trucking Division under the BRTC. The entire responsibility of ownership and operation of the oceangoing ships also lies with the Government. Because of the assumption of a larger responsibility by the Government in the field of transport there has been a corresponding increase in responsibility on the part of the various transport agencies under the Government to provide more efficient and cheaper services.

10·1·4 Problems

Loss of capacity and skilled manpower and damages to equipments and installations during the War of Liberation resulted in low operating efficiency and fall of productivity by various transport agencies. Although substantial progress has been made towards reconstruction and rehabilitation work of the transport system, the same has not been proportionately reflected in the recovery of the operational efficiency of the system. Problems currently being faced by the transport agencies and standing in the way of improvement of the efficiency are enumerated below briefly.

A. Railway

The operational efficiency of the entire railway is linked up with the reconstruction of the Bhairab bridge. In addition, shortage of effective goods wagons, wagon ferries, locomotives, spare parts, skilled staff and workers, frequent failure of control phones and signalling system have been responsible for low operational efficiency. On top of all these, inability to motivate the labour force has kept efficiency levels from recovering as rapidly as was required.

In order that the railway system may be brought back to normal levels of efficiency it is essential to enforce discipline in all cadres of officers and staff leading to improved productivity of workshops and improved maintenance of all equipments and facilities. Besides, it is also imperative to fill up the gap in skilled staff through judicious recruitment and training on an emergency basis. Speedy completion of the reconstruction work and import of essential spare parts in order to commission a large number of rolling stock lying idle is also needed.

B. Road Transport

Buses

Major bus services are provided by the private operators. Government's participation is through the BRTC.

(i) The performance record of the BRTC is low, by any standard. Lack of managerial and technical expertise, frequent theft of spare parts, shortage of spare parts in the country, frequent management/labour problems, etc., are mainly responsible for extremely low levels of operational efficiency of the BRTC. Management cadres need to be substantially strengthened if they are to adequately fulfil the big increment in responsibilities arising from the growth of public sector services. Concentration of authority at the secretariat prejudices quick decision making and commercial approach.

(ii) Private bus services are equally poor. Overloading, infrequent services and a high accident rate are symptomatic. Fare rates, at current costs, do not make it remunerative to the private sector to provide better and more efficient service. They prefer to overload and make fewer trips. Lack of foreign exchange for import of spare parts and delay in import due to proliferation of small and inexperienced importers compound these shortages.

Trucks

Trucking capacity though still not fully recovered to pre-liberation levels has been substantially improved by assistance from abroad as well as local production. Unfortunately trucks operated by various government agencies to move food, relief and imports are poorly maintained leading to an estimated 33 per cent trucks being off the road. Those on the road operate at well below capacity. This has led to a programme to organise trucks under a specially created Trucking Division of BRTC, to provide trucking services as a specialised service operated on commercial principles. Since this represents a new approach, management and tecnical assistance from abroad has been lined up to develop our own expertise in this field. There have, however, been delays in transferring trucks to the BRTC resulting in continuing underutilisation. The Division is now expected to be operational in the next three months. It will provide specialised trucking services to both public and private sector agencies on a commercial basis. Special provision has, however, been made to give priority to key agencies moving food, relief and vital consumer goods.

C. *Inland Water Transport*

Operational level of the inland water transport fleet, particularly that of the bay crossing fleet is rather low. Reasons for such low performance have been general inefficiency in loading and unloading by public sector cargo owners, problems of labour motivation, inadequacy of berthing facilities at Chittagong and inland ports. There is lack of co-ordination between arrival of jute loaders at Chalna and despatch of export jute and jute goods from the inland ports. As a result, considerable inland water transport capacity remains locked up at Chalna and thus the overall capacity is reduced. It is essential that arrival of ships and inland barges with export cargo at Chalna is synchronised as far as practicable.

D. *Transport Co-ordination*

For reasons explained in the preceding sub-paras, transport capacity in all sectors, in spite of heavy demand for transport capacity, is being underutilized. A major effort has, therefore, to be made to ensure a much more coherent and efficient utilization of the existing capacity. To this end, the Transport Co-ordination Division in the Ministry of Communications needs to be activised and given the leadership and authority necessary to ensure a centrally planned and directed logistical system designed to ensure effective utilization of our limited resources.

10.1.5 Objectives

Government aims at achieving self-sufficiency in production of food and rapid industrialisation of the country and self-reliance in its development effort. These programmes would necessitate flow of greater volume of imports, particularly agricultural inputs, capital goods for industry and industrial raw materials as well as exports, particularly of jute and jute products as also a growing number of other exports.

In order to meet the demand for transport, particularly the priority demands of agriculture and industry as set forth in the Plan, the main objectives of transport planning would be:

(a) to ensure speedy rehabilitation and reconstruction of the war damaged transport system,

(b) to provide cheap, adequate and efficient transportation services to the common people,

(c) to make good the previously existing deficiencies and bring about a balanced co-ordination of the various modes of transport through allocation of traffic to various modes on the basis of economic costs,

(d) to augment the efficiency and capacity of the various modes of transport in a manner so that cheap services are provided and unnecessary wasteful investments are avoided,

(e) to ensure increasing participation of the Government in major sectors of transport keeping in view the Government's commitment to socialism,

(f) to gradually reduce areas of exploitation by substituting co-operatives of drivers/pullers/workers for private ownership in those areas of the transport sector not directly under public ownership.

10.1.6 Strategy and Priorities

It has already been stated in para 10·1·1 that there is an acute lack of basic data in the transport field. Forecasts of demand for transport are not yet available in the detailed way that is needed and knowledge of the costs of the complex operations in many transport operations is lacking. Consultants are currently working with the Planning Commission on a full scale transport survey, the final results of which will be available at the end of the first quarter of 1974. Therefore, the investment programme in the transport sector has, of necessity, to be treated as tentative. Decision on future allocations has to be dependent on a review of the recommendations which would be forthcoming out of the study of the consultants.

On the basis of the available data, Bangladesh Transport Survey has carried out a number of exercises to determine the projection of traffic through the ports and over the important rail and water routes. Some exercises have also been carried out to determine the costs of operation of different modes—both terminal cost and haulage costs. Some recommendations as to allocation of traffic to be moved through the ports and over the different important rail and water routes have been made on the basis of the least costs. Due

consideration has also been given to the suitability of a particular mode of tansport to carry particular type of goods. For example, rail and water are normally more suitable for long distance bulk traffic and road for short distance and high valued traffic.

Summary of these studies are shown in the tables given below:

TABLE X-2

Projection of Imports and Exports.

(In lakh tons.)

	1973-74.	1977-78.
1. Imports		
Total Dry Cargo	46·73	50·15
POL	14·38	25·14
Total ..	61·11	75·29
2. Exports		
Total Dry Cargo	16·70	19·90
Grand Total of Imports and Exports	77·81	95·19

TABLE X-3

Projection of Traffic on Principal Routes.

(Allocation of Inter-Area freight movements to Alternative Modes, Principal commodities and Products only)

A. Rail Allocated Traffic on Important Sections.

(In lakh tons)

Sections	1973-74					1977-78				
	Dry Cargo		POL	Total		Dry Cargo		POL	Total	
	Up	Down	Up	Up	Both	Up	Down	Up	Up	Both
Metre Gauge										
Chittagong–Laksham..	8·47	5·80	2·19	10·66	16·46	11·68	7·70	3·84	15·52	23·22
Akhaura-Sylhet ..	2·47	4·99	0·72	3·19	8·18	3·15	6·12	1·26	4·41	10·53
Akhaura-Bhairab ..	8·12	4·50	1·10	9·22	13·72	11·19	4·30	1·92	13·11	17·41
Bhairab Bazar-Narshingdi	3·72	1·45	0·38	4·10	5·55	5·50	1·84	0·66	0·16	8·00
Tongi-Mymensingh ..	4·40	3·05	0·72	5·12	9·17	5·99	2·46	1·26	6·95	9·41
Bahadurabad-Fulchori..	1·34	3·77	..	1·34	5·11	2·59	4·36	..	2·59	6·95
Broad Gauge										
Bheramara-Ishurdi (Hardinge Bridge).	4·18	4·02	0·75	4·93	8·95	2·88	6·25	1·26	4·14	10·39

B. Water Allocated Traffic.

(In lakh tons).

	1973-74				1977-78			
	Dry Cargo		POL.	Total both direction	Dry Cargo		POL.	Total both direction
	Up	Down			Up	Down		
Bay crossing Routes								
Chittagong-Dacca-Narayanganj ..	4·83	1·49	4·28	10·60	3·57	1·74	7·48	12·79
Chittagong-Khulna	0·45	0·10	5·03	5·58	1·10	0·10	8·80	10·00
Inland Water Routes								
Chalna-Khulna	8·89	5·12	..	14·01	6·43	6·31	..	12·74
Chalna-Dacca-Narayanganj	2·85	4·21	..	7·06	3·29	5·04	..	8·83
Khulna-Dacca-Narayanganj	1·27	1·44	..	2·71	1·76	2·14	..	3·90

TABLE X-4

Allocated Movements of Dry Cargo Traffic Through Principal Ports.

A. Chittagong port (including direct up-country shipments from outer anchorage).

(In lakh tons.)

Mode of clearance	1973-74			1977-78		
	Imports	Exports	Total	Imports	Exports	Total
Rail	6·97	2·92	9·89	8·71	3·54	12·25
Water	3·88	1·10	4·98	1·89	1·26	3·15
Road	10·52	3·34	13·86	13·57	4·19	17·76
Special (for plants in port area)	5·45	..	5·45	7·60	..	7·60
Total ..	26·82	7·36	34·18	31·77	8·99	40·76

B. Chalna Anchorage.

(In lakh tons)

Immediate internal origin or destination of cargo.	1973-74			1977-78		
	Imports	Exports	Total	Imports	Exports	Total
Khulna	8·89	5·12	14·01	6·43	6·31	12·74
Other local	2·55	..	2·55	1·61	..	1·61
Up-country	2·85	4·21	7·06	3·24	5·04	8·28
Total ..	14·29	9·33	23·62	11·28	11·35	22·63

As regards allocation of traffic to the two ports and over the important routes, it should be borne in mind that this is highly tentative as the exercises on costs were carried out on the basis of inadequate data. This exercise of allocation just indicates the pattern of traffic movement that may eventually develop but at the same time may undergo substantial change when rigorous analysis on the basis of detailed information is completed. Present allocation deals in general only with main commodities and products with inter area movements.

Allocation exercises imply that 40 lakh tons and 23 lakh tons would move through Chittagong and Chalna ports respectively during the terminal year of the First Five-Year Plan period. The allocation makes no allowance for diversion of traffic away from Chittagong as a result of construction of permanent port facilities at Chalna and assumes only a negligible use of direct shipments to the Dacca area from the outer anchorage due to stoppage of import of foodgrains. In the event port facilities are provided at Chalna, traffic commensurate with the facilities at Chalna would be diverted from Chittagong.

The allocation exercises would indicate that the relative proportion of the distribution of traffic through Chittagong and Chalna at the beginning and at the end of the Plan period remains more or less the same. This has been due to the assumption that permanent port facilities at Chalna will not be available and as such more general Cargo will arrive through Chittagong. The allocation, however, ensures a better balance of traffic movement direction-wise over the principal routes.

No conclusion as to the road transport industry has been deduced from allocation exercises since road transport is concerned with short distance movements and this exercise has been concerned primarily with medium and long distance traffic.

Keeping in view the projection of traffic and the implications of the allocation exercises, emphasis has been laid on augmentation of capacity by making the best possible use of the existing facilities, operating them efficiently and modernising them wherever necessary. Fresh investment for addition of capacity would be minimal. Provision has, however, been made for acquisition of a fleet of ocean-going ships and aircrafts. This is in the nature of a replacement since the planes which carried our internal and overseas passengers and vessels which carried a good part of our ocean cargo were forcibly kept by Pakistan. On-going projects where substantial capital has already been sunk should, however, be completed as early as possible so that benefits to the economy may be available at the earliest. Emphasis has also been laid on speedy completion of the reconstruction programme and all efforts will be made to develop an integrated transport system that will give the greatest overall benefit to the current trade and the strongest stimulus to the future development.

10·1·7 Summary of Programmes and Allocations

Summary of the investment programmes including Reconstruction and Rehabilitation programme for the entire transport sector is given in Table X-5. Details of the programme and the actual strategy to be followed for each sub-sector have been explained separately in the individual paper for each sub-sector.

With the successful implementation of the First Five-Year Plan, major physical achievements under different sub-sectors are expected to be as follows:—

1. *Railway*—After taking care of the huge replacement requirements, 30 Diesel locomotives, 272 passenger coaches and 1,900 wagons are expected to be added to the bench mark figures of 174 D.E. locomotives, 1,683 Passenger carriages and 16,039 wagons respectively. Besides, the B.G. and M.G. route miles are also expected to be increased by 60 miles and 40 miles respectively.

2. *Roads and Highways*—550 miles of high-type road and 454 miles of low type road are expected to be added to the bench mark figures of 2,500 miles and 1,466 miles respectively indicating an increase of 22% and 31% respectively. In addition, 58,634 rft. of bridge works are expected to be completed during the Plan period.

3. *Road Transport*—Bench mark figures of 7,200 buses, 11,100 trucks and 6,536 auto-rickshaws are expected to increase by 39·20 per cent, 22 per cent and 53·50 per cent respectively indicating a net addition of 2,830 buses, 2,440 trucks and 3,491 auto-rickshaws respectively.

4. *Inland Water Transport Authority*—About 500 miles of waterways, 2 major ferry terminals, 10 secondary ports and 115 launch landing stations are expected to be developed during the Plan period. In addition, 6 hydrographic survey vessels, one oceanographic survey vessel, 10 dredgers are expected to be acquired besides mechanisation of about 1,500 country boats.

5. *Inland Water Transport Corporation*—After meeting the replacement requirements, net addition in this sub-sector is expected to be of the order of 5 oil tankers, 30 Inland barges, 8 Inland tugs, 30 Shallow draft barges, 5 Shallow draft tugs, 5 ferries, etc.

6. *Ports*—Addition of two new jetties and rehabilitation of 8 old jetties are expected to be completed at Chittagong port. At Chalna 8 new jetties along with ancilliary facilities are likely to be completed.

7. *Bangladesh Shipping Corporation*—20 more ocean-going cargo ships are expected to be added to the bench mark fleet of 7 ships during the Plan period.

8. *Bangladesh Biman*—Two Jet aircrafts and two Fokker aircrafts are expected to be added to the bench mark fleet of 6 aircrafts.

9. *Civil Aviation*—3 new airports (Kurmitola, Barisal and Saidpur) are expected to be completed during the Plan period.

Details of the bench mark and physical targets for the First Five-Year Plan have, however, been shown in Annexuree IX- -1 :

TABLE X-5.

Summary of the First Plan Allocation (1973—78).

(Taka in crore)

Sub-sector	Plan Allocation.					
	On-going		New		Total of on-going and new	
	Total.	F.E.	Total.	F.E.	Total.	F.E.
1	2	3	4	5	6	7
1. Bangladesh Railway						
Development	38·781	13·025	78·646	46·287	117·427	59·312
Reconstruction and Rehabilitation	..	..	..	..	8·700	5·791
					126·127	65·103
2. Roads						
Development	77·811	28·387	26·038	7·460	103·849	35·847
Reconstruction and Rehabilitation	..	..	..	..	4·328	1·325
					108·177	37·172
3. Road Transport						
(a) *Public Sector.*						
Development	..	..	41·020	1·380	41·020	1·380
Reconstruction and Rehabilitation	..	..	..	..	0·210	0·155
					41·230	1·535
(b) *Private Sector.*						
Development	..	..	63·662	..	63·662	..
4. Inland Water Transport Authority						
Development	21·765	11·141	26·260	6·850	48·025	17·991
Reconstruction and Rehabilitation	..	..	..	..	3·310	2·793
					51·335	20·784
5. Inland Water Transport						
(a) *Public.*						
Development	..	..	18·220	8·739	18·220	8·739
Reconstruction and Rehabilitation	..	..	..	..	4·000	1·500
					22·220	10·239
(b) *Private.*						
Development	..	..	2·740	1·700	2·740	1·700

TABLE X-5 (*Contd*)

(*Taka in crore*)

Sub-sector.	Plan Allocation.					
	On-going.		New.		Total of on-going and new.	
	Total.	F.E.	Total.	F.E.	Total.	F.E.
1	2	3	4	5	6	7
6. Ports						
(a) *Chittagong*						
Development	24·903	12·271	12·700	7·100	37·603	19·371
Reconstruction and Rehabilitation	..	..	..	..	1·000	..
					38·603	19·371
(b) *Chalna*						
Development	32·021	15·000	9·665	7·415	41·686	22·415
7. Shipping						
(a) *Bangladesh Shipping Corporation.*						
Development	..	..	31·310	31·085	31·310	31·085
(b) *Marine Academy*						
Development	..	..	0·860	0·430	0·860	0·430
Reconstruction and Rehabilitation	..	..	..	..	0·002	..
					0·862	0·430
(c) *Mercantile Marine Department*						
Development	..	..	0·200	0·180	0·200	0·180
8. Civil Aviation						
Development	21·526	11·093	9·710	3·841	31·236	14·934
Reconstruction and Rehabilitation	..	..	..	..	2·000	1·056
					33·236	15·990
9. Bangladesh Biman						
Development	1·579	0·967	30·633	22·680	32·212	23·647
10. Transport Survey	..	..	0·200	..	0·200	..
Total { Development	218·386	91·884	351·864	145·147	570·250	237·031
Total { Reconstruction and Rehabilitation.	..	..	..	..	23·550	12·620
Grand Total—Development and Reconstruction and Rehabilitation.	218·386	91·884	351·864	145·147	593·800	249·651

Analysis of total Allocation

(*Taka in crore*).

1	Development Programme.		Reconstruction and Rehabilitation Programme.		Total of Development and Reconstruction and Rehabilitation.	
	Total.	F.E.	Total.	F.E.	Total.	F.E.
	2	3	4	5	6	7
Public Sector	503·848	235·331	23·550	12·620	527·398	247·951
Private Sector	66·402	1·700	..	..	66·402	1·700
Grand total: ..	570·250	237·031	23·550	12·620	593·800	249·651

10.1.8 Policies

To ensure effective Plan implementation, policy proposals in regard to each sub-sector have been indicated in the papers dealing with each sub-sector. Some important policy guidelines have, however, been given below:

(a) There will be common criteria for investment in all sub-sectors of transport and cost-benefit analysis will be the main guideline in this respect.

(b) Assembly capacity in the railway and road transport sectors and yard facilities for IWT sector should be fully utilized. Manufacturing capacity should also be set up gradually. In addition, ancilliary industries for spare parts should be set up.

(c) Distribution of traffic to various modes of transport should be done rationally based on costs of transportation. Rates and fares should be on this criterion only. Taxes and tolls levied on various transport sub-sectors should also be rationalised and there should be no discrimination in this respect.

(d) Private operators in road transport and IWT sub-sectors should be organised on a co-operative basis. Eventually, no individual should be allowed to own a vehicle or a vessel which he does not operate himself or through a co-operative. To start with, co-operatives may be formed with the existing operators for operation and management and these will gradually take over ownership within a stipulated period. Import of spares and accessories should be allowed through the co-operatives alone. Till such time the co-operatives are not formed the existing associations such as the motor vehicle and launch owners' associations should be organised on a more broad based and effective manner so that it becomes possible on the part of the Government and concerned agencies to deal with them more effectively in matters of general policy issues rather than with the individual operators.

(e) Necessary facilities for training of new recruits and for those who are in service should be provided by all agencies responsible for providing services.

(f) All the corporations and agencies in the public sector for operation should be run on established commercial principles keeping the national interest in view. Free carriage of goods or passengers must not be allowed. If necessary, subsidy should be provided to the user agencies. All the organisations and agencies should be reorganised, if need be, to ensure maximum autonomy in their management and operations. Adequate authority should be delegated to them for discharge of their functions.

(g) A system should be evolved to ensure regular availability of statistics which are vital for operational as well as planning purpose. This should emanate from the Transport Co-ordination Division for operational purposes and from the Transport Survey for planning purposes.

(h) Existing regulatory acts in respect of road transport and IWT should be amended to bring these in line with the present day requirements.

(i) Action should be taken to eliminate slow moving vehicles from the urban areas, particularly from the metropolitan city in a phased manner within a stipulated period.

(j) Under the present system, the R & H Directorate is also involved in building roads which essentially serve the social needs of small localities. To enable the R & H Directorate to concentrate on their functions in the arterial field, and to give the local authorities greater freedom of choice of investent in their areas, an attempt will be made to involve the local authorities in decision-making process. Involvement of the R & H Directorate will be limited to the provision of services such as consultancy, supervision, etc., to the local authorities.

10.2 BANGLADESH RAILWAY

10.2.1 Introduction

Numerous rivers, canals and water courses flowing through Bangladesh have profoundly influenced the growth and operation of the railway system. The railway system is divided into two distinct parts by the river Brahmaputra/Jamuna. East-West connections are made by ferries at Bahadurabad and Serajganj which are naturally slow and highly expensive. The large number of rivers which overflood their banks necessitate construction of high embankments and a large number of bridges. Consequently construction of new lines and maintenance of the existing ones involve a lot of technical difficulties and high costs.

Bangladesh Railway inherited a total mileage of 1,776 of which 574 miles are broad gauge and 1,202 miles are metre gauge. There are about 470 stations and nearly 4,000 bridges including the minor ones. Prior to liberation there was a stock of 492 locomotives,

1,192 passenger carriages, 479 other coaching and departmental vehicles and 19,628 freight wagons. The system had changed little in size during the 10 years from 1959-60 to 1969-70, as the following table shows:

TABLE X-6

Physical Assets of Railway System in 1969-70 and 1959-60.

Items	1959-60.	1969-70.	(+) or (—)	Remarks.
Route mileage	1,714·47	1,775·61	(+) 61·14	Average addition 6 miles a year.
Locomotives owned	472	492	(+) 20	Addition only 2 per year.
Passenger carriages owned ..	1,125	1,192	(+) 67	6/7 vehicles per year addition.
Other coaching vehicles ..	496	479	(—) 17	Reduction.
Freight wagons owned (4-wheel units)	19,640	19,628	(—) 12	Do.

Although the size of the rail system has changed very little during the 10 years from 1959-60, it has played a very important role and will continue to play a very important role because of its fairly large coverage of the country and its suitablility for transportation of bulk and long distance traffic.

The traffic carried by the Railway in the ten years 1960-61 to 1969-70 is indicated in table X-7 below:

TABLE X-7

Year-Wise Statistics of Railway Passenger and Freight Traffic from 1960 to 1970.

Year.	Number of passenger carried (thousand).	Passenger mile (thousand)	Freight tons carried (thousand)	Net ton miles (thousand)
1960-61	71,175	1,881,881	5,885	945,112
1961-62	72,799	1,916,266	6,266	973,121
1962-63	72,002	1,935,535	6,815	1,062,460
1963-64	73,145	2,003,397	6,784	1,052,686
1964-65	71,326	1,921,791	6,074	892,965
1965-66	67,191	1,787,490	5,437	854,040
1966-67	73,017	2,004,532	5,515	867,002
1967-68	70,806	2,078,707	4,953	806,142
1968-69	72,836	2,205,212	4,737	724,968
1969-70	72,885*	2,061 084*	4,802*	959,495*

* Provisional.

The two Tables above indicate that there was little growth in the total railway activity in the period of ten years, passenger traffic showing a peak in 1968-69 and freight in 1962-64. There was a recession in both passenger and freight traffic after the Indo-Pakistan war of 1965, with loss of international traffic which has not yet been recovered. In respect of passenger traffic, decline has been mainly due to diversion to other modes as the railway was unable to meet all demands wtih reasonable standards of comfort.

10.2.2 Consequence of War

The events of the last war caused serious damages to the rail system, not only in the loss of significant number of its staff but in large scale physical destruction of the property including the following :

(a) 299 bridges including several major bridges were damaged,

(b) about 71 miles of track were up-rooted and removed,

(c) five diesel locomotives were damaged beyond repair,

(d) Signalling and communication facilities were damaged and disrupted,

(e) ferries, both wagon and passenger, were sunk and damaged.

A large portion of the reconstruction programme of the railway has been completed with the result that all the bridges excepting the Bhairab bridge have been made passable. More than 100 bridges have been permanently repaired and others on temporary basis. Temporary arrangement where permanent restoration could not be made, has been made in regard to signalling, communication and other facilities.

10.2.3 Objective and Strategy

Due to Government's decision to attain self-sufficiency in food production and to bring about rapid industrialisation during the First Five-Year Plan period there would be greater demand on the rail transport for movement of both domestic and international traffic. Besides, as a result of the restoration of Indo-Bangladesh trade and commitment of the Government to allow transit facilities to Indian Traffic, Bangladesh Railway would be called upon to move a larger volume of traffic than that in the recent past. On the basis of a preliminary study undertaken by the Bangladesh Transport Survey, it transpired that railway's share of additional traffic, mainly long distance traffic, would represent an increase of about 25 per cent as compared to that handled by the railway during 1969-70. The following Table indicates the projected ton and passenger miles during the terminal year of the Plan period as compared to those for 1969-70.

TABLE X-8

Projection of Passenges and Ton Miles.

(In lakh miles)

	1969-70	1977-78
Passenger miles	20610·00	25762·00
Ton miles	9595·00	11994·00