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GOVERNMENT OF BANGLADESH
MINISTRY OF ENVIRONMENT AND FORESTS

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

FORESTRY MASTER PLAN

ASIAN DEVELOPMENT BANK (TA NO. 1355-BAN)

UNDP/FAO BGD/88/025

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INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

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INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

SUMMARY

Institution Structures

Major institutions identified in the forestry sector and under the overall control of the Ministry of Environment and Forest are:

- Forest Department;
- Bangladesh Forest Industries Development Corporation; and
- Bangladesh Forest Research Institute.

The Forest Department became functional during British rule of India from 1864. To start with, the Department consolidated the reserved and protected forests and took custody of the land for civil authorities. With the partition of India in 1947, the Forest Department became a part of the then East Pakistan. Following independence, it became a part of the sovereign state of Bangladesh from 25th March 1971. Its present responsibilities are:

- As the custodian of national forest land, it enforces Governments authority and protects the forest from illicit felling, unauthorised shifting cultivation and encroachments.
- Preservation of game sanctuaries, national parks and protection of wildlife.
- Disposal of forest produce, collection of revenue and accounting for the same.
- Scientific management and development of forest resources.
- Development of participatory plantations on marginal, degraded and encroached land.
- Extension services for homestead woodlots, urban centres and privately owned forest land.
- Introducing proper watershed management on steep slopes and stream catchment areas.
- Manpower development and operating the training institutions.

The work is of gigantic nature and is increasing disproportionately with the rapid growth of population. Departmental organization structure is still continuing in the same traditional pattern with a high degree of centralised bureaucratic control, similar to its colonial pattern. Institutional arrangements are highly bureaucratic, authoritarian and centralised. Moreover, delegation of power is weak, and active participation of people not encouraged. Although with the passage of time and increase of activities, more forest circles, divisions, ranges and beats were established and more people engaged, the loss of tree cover increased from a few thousand hectares in 1950's to 24,000 hectares per year by 1980's.

The chief sources of deforestation occurring were illicit: jhuming, felling by purchasers and traders, neighbouring populations, and encroachment by forest villagers and landless people. This is evident in the very in poor quality quantity stocking in plantations and the heavy removals in valuable plantations. Deforestation continues to acclarate and if allowed to continue, the entire legal total area will become degraded with serious enviromental consequences.

Forestry Master Plan analysis of past performance indicator three scenarios of Institution Development - Status Quo, Scenario 1 and Scenario 2 (marginal and high investment alternatives), respectively.

In the Status Quo Scenario the organization and structure remains static with a normal growth of nine percent of staff in 10 years. The loss of tree cover continues, exceeding an annual rate of

24,000 ha. Government cannot allow this state of affair to continue, hence the Status Quo scenario is totally unacceptable.

Scenario 1, envisages no fundamental structural change but visualizes functional reorganization and expansion of the structure. Reorganization allows for delegation of higher responsibility, administrative and financial power. This scenario envisages some decentralisation, low level people's participation. Enhancement of delegation of administrative and financial power is curbed by rigid budgetary positions. Direct employment grows by 3.5 percent annually. National Forest resource management standards apply and development is dependent on the degree of decentralisation and delegation of power. The decrease in area under forest cover decreases to an annual rate of 1.9 percent. The scenario depicts limited and erratic growth of forest resources. Success depends on bureaucratic decentralisation of power. The Master Plan does not recommend this Scenario, because of the reasons given above.

The Master Plan recommends Scenario 2. This scenario envisages a complete restructuring of forestry sector organization by separating the authority function from enterprise function and providing full fledged (functional and financial) autonomy to a wide range of enterprises. The enterprises are the basis for promoting productive and effective private and cooperative sector and organized people's participation. All enterprises fall under the jurisdiction of a central National Forestry Board. A Forest Authority assumes the government role and responsibilities for resource standship. Scenario 2 requires intensive high resource management which results in:

- o Increased growing stock/high quality and yield.
- o High input/high output, detailed plantation plans and integrated land use.
- o Appropriate infrastructure.
- o Multiple product and land use.
- o More non-destructive resource use (eco-tourism, non wood forest products).
- o Better management of protected, preserved and watershed areas.
- o Increased areas under tree cover; a negligible will forest cover loss (0.4%).
- o Improved logging, minimised pilferage, improved conversion and better residue utilisation.
- o Use of improved tools and techniques
- o Direct employment of manpower increase of 11 percent annually.
- o Planned human resource development; and,
- o Better economic and social returns on investment.

The Authority assumes essential role of the Forest Department under the Ministry with vested powers for enforcement of government forest policies, legal enactments and regulations. The Authority also retains the power to collect levies and other charges on behalf of the government. The function of forestry Authority will be well defined.

The development and management of forestry in government lands get organized under a system of autonomous enterprises/entities, consisting of a fully autonomous National Board of Forestry (Enterprise) with a number of functionally autonomous enterprises/entities under it. These entities in turn will have more than one component units with specified limited operational autonomy. The autonomous enterprise system gets initial funding through grants, loans and generated incomes. It will achieve full self-financing in due course and will be free to negotiate loans and reinvest profits. It will compensate the government for the use and management of government forest resources by transferring 25 percent of net profit to government revenue.

Converting the present traditional system into a highly developed authority/enterprise system not only necessitates changing of present staffing pattern but also means great structural changes in the present day circle/division/range/beat concept. Constituting an enterprise may comprise the total area of a circle, a division or might only include part of a division. Naturally, this conversion and integration cannot occur overnight and regular sincere and serious effort. The

introduction of the system needs a legal framework covering the structure, functions, financial arrangements and autonomy. The rules and procedures will require drafting and approval so that new system of high development can become functional and effective. The establishment and success of Scenario 2 as recommended will greatly depend on the political will of the government and its support for the implementing the changes needed for a higher growth and for protecting the environment.

One project profile covers the institution restructuring of the forestry sector with constitutional and legal frameworks, including expert services for a period of four years in order to:

- Finalise and complete restructuring the forestry sector.
- Draft legal documents reflecting the conversion.
- Constitute the National Board of Forestry and related operational units and bylaws, rules and regulations.
- Cost and analyse of the benefit each enterprise or operational unit.
- Determine and organize the manpower needs of the Forest Authority, National Board and the operational units.

There is also a block provision of fund for pilot study of one enterprise within the 48 months of the project profile period.

Education and Training

The critical importance of human capital in Bangladesh is recognised due to high population resources. Sustained development was to mobilize the abundant manpower for productive activities through education, training and skill development. The manpower in forestry sector divides into the Public sector organisations, Private sector forest industries, and the unorganized sector. This sector is scattered throughout the country and employs parttime casual workers.

In the public sector the Forest Department is the biggest employer of trained man power. The categories of personnel are:

- **Professionals:** They are recruited through Public Service Commission under rules approved by the government for Bangladesh Civil Service (Agri-Forestry) cadre. Rules are being modified (with the induction of a two-tiered system of recruitment) to recruit professionals (Assistant Conservator of Forest) from BSc (Hons) Graduates in Forestry from the Institute of Forestry, Chittagong University.
- **Technical:** Technical education in forestry is a diploma course operated by the Forest Department affiliated to the Technical Education Board. It also includes a two-year course for Foresters recruited with a minimum qualification HSC (Science). Recently, a proposal under government consideration would convert the diploma to a 3-year course and the Foresters recruited will have a minimum qualification as SSC (Science).
- **Vocational:** This constitutes Forest Guards with a minimum qualification of SSC they are given a 3-month training at the Forest School, Sylhet.

In the public sector, both the Bangladesh Forest Industries Development Corporation and Bangladesh Forest Research Institute recruit suitable professional personnel from the graduates, Masters and PhD degree holders of various universities to the job. The qualifications are prescribed in the approved Recruitment Rules.

Institute of Forestry, Chittagong University - The only institute in the country offering university level education in Forestry. The newly established Khulna University intends to start a Forestry course. In the Institute annually 40 national student are enrolled and there is provision for five seats for student from abroad with special preference for the SAARC countries. The course is completed in eight semesters, covering a period of four years leading to a BSc (Hons) degree in Forestry. The Forest Institute is contemplating starting a Masters degree course in Forestry, as well.

Bangladesh Forest Academy - Reconstituted as the Forest College at Chittagong, the Academy is geared up for inservice training institute for the Forest Department. After strengthening, this will provide facilities for three types of inservice training/refresher's courses.

- a. Orientation course for newly recruited professionals for a period of six months. Annual input is 25 in Scenario 1 and 40 in Scenario 2.
- b. Conversion course for three months to selected senior Forest Rangers before promoting them to the professional level, ACFs. Annual input is 10 in Scenario 1 and 15 in Scenario 2.
- c. Refreshers course covering a period up to three months for senior forestry personnel. Annual input is 10 in Scenario 1 and 25 in Scenario 2.

Forest Development and Training Centre - FDTC was established in 1976 to provide vocation level training to workers with a yearly output of 300 trainees. The following fields covered are to yield are annual input of 300 in Scenario 1 and 600 in Scenario 2:

- a. Basic logging techniques, timber harvesting and road construction.
- b. Operation and maintenance of logging, timber extraction and transport equipments and road building equipment.
- c. Saw doctoring and sawmill maintenance.
- d. Extension forestry for local rural and community development.

Sylhet Forest School - Originally trained Foresters, initially for a one year course from 1948, and later for a two-year diploma courses from 1985. Presently, it is undergoing conversion into a Forest Guard Training Centre. Annual input is 150 in Scenario 1 and 300 in Scenario 2.

Rajshahi Forest School - Established by the Department with ADB financing in 1985, it accommodates 50 students with an output of 25 per year following a two-year diploma course in Forestry. Now, with the induction of three years diploma course, the annual input will drop down to 15 to 16 students.

Chittagong Forest School - Proposed for construction with World Bank financial support at Chittagong with annual input of 50 Forestry students.

Forest Extension Nurseries - Developing training facilities on these sites throughout the country will give a big push to train village Forest Extension leaders and workman for various forest based-cottage industries. The annual training capacity will be 25,000 in Scenario 1 and 50,000 in Scenario 2.

The teaching personnel in different department training institute are inadequate, and furthermore, most sanctioned posts are vacant. Due to delay in a decision favouring the two-tier

system of recruitment, professional recruitment is in limbo. A similar hiatus exists over the recruitment of Forest Rangers. This is creating an alarming situation. It is recommended that the two-tier system is effected immediate and professional recruitment and training starts without any further loss of time.

The summary below presents facilities available and planned future development and sets out the training programme envisaged Scenario 1 train 500,000 people and Scenario 2 affect 1.0 million.

20-year Manpower Training Programme

Institutions	Categories of Trainee	Input per year	Input upto 2013	
			Scenario 1	Scenario 2
IFCU	Professional Forestry	45	900	900
Forest School, Chittagong	Technical (Foresters)	50	750	750
Forest School, Rajshahi	Technical (Foresters)	15	300	300
Forest School, Sylhet	Sub technical (FGs) (3 months)	150/ 300	3,000	6,000
FDTC Kaptai	Workers Training	300/ 600	6,000	12,000
BFA Chittagong	Orientation Course (6 months)	25/ 40	500	800
	Conversion Course (3 months)	10/ 15	200	300
	Refresher's Course (3 months)	10/ 25	200	500
Forest Extension Nurseries Training Centres	Skill Development (10 days)	25,000/ 50,000	500,000	1,000,000

The text describes the curriculum of the various institutions. In most of the institutions, it is suitable for the present, but improvement needed, in certain areas, has been pointed out.

An action plan and a related investment proposal included summarize major programme aspects and costs, while an appendix furnishes more details. This proposals includes the foreign training needs of the Forest Department, Forest Research Institute and Institute of Forestry, Chittagong University.

Proper development of the full potential of Bangladesh's forest resources will require significant institution changes. These will involve organizational, administrative matters in addition to positive development and planning in the human resource development field.

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

INTRODUCTION

Asian Development Bank (ADB*), UNDP (United Nation Development Programme) and the Government of Bangladesh (GOB) are supporting the preparation of a 20-year Forestry Master Plan. The plan aims to assist GOB decide investment priorities and provide a framework guiding the expansion, conservation, protection and development of the nation's forest resources. This report presents the results of the Institutional Specialist assignment. It is part of the background documentation of the master planning process. Appendix 2 has the Specialist's terms of reference.

INSTITUTION STRUCTURES

FORESTRY SECTOR INSTITUTIONS

The following public sector institutions, under the overall control of MOEF, are identified for the purpose of the study:

- Forest Department.
- Bangladesh Forest Industries Development Corporation.
- Forest Research Institute.

Forest Department

Forest Department is the custodian of National Forest and is responsible for execution of Forest Policy, Forest Act, Wild life preservation Act and other allied Acts and rules associated with Forestry. The Department is also responsible for conservation, protection and development of the resource. In recent decades, the Forest extension activities, outside the National forest areas, are also entrusted with the Department. Besides, Bangladesh Forest Academy, FDTC, Forest School, Sylhet and Rajshahi are also operated by the Department. In recent years, the training of village leaders and NGOs in forest extension activities has been entrusted with FD.

Forest Department is headed by a Chief Conservator of Forests under the overall control of the Ministry of Environment and Forest with the Minister/State Minister incharge of the Ministry. The country is divided into 6 Forest circles, each in charge of one conservator of Forests. The circles are divided into Forest Divisions, each incharge of a Divisional Forest Officer. Some Forest Divisions are divided into sub-divisions, each in charge of a SDFO. The divisions are divided into Ranges, incharge of a Range Forest Officer. The Ranges are divided into Beats/coups, incharge of Deputy Ranger/Forester. For Extension works, 97 permanent nurseries have been established in different Forest Divisions, each incharge of a Range Forest Officer. The existing administrative structure of Forest Department is given in Appendix 3. There are 33 Forest Divisions, 6 Subdivisions, 186 Ranges, 515 Beats, 97 Forest extension nursery centres, 85 Revenue check stations, 170 petrol posts and 4 Parks.

* For this abbreviations or other terms or conversion factor, see Appendix 1.

The Forest Department became functional in the portion of the forest now falling in Bangladesh, during British time from 1864. To start with Forest administration was consolidating the reserve and protected forests and under the Forest Act took custody of the areas from the civil administration. With the partition of India in 1947, Forest Department became a part of the then East Pakistan. With the achievement of independence, it became a part of the Sovereign State of Bangladesh from 26th March, 1971.

During early Pakistan time, full attention was given for revenue earning and little steps were taken for overall development of the forest resource. The in-experienced private sector established, in an un-planned manner, small forest based industries like match factories, plywood factories etc. to meet country's demand without assessing the regular and cheap supply of forest raw material for efficiently operating the industrial units. Big forest based industries were established by public sector corporations. Their raw material supply, at a low price, was an important function of the forest. These industries were primarily meant for meeting the demand of entire Pakistan. The private sector remains small and limited to saw milling, match factories, plywood factories, hard board factories etc.

During the war of liberation, Forest Department lost considerable tree cover and rehabilitation of the displaced people due to war, took a severe toll on the forest resources. The industries suffered badly due to excess labour employment, loss of market and competitive product cost. The already hostile people around the forest due to deprivation in earlier period became more aggressive and it became extremely difficult for the Forestry protection personnel to prevent illicit fellings. The total moratorium on tree felling in the sal forest area without thinking about the domestic supply and labour employment need, made people more hostile to forest. In the name of 'Jote permit' and otherwise, heavy illicit removal of sal trees continued. The establishment of check stations in important routes could not control the large scale theft of trees. The heavy population pressure and unusual delay in Forest Settlement operation, illegal settlement by the civil authority over such land, grow more food campaign, all contributed towards large scale encroachment over the forest areas through out the inland sal forest and Hill forests. Due to loss of fertility of USF, there is large scale Jhumming by the tribal people every year in Kassalong, Rankheong, Sangoo and Matamuhuri RFs. Heavy illicit feelings continued in Sundarban forests and in and around the lot areas and scarcity areas near heavy population. The situation is alarming and forest cover is being lost at the rate of about 37,600 ha every year in 1980s and the annual loss likely to increase in 1990s.

Table 1 - Achievements of Development Plans in Forestry (Percentage)

Particular	1973-78	1978-80	1980-85	1985-90
o Utilisation of ADP	73	100	89	88
o Physical achievement of plantation (Public sector)	124	157	75	46
o Physical achievement of Rubber Plantation (Public sector)	100	50	63	63

(Source: Development Plans)

In addition to the protection function of the Department, the heavy responsibility of disposal of forest produce, their checking in and outside the forest area and development of resources both inside and outside the forest areas coupled with extension activities for the development of village wood lots have assumed a gigantic shape and successful implementation of programmes has

become impossible. The performance of different development plan periods bears some testimony.

Table 2 - Current Position of Staff Strength in the Forest Department

Category	Total sanctioned Strengthened	Actual in Position	Vacant Positions
Class - I	214	150	64
Class - II	8	6	2
Class - III	5,893	4,982	911
Class - IV	3,499	3,359	140
Total	9,614	8,497	1,117

(Source: Forest Department)

The existing sanctioned strength of FD and the Actual number in position speak of a high proportion of posts are currently vacant. The position is not satisfactory (Appendix 3). The post of one DCCF, three CFs, 22 DCFs, 30 ACFs, two Senior Research Officer, two Accounts Officer and two Research Officer are vacant in Class-I positions.

Bangladesh Forest Industries Development Corporation

The BFIDC was established through an Ordinance "EP Ordinance LXVII of 1959" to cater for the development of mechanised timber extraction, saw milling, seasoning, wood preservation, mechanised furniture factory and host of other allied forest based industrial units including standard doors and windows manufacturing plants using seasoned timbers. The pilot rubber plantation project of the Forest Department was also transferred to the said corporation in the year 1960 for commercial plantation and processing of rubber.

BFIDC, a semi-autonomous corporation, is under the overall control of the Ministry of Environment and Forest. It has a Board headed by a Chairman. The Board members including the Chairman are appointed by the Ministry and they are drawn from different disciplines/departments. The secretary of the Board is also appointed by the Ministry. The Board members are:

- Chairman
- Director, Planning and Development
- Director, Production and Commercial
- Director, Finance

The Chairman is the Chief Executive of the corporation and has specified role to play. As a Chairman of the Board of Director, he is to approve agenda of the meeting, to call Board meetings, to preside over the meetings and to guide and control deliberations of the meetings with a view to reach decisions in conformity with the policy directives of the Government

The Director Planning and Development, in addition to participation in the Board meeting, carry out specified role as functional Director and as Director in charge for a group of industrial units. Similarly the Director Production and commercial and Director Finance have three-fold roles such as, participation in the Board meeting, carry out the functional role of the Director and act as Director incharge for a group of Industrial units. The details are specified in Appendix 3.

The Corporation has 24 operational units including 11 Rubber plantation units. The total manpower as on January, 1992 is given below:

Table 3 - Current Position of Manpower in BFIDC

Officer/ Units	Officers	Staff	Regular Worker	Casual Worker	Total
Head Office	74	234	11	8	327
Rubber Pln units	59	301	1355	71	1,786
Operational units	77	448	1418	17	1,960
Total	210	983	2,784	96	4,073

(Source: BFIDC)

The industrial units were set up between 1960 to 1970. Except for some timber extraction equipments, rubber plantation and one veneered particle Board factory no substantial investments were made during the last three decades. The production level is low due to the following reasons:

- Shortage of forest raw materials
- Old and worn out equipments
- Lack of investment for modernisation and balancing
- Labour force is disproportionate to present low production level
- Lack of standardization and efficient marketing skill
- Heavy loss of mature rubber trees due to cyclone of 1991 in Chittagong region

Bangladesh Forest Research Institute

A Forest product laboratory was initiated in the mid 1950s in Chittagong at the present site with the object of utilising the local forest produce. The Forest Management Branch was not given the due importance. In 1965, the Forest Product laboratory was transferred to the Provincial Government under the control of Forest Department. The Provincial Government initiated the Forest Management Research Branch and upgraded the Laboratory to a full fledged Research Institute headed by a conservator of forest under the overall control of the Chief Conservator of Forests. The war of liberation had a set back on the progress of activities. In the post liberation period, steps were taken, initially to rehabilitate the war damages. The research in the product branch and to a limited extent, in the Management Branch continued upto 1976. The Management Branch was activated with the arrival of UNDP experts from 1977. The Forest Product branch, however, continued their research activity. The FRI was subsequently taken out of the administrative control of FD in the year 1985. It is now operating as an attached institution under overall control of MOEF.

BFRI is headed by a Director and two CROS, one incharge of Forest Product Branch and the other in charge of Forest Management Branch. The general services are under the direct control of the Director. The product Branch and Management branch have several Divisions, each under a Divisional Officer. The DOS are supported by SROS and JROS and other supporting staff. The total sanctioned strength is 823 and divided into following classes:

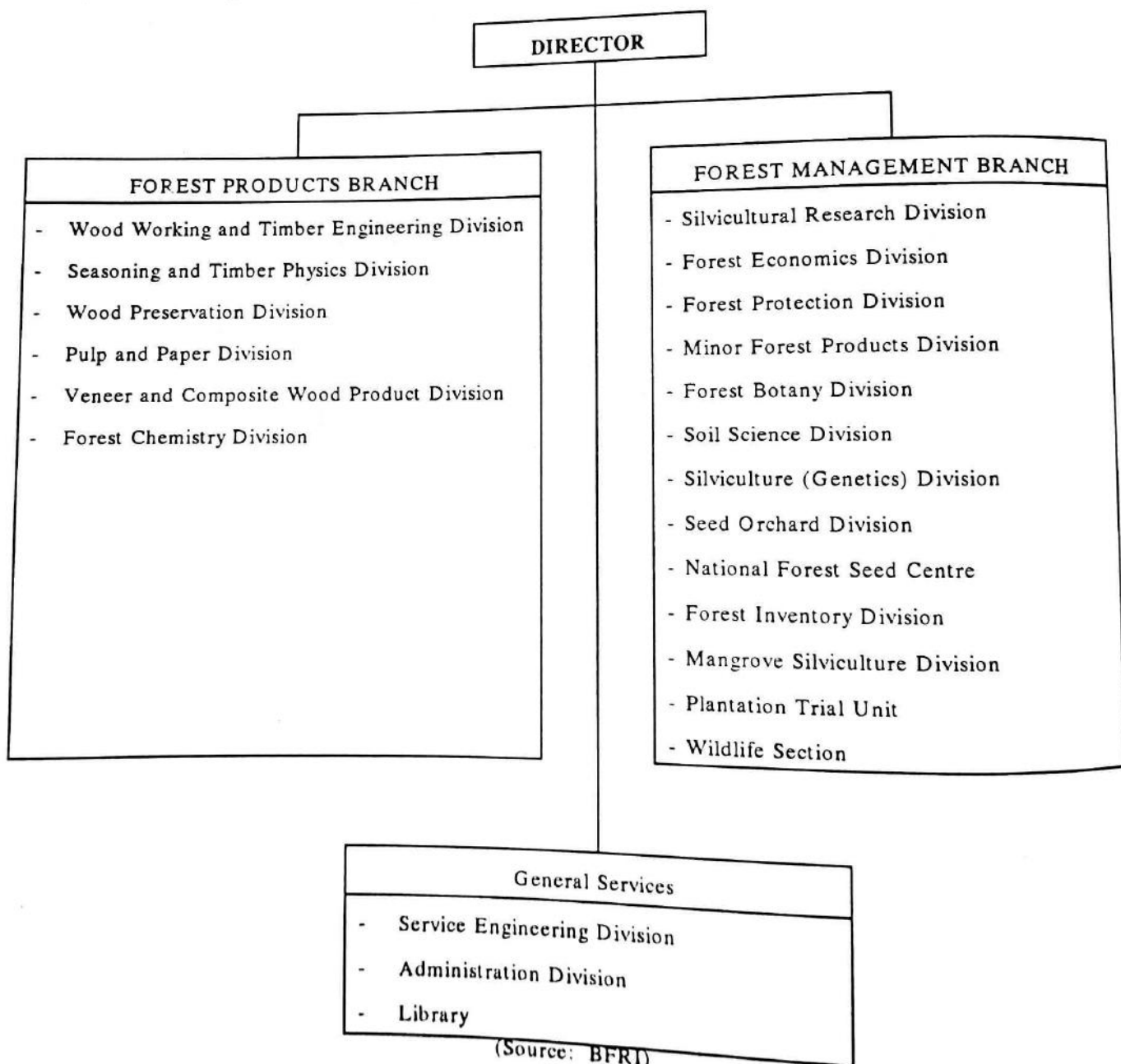
Table 4 - Current Position of Staff Strength in BFRI

Class	Normal	Development	Total	Vacant Position
I	72	37	109	34
II	29	15	44	17
III	408	27	435	63
IV	188	47	235	13
Total	697	126	823	127

(Source: BFRI)

Out of the senior positions, two CROs, 11 DOS, one DFO, four SROs, 10 JROs positions are vacant. This gives a gloomy picture of senior Research personnel of BFRI.

The present set up is shown in Figure 1.



(Source: BFRI)

Figure 1 - BFRI Present Organization

Forestry Sector Institutions/ Bureaucracy

Under Article 56 (5) of the Constitution of Bangladesh, it is the prerogative of the President to frame rules for allocation and transaction of the business of the Government. According to the latest decision, the Ministry of Environment and Forest, controls the following institutions of Forestry sector:

- Department of Forest.
- Bangladesh Forest Industries Development Corporation.
- Bangladesh Forest Research Institute.

The following component of the Forestry Sector is under the control of the Ministry of Industries:

- Forest based Industries with BCIC.

The following components of Forestry Sector is looked after by the Ministry of Education:

- Institute of Forestry under the control of Chittagong university.
- Polytechnic and vocational training centres remotely linked with Forestry activities.

The Forest Institution became functional in the portion of forest now falling in Bangladesh from 1864 with the appointment of Mr. Anderson, Superintendent, Calcutta Botanical garden as the first conservator of Forests of the lower provinces of Bengal and Assam (Now a part of it is Bangladesh). During early British rule, it was a part of Central Government of India which was later transferred to the provincial government in 1935. With the partition of India in 1947, Forest Department became a part of the then East Pakistan and with the achievement of independence, it became a part of the sovereign state of Bangladesh from 26th March 1971.

During early Pakistan period, the full concentration was for revenue earning and little step was taken for an all round development of the forest resource. In the absence of Forest based industries, at the time of the partition of the sub-continent, the inexperienced private sector whose capital was very shy, came forward to set up small industrial units like saw mills match factories, plywood factories, pencil factories and shuttle factories etc. The Central Govt of Pakistan had to take initiative to set up pulp, paper, newsprint and hardboard factories by Pakistan Industries Development Corporation. The Provincial Government of the then East Pakistan established FIDC in 1960 through an ordinance, to take care of mechanical timber extraction, setting up of wood based industries and rubber plantation and processing of latex.

Forest Product Research Institute was first started as a Central Government Organization by mid fifties. Later, in 1961 Forest Management Branch was added and the institution was transferred in 1965 to the Province.

The Institute of Forestry started functioning under the Chittagong University for professional Forestry Education from the year 1976.

The forest sector institutions of private sector remains insignificant and limited to small sawmilling units, match factories, plywood factories, hard board factory, pencil factories and bobbin and shuttle manufacturing units. The organizations are either private limited companies or partnership or proprietary farms. These industries were set up in an unplanned manner and ill equipped with machineries. Through Government Timber Control Board, available forest raw materials were allotted to the factories but this could not fulfil their total raw material requirements. The loss of Pakistan market adversely affected these industrial units both of public sector and private sector. The forest based industrial units could not flourish well in the independent Bangladesh and private sector could not develop further.

Besides, there were small and cottage industries based on forest produce scattered through out rural Bangladesh and urban areas. These are in the unorganised sector and did not receive much attention for development.

The major Forestry Sector Institutions namely Forest Department, BFIDC and BFRI are under the control of Ministry of Environment and Forest. The Ministry, in the Secretariat, is composed of secretary/ Additional Secretary, Joint-Secretaries, Deputy Secretaries, Senior Asst. Secretaries and Asst. Secretaries with the Minister in the top. The Secretary by means of standing orders, distribute the work of the Ministry among the various sections or other units of the Ministry/Division under his charge. The Secretary is also the principal accounting officer of his ministry, its attached Departments and subordinate offices and ensures that funds controlled by him are spent in accordance with the rules laid down by the Finance Division or any other law for the time being in force. The Secretary shall keep the Minister in charge informed of the working of the Ministry/Division and shall work under his supervision. The role of the Secretariat shall be limited to:

- Policy formulation
- Planning
- Evaluation and execution of plans
- Legislative matters
- Assisting the Minister in the discharge of the responsibilities to the parliament
- Personnel management at the top level viz. officers not below the rank of Member/Director in the cases of public statutory corporations and officers not below the level of National grade V in the case of attached Department and subordinate offices
- Personnel management of the officers of concerned cadre services

The study conducted by US AID in 1989 under the auspices of Ministry of Establishment on the Public Administration efficiency, uncovered fundamental weaknesses that still exist in case of bureaucratic control of administration, centralised authority in decision making, lack of confidence in delegation of such authority, lack of professional knowledge in Ministries, anomalous positions in the service of different cadres. These are some of the malaise in public administration affecting the efficient performance by the executive Directorates. This need to be corrected.

PUBLIC FOREST ADMINISTRATION IN BANGLADESH

Roles, Functions and Linkages

The major public forest organizations in Bangladesh are Department of Forest, BFIDC and BFRI. All are under the overall control of the MOEF. Forest Department is responsible for the following:

- Execution of the related functions laid down in the approved Forest Policy of the Government
- Protection and management of forest resources of the country and enforcement of Forest Acts.
- Harvesting of forest produces on sustained yield basis as per approved working plans and to meet the requirements of consumers and wood based industries
- Horizontal expansion of tree cover within the country through forest extension services
- Realisation of revenue, preparation of budget, auditing, accounting etc.
- Education and training and recruitment of manpower
- Protection and propagation of wildlife coupled with enforcement of the Wildlife (Preservation) (Amendment) Act, 1973.

There was no consolidated charter of duties and responsibilities of the different level of officers. The latest approved charter of duties etc as specified by the Martial Law Committee on the organizational set up prepared by "Enam Committee" and approved by the CMLA vide notification no 7002/1/civ-1 dated Dhaka 15.03.83 and for BFIDC as approved by the Board of Directors of the Organization, are enclosed in Appendix 3.

These three Institutions have direct linkages with the MOEF and indirectly linked with Planning Commission, Ministry of Finance, Land Ministry and Audit and Accounting Organizations of Accountant General and Auditor General of Bangladesh.

Structure and Component

The organization chart of the various Institutions, as well as the sanctioned strength of personnel and the those in position, are given in Appendix 3.

Extent of Decentralization

Forest Department has unique power to draw fund by cheques from the Treasury within the limit of their approved budget. The Officer at different level so authorised to draw fund for expenditure are to submit the Accounts every month to the Accountant General. The range forest officers are authorised by the DFO to transfer fund from Revenue to cash for their sanctioned expenditure. DFO at the close of the month regularises this transfer from Revenue to cash. Thus DFOs have linkages with the Accountant General and the Treasury officers. The revenue is deposited in the Treasury and at the end of the month, DFO is supposed to get a statement of such deposits, who in turn is to check with his deposits and the discrepancies are reconciled. But this process takes a very long time due to mainly in the delay in receipt of the statement from Treasury.

The administrative, contractual and financial powers are delegated to CCF, CFs and DFOs but this is not adequate and frequent references are required to obtain sanction and hence the delay in execution. The normal budget is very inadequate and cannot cope up with the normal maintenance of the plantations, buildings and equipments/transport etc. In the development budget, the fund release is not regular and as per need of the time. Therefore, fund provided in the ADP seldom be fully and properly utilised.

It is strongly felt that subject to budget allotment and approved project list for development projects, the full financial power be given to the Chief Executive of the organization and accordingly the power at different level be adjusted. This will reduce unnecessary correspondence and increase efficiency.

Level of Flexibility

The main activity of disposal of timber lots and establishment of plantations are to be executed as per working plans approved by the Government and the plan provides fair degree of flexibility but due to financial and rigid budgetary control, these important works cannot be executed properly and timely. The development schemes are prepared from the top and as such the grass root level variation in cost and practices cannot be accommodated in the planning document. Once the schemes is passed for execution and fund is placed through ADP, such rigid provision of uniform unit rate etc stands on the way of successful implementation of the development programmes. Within the budget limit, reasonable reappropriation from one Head of Accounts to other should be more flexible. Senior officers like DFOs, SDFOs ACFs and Range Forest officer should prepare. Annual plantation programme, its technical soundness examined and put into practical execution. the technical and financial side of the plan and programme should be realistic and reasonably flexible to achieve the ultimate goal.

Balancing Line and Staff Functions

In Forest Department, the line and staff officers were introduced in great rigidity with the adoption of Enam Committee's report in 1983. Formerly the staff officers were also carrying out some line functions. This rigidity has created an unholy and water tight work environments. The staff offices are mostly without sufficient works, where as the line offices are over worked. the entire load of office file disposal falls in the hand of CCF where as considerable load sharing could be done with the Senior DCCFs. This policy should be recast and the Senior staff officer are entrusted with control of some line officer in the field. This will improve the work environment and happy sharing of load by senior officers with their prolonged experiences.

In BFRI, the line and staff functions are fairly decentralised and in BFIDC, the functional Directors are also looking after as Director in Charge of certain enterprises in addition to carry out the Board of Directors function.

Work Atmosphere and Facilities

The work environment in FD is not congenial due to the following reasons:

- Many senior positions are lying vacant for long years at the cost of efficiency
- It took long 5 years to appoint a regular CCF
- No recruitment of professionals for long years though vacancies exist.
- The two tier recruitment system, though adopted by MOEF and Planning Commission, the ACF recruitment rules could not yet be amended for over 6 years, thus the recruitment of ACF is stopped. In the process, the recruitment and training of Forest Rangers, in the Forest College, is also stopped for long years. These will create serious management problems in future years.
- By 2003, about 53 professional Foresters will be retiring out of the existing 139. This will further add to the problem
- The vacancy exists for 306 Deputy Rangers/ Foresters in the existing sanctioned cadre and Sylhet Forest School has closed down foresters training for want of Forester recruits. The Rajshahi Forest School will also close down functioning after completing the last batch presently under training.
- The non-filling of vacancies by promotion as per rules is a cause of further frustration among the officers and staff
- The decision of not to fill up vacancies under the development project by giving temporary promotions from normal staff, is creating serious bottlenecks in execution of development projects
- There is no norm or standard for placement of officers and staff in various positions. sometimes offices are transferred too soon and in some cases the officers are to wait for long years.
- The officers and staff are unhappy if posted to schools/working plans and other non lucrative positions and make all out efforts for a quick transfer.

- The Senior Officers cannot make time to carry out regularly the routine annual office inspection which was introduced during British and Pakistan Administration. Thus the inspection of CCF's, CF's, DFO's, SDFO's, Range and Beat offices are in huge arrear. This important inspection is not only required for stream-lining the activities but goes a long way to educate the junior officers and help efficient and regular book keeping.
- Many Divisions have no regular working plans and the standard prescribed forms like plantation journals, control forms, preparation and approval of Deviation Statement, Annual Plantation Programme at Range level, Divisional level, CFs level as required under the approved Nursery and Plantation Manual are not followed. Such grass root level programme development and compilation of the same for Division, CFs and CCF are valuable document for field inspection of the plantations by senior officers and timely readiness in seed collection, nursery stock raising, planting, weeding/cleaning, and vacancy filling etc.
- Regular monitoring and evaluation of plantations in area and quality is lacking
- The allocation of functions and charter of duties as laid down in Enam Committee Report and approved by the Chief Martial Law Administrator on 15.03.1983 are not rigidly followed by the concerned officers.
- Pride of performance and respect for profession-alism are seriously lacking and remain unrewarded. The earlier concept that all Foresters are members of one family has almost disappeared.
- Exchange of concept and ideas between senior and junior officers is sharply diminishing. Formerly, the overnight halts in Forest Rest Houses gave enough scope for such exchange of ideas. Now most of the earlier rest houses are in a dilapidated condition and due to improvement of communications, such night halt by touring officers is out of practice.
- The housing and transport problem, though have improved for development schemes, the normal activities such as protection, disposal of forest produce and associated works are suffering for want of fast moving transport when the protection staff are to deal with illegal movement of forest produce by trucks. For shortage of fund under normal budget, not only new construction of building has stopped, but due to lack of maintenance fund, the existing building under normal budget are neglected.

These are some of the conditions prevailing in the Forest Department coupled with inadequate salary and facilities which are responsible for the unfavourable working environment affecting the efficiency of administration. As an independent nation, the international exposure is more and the rising expectations cannot be satisfied in the normal way, due to resource limitations. In the process, the element of corruption comes in and in some cases takes gigantic shape, seriously damaging the forest resources for which the Forest Department is the custodian.

In an attempt to assess the Institutional Scoring by the personal serving in the Institutions, over 100 questionnaires were sent to forestry sector institutions. The questionnaire were based on:

- **Institutional Formation**
 - o Institutional stock
 - o Human resources
 - o Financial resources
- **Institutional Function**
 - o Management

- o Environmental mastery
- o Programme delivery
- Institutional Conditions
 - o Character
 - o Leadership

The following is the result institution wise:

Table 5 - Result of Evaluation of Forest Sector Institutions

Organization	Members Contacted	Members Responded	Average Mark (100)
F.D	78	28	42
B.F.I.D.C	15	6	55
B.F.R.I.	20	12	58
B.C.I.C	10	2	70
I.F.C.U	8	-	-

Strength and Deficiencies

The Forest Act and rules made thereunder, the Private Forest ordinance and rules, wildlife (Preservation) Act and rules are important tools in the hand of a Forest officer. These may be used for the benefit of the forest and people connected with forest activities. At the same time, there is great scope of harassment to people through lingering the process and unfriendly attitude to people for small gains. While the culprits should be punished, people wants more friendly and development oriented Forest Act.

For last two decades, with the sharp increase of population, the protection of the Forest has assumed a challenging responsibility for the inadequate and ill equipped forestry personnel. Protection duties become so emergent that most of the time, the entire Beat Staff (normal and development) are deputed for the protection work at the cost of smooth functioning of the development activities.

The unrestricted use of sale hammers and irregular issue of transit passes and connivance of the checking station staff are substantially responsible for large scale felling of trees from the natural forests and plantations.

The issue of free licence for removal of private forest timber and forest produce and the permit system for removal of forest produce from USF by tribal people which are sold of to non hill people/traders are responsible for large scale illicit fellings through misusing of hammers and transit passes by abusing the powers given by Acts/ Rules.

BUDGETING AND PROGRAMMING SYSTEM

The Budget is an annual affair, starting from 1st of July of a particular year upto end of June of the following year. The budget comes in two parts, Revenue (normal) Budget and Development Budget.

Revenue (Normal) Budget

In Forest Department, the normal budget has two parts - Revenue and Expenditure. The normal budget is first prepared by DFO, checked and consolidated by CFs and finally checked and consolidated by CCF. The consolidated proposal for Revenue and Expenditure is submitted in advance to the MOEF who send it to the Ministry of Finance. After the budget is approved by the parliament for the country, the CCF receives the normal approved budget from the MOEF. CCF distribute the budget to different circles and CFs in turn allocate the head wise budget to DFOs. Formerly, the budget allotment to FD used to be based on a three years average but now a days, the availability of fund determines the allotment. Normal budget is always inadequate though revenue is increasing every year (prior to moratorium on felling of trees from natural forests). Due to short allocation of expenditure budget, the normal works suffer and the Govt property deteriorates. The recurring expenditure of completed development project is transferred to normal budget. Though the impact of such transfer is high on Forest revenue, the normal budgetary provision does not get a proportionate increase. Thus the asset developed gradually deteriorates due to lack of proper up keep. The development expenditure and investment, therefore, cannot leave a permanent impact on the overall growth of Forestry sector. What is necessary, a rational normal budgetary expenditure proportionate to forest revenue increase. If this is not done the depletion of Forest Resources cannot be checked.

Development Budget

On the basis of plan allocation, available finance and approved PCP, funds are allocated in the ADP. The Department prepares the project list as per approved plan within the allocated fund in the ADP. After approval of the project list by the Department, the execution of the works started based on the release of fund by the planning commission, received through the Ministry. The release of fund is done in half yearly/quarterly basis. If successful implementation of development scheme is to be carried out, the system of half yearly/quarterly release of fund is to be modified.

Programming and Planning

In order to expedite the preparation of development projects, their processing and approval, the following methods are presently applied:

- The first step of a development project is to prepare a project concept paper (PCP) by the Ministry responsible for execution of the project. The PCP should be in line with the 5 year plan document and in accordance with the sectoral allocation. The planned expenditure, arrangement of finance, period of completion of the project and management after completion of the project, the need for technical assistance and the amount needed for it should be in-include in the PCP which should be as brief as possible. the PCP should be approved by the Minister in charge.
- The PCP will be prepared in a standard approved format and the Executive Ministry shall send the copy to planning Commission, Prime Minister's Secretariat, Finance Division, Establishment Ministry, Implementation, Monitoring and Evaluation Division, ERD, MOEF and Ministry of Women Affairs
- The Planning Commission, after evaluation of the PCP and comments of concerned Ministries/Divisions shall place it to ECNEC for their consideration.
- After consideration by ECNEC, the proposal may be either rejected or if approved, shall be submitted to the Prime Minister (PM) for approval.

- In the case of locally financed projects, the Ministry will prepare the project proforma, (PP) and get it approved by PM.
- The DPEC of Planning Concerning the Ministry will finally adopt the approved PP Before adoption of the PP no fund will be released after the 1st instalment.
- Before approval of the PCP by the PM, the project cannot be included in the ADP.
- In the Foreign Assistance project, the PCP after approval by the P.M., shall be sent to ERD for arrangement of foreign assistance. If Foreign Assistance can be organised, the final PCP will be prepared for the approval of PM.
- After the approval of the PM the Donor country/organization will be requested by the Executive Ministry through ERD for Project Appraisal.
- On the basis of the Project Appraisal, if required, PCP will be revised and the process will be repeated as in the case of locally financed development project.

Monitoring and Evaluation

The normal budgetary expenditure are incurred by the DFO on the basis of budget allocation. Now a days, the Normal budget mostly covers the Salary etc. of normal staff and maintenance expenditures of normal works/ assets transferred from completed development projects. The fund allocation is highly inadequate and monitoring is limited to the Financial side only. For new asset acquisition under normal budget, the Financial and physical progress is reported to the higher authority/ CCF once in a year. No regular monitoring and evaluation job is carried out.

Regarding execution of Development works, allocation of fund is made to DFO on the basis of project list under the approved development programme. At the close of every month, DFO submits a monthly progress report of physical and financial progress to their CFs. The CF after compilation sends the same to CCF and then from CCF to MOEF. The CCF holds a periodic review of the progress and a quarterly review is carried out by the Ministry to clear up the bottlenecks if any and watch over the progress. There is no evaluation and Monitoring cell in the department who determines the progress by physical inspection of projects. The donor Agencies carried out some evaluation by field study but this is not elaborate and mostly dependent on local reports. The evaluation and monitoring is normally carried by the CFs, DFO, SDFO and ACF's for the projects falling in their jurisdiction through extensive touring and visits of the areas.

✓ Inadequacies

In the normal budget fund is mostly for personnel salary etc. Very inadequate fund is allocated for other works. This inadequacies seriously affect the proper management of the resource and assets maintained by normal budget. The maintenance of the completed development project transferred to normal budget after the project is completed is severely affected due to shortage of fund. The revenue earned by FD is not sufficiently spent for the maintenance and upkeep of normal activities and assets. Many a time the fund after allocation is cut which creates further dislocation. On the whole, the system is not supporting the growth of the resources. A relationship between earning and expenditure should be established for normal growth of the resource for which FD is the custodian.

The development works are executed according to rigid programming. Once the programme and project are adopted in the ADP, funds are normally available for execution of works. The difficulties are experienced due to periodic release of fund, which cannot keep pace with the physical progress. Plantation establishment demands timely allocation of fund for seed collection.

storage and other technical operations. The periodic release of fund under development projects sometimes create bottlenecks. The terms and conditions of donor agencies for execution of building construction works and other resource development though accepted by executing agency, clashes with the normal established practices such as buildings of other Departments are to be constructed by the Work-Ministry; though the donor's condition is to get the works done through appointment of local consulting firms and carry out the works under their supervision through contracting construction firms under proper tender. These conflicting standard of execution of works delay and sometime undo the work programme. This should be stream-lined. In order to maintain the resources developed, after completion of the projet, adequate safe guard to provide fund under normal budget should be assured, otherwise the development efforts will result in disappointments.

INSTITUTIONAL STRENGTHENING

Public Forest Administration

Forest Department under the MOEF is presently responsible for the following functions:

- As a custodian of national forest land, FD is to enforce the Authority and protect the forest from illicit felling, unauthorised shifting cultivation and encroachment.
- Preservation of game sanctuaries, National Parks and protection of wildlife.
- Disposal of forest produce, collection of revenue and accounting for the same
- Development of the resources in the national forest.
- Development of participatory plantation in marginal, degraded and encroached Government land.
- Forest extension activities in homestead wood lots, urban centres and privately owned forest land.
- Introduce proper watershed management in stiff hill slopes and catchment of stream.
- Manpower development and operating the training institutions.

The works is of gigantic nature and is increasing disproportionately with the increase in population. The FD's structure is still continuing to be in the same colonial pattern and frame. With the passage of time and increase of activities, more Forest Circles, Forest Divisions, Subdivisions, Ranges, Beats, and Check Stations have been established, more people are engaged. The illicit activities have increased so much that the Range and beat staff cannot cope up with the situation. The staff and logistic provided for development works are constantly diverted for protection works and take the big part of their days activities. The FD is, therefore, faced with a conflicting situation. In one hand they are to rigidly enforce the law/ authority and on the other hand they are to introduce tree species in the private sector. The transit rules are conflicting with the growing of trees in the private sector; State Acquisition and tenancy Act does not allow any private forestry in the country and the latest industrial policy does not permit any private plantation forestry in RF land. As a result, people have become more hostile to FD and serious lack of trust is prevailing. These conflicting functions of FD which has developed in course of years is further constrained by the lack of:

- Fund under normal budget/periodic release of development fund.
- Facilities
- Flexibility (financial and professional discretion)
- Incentive and motivation
- Clarity of mission or sectoral goals
- Appropriate policy and regulation for authority function
- Adequate accountability and flexibility in the execution of development projects
- Adequate skill and capabilities for service function
- Decentralisation of power, undue interference by the bureaucracy and delay in taking decision.

With the achievement of independence, the responsibility and workload have increased. The necessity of reorganization was felt more seriously and the need was emphasized in the different 5 year development plans. In the draft Fourth five year plan a complete restructuring of the FD was recommended.

Reorganization was carried out under Enam Committee's report in 1983 and later in 1985 under Huda Committee's report. These reports basically advocated increase in number of units and staff but no basic reforms were recommended. Administration remained as centralized as before. The transferable Bureaucratic personnel cannot develop the needed professionalism and the Forest Administration suffered for delay in taking decisions and undue interference. In 1976, the Dr. A.H.M. Altaf Ali's Committee recommended a fundamental change. According to that report, there was a proposal for a "Forestry Commission" at the top headed by the Minister and an officer of the rank and status of the Secretary as the Executive Vice Chairman. Under this, there will be several autonomous Boards, Corporations etc. The head of each will be a member of the "Forestry Commission". The Forestry Board, BFIDC, Rubber Board etc will be autonomous and self financing. The revenue collected by Forestry Board will be ploughed back for normal and development activities and 20 percent of the revenue collected in the Forestry Board will be deposited in the Govt Treasury and the rest to be ploughed back as per approved plan and programme. The fate of the report is not known.

Natural forests are not managed under an environmentally sound system. Depletion has taken place both in area and quality. Deforestation/ loss of forest cover registered at an annual rate of 8,000 ha in the 1970s which has increased to about 37,600 ha per year excluding plantations by late 1980s. If this trend persists, the outlook on Forestry, in Bangladesh, is bleak.

Forest plantations have not yet been able to contribute to wood supply due to various reasons. Older plantations are getting steadily depleted due to lack of protection, lack of proper management, pilferage, fire etc. This does not speak well of the new plantations as far as their future is concerned.

There has been hardly any improvement in harvesting and processing technology. The loss due to waste/residue and low recovery is high.

There is only limited extension forestry benefits to homestead woodlots. The villages around the Forest Extension nurseries are the main beneficiaries in receiving seedlings. The forest extension services are to be spread over throughout the country; as the village wood lots are contributing a major part of forest produce to meet the growing demand of the population.

In the recent past, hardly any forest based industries have been established except some sawing units scattered in various growth centres in the country. The forest industrial activities both in public and private sector are stagnating and deteriorating. While the community forestry project, in the northern and central districts, has shown some good result, there is no indication how this will be used as a means of growth and development.

The coastal afforestation for stabilising accreted land (with support of the World Bank) has been successful. But there is need for a clear and rational policy regarding the future use of such land.

Wildlife conservation is a badly neglected area; it is neither conserved nor utilised; so is utilisation of recreational potential of the forests.

Considering the present deteriorating condition, the FMP has considered three scenarios of Institution Development.

Table 6 - Scenarios of Institutional Development in Forestry Sector

Options	Status quo	Scenario-1	Scenario-2
Institution	<ul style="list-style-type: none"> o Bureaucratic o Authoritarian o Centralised o Lack of confidence in delegation of power 	<ul style="list-style-type: none"> o Some decentralisation o Low level people's participation o Enhance delegation of Administrative and Financial powers of different level of personnel o Rigid budgetary position 	<ul style="list-style-type: none"> o Business/ Enterprise goals o Separate supervision of enterprise o Increase staff quality and welfare o People's participation
Direct employment	<ul style="list-style-type: none"> o No peoples participation o No performance standard o Trend is erratic 	<ul style="list-style-type: none"> o The annual growth is about 3.5 percent 	<ul style="list-style-type: none"> o Annual growth is about 11 percent
Forest Resource Management intensity	<ul style="list-style-type: none"> o Low and falling 	<ul style="list-style-type: none"> o Low and erratic development is anticipated depending on the degree of decentralisation and delegation of power. 	<ul style="list-style-type: none"> o Increased growing stock o High intensity (High input/ High output) o Appropriate infrastructure o Multiple Products o Non destructive users (Eco-tourism/ NWFP)
Forest land out look	<ul style="list-style-type: none"> o Decrease in area under tree cover-2.5 percent per year 	<ul style="list-style-type: none"> o Decrease in area under tree cover-1.9 percent per year 	<ul style="list-style-type: none"> o Increase in area under forest cover o Hill Forest loss negligible-0.4 percent per year.

The structure provided under the following sub-sections are only illustrative in nature to compare three points in the range of potential possibilities. The structure preferred and recommended by FMP is of Scenario 2. The conceptual aspects involved has been explained previously. However, the Government may decide to choose differently; and the details will then have to be worked out for the chosen position. Especially, the institutional position of wild life and parks management may have to be reconsidered at that stage to ensure adequate and specialised attention for that important area.

1. Status Quo

The organization and structure remain fairly static with a normal growth of 9 percent of staff in 10 years. The loss of tree cover will continue exceeding an annual rate of 24,000 ha. This state of affair cannot be allowed to continue and hence the status quo scenario is totally unacceptable. The set up of status quo scenario is given in Appendix 3.

2. Scenario 1

No fundamental structural change is envisaged but functional reorganization and expansion of the structure in wildlife and park management, watershed management and extension of social and participatory forestry are visualised. For delegation of higher responsibility and administrative and financial power, the set up has been re-organised. Evaluation and Monitoring and statistical sides of FD have been strengthened in the Head Office

In the set up Forest Department shall be headed by CCF and there will be four Additional CCFS, who in addition to their staff function in the respective field, will have line functions as shown below:

<p>I. Additional Chief Conservator of Forests (Development, Planning and evaluation)</p> <p><u>Staff Officers</u></p> <ul style="list-style-type: none"> - CF Evaluation and Monitoring - 1 - ACCF Planning - 3 - ACCF Evaluation and Monitoring - 1 - ACCF Forest Statistics - 1 - Senior Research Officer - 1 - Research Officer - 3 - Supporting Staff 	<p><u>Line Officers</u></p> <ul style="list-style-type: none"> - DCCF Wildlife and Park Management <ul style="list-style-type: none"> o Director Botanical Garden o DFO Conservation and Wildlife Division, Chittagong o DFO Conservation and Wildlife Division, Khulna o DFO Conservation and Wildlife Division, Dhaka o DFO Conservation and Wildlife Division, Moulvibazar - CF Watershed Management <ul style="list-style-type: none"> o DFO Chittagong Watershed Management o DFO Sylhet Watershed Management
<p>II. Additional CCF Resource Management & Operation</p> <p><u>Staff Officers</u></p> <ul style="list-style-type: none"> - ACCF - 2 - ACF - 4 - Supporting Staff 	<p><u>Line Officers</u></p> <ul style="list-style-type: none"> - CF Chittagong Circle <ul style="list-style-type: none"> o DFO Chittagong o DFO Cox's Bazar o DFO Sylhet o DFO P.W.P Bandarban o DFO Lama o DFO Bandarban o DFO Forest Utilisation - CF Rangamati Circle <ul style="list-style-type: none"> o DFO CHT (N) o DFO CHT (S) o DFO Jhoom control o DFO PWD Kaptai o DFO Khagrachari o DFO USF Rangamati - CF Sundarban Circle <ul style="list-style-type: none"> o DFO Sundarbans, Bagerhat o DFO Sundarbans, Sathkhira o DFO Sundarbans, Khulna - CF Coastal Afforestation Circle (H.Q - Barisal) <ul style="list-style-type: none"> o DFO C/A Division, Bhola o DFO C/A Noakhali o DFO C/A Patuakhali o DFO C/A Chittagong

<p>III. Additional CCF (Forest Extension & Social Forestry)</p> <p><u>Staff Officers</u></p> <ul style="list-style-type: none"> - Project Director Thana Banayan Prokalpa (CF) and associated staff - ACCF - 2 - ACF - 4 - Supporting staff 	<p><u>Line Officers</u></p> <ul style="list-style-type: none"> - CF Dhaka Circle <ul style="list-style-type: none"> o DFO Dhaka o DFO Tangail o DFO Mymensingh o DFO Comilla o DFO Sherpur o DFO Kishoreganj o DFO Forest Extension, Dhaka o DFO Forest Extension, Narayanganj - CF Jessore Circle <ul style="list-style-type: none"> o DFO Forest Extension, Jessore o DFO F/E, Khulna o DFO F/E, Faridpur o DFO F/E, Kushtia o DFO F/E, Barisal - CF Bogra Circle <ul style="list-style-type: none"> o DFO Forest Extension, Bogra o DFO F/E, Pabna o DFO F/E, Rajshahi o DFO F/E, Natore o DFO F/E, Dinajpur o DFO F/E, Rangpur o DFO F/E, Nilphamari
<p>IV Additional CCF (Management Planning, Training & Education)</p> <p><u>Staff Officers</u></p> <ul style="list-style-type: none"> - ACCF - 1 - Supporting Staff - 1 	<p><u>Line Officers</u></p> <ul style="list-style-type: none"> - DCCF Education and Training Supported by ACCF - 1 <ul style="list-style-type: none"> o Director Forest Academy (CF) o Director FDTC (CF) o Director Forest School, Sylhet (D.C.F) o Director Forest School, Rajshahi (D.C.F) o Director Forest School, Chittagong (D.C.F) - DCCF Management Planning Supported by ACCF (RIMS) and Staff <ul style="list-style-type: none"> o Working Plan, Dhaka (C.F) o Working Plan, Chittagong (C.F) o Working Plan, Khulna (C.F)

The organisation chart is shown in Appendix 3, for the assumed position by 2003.

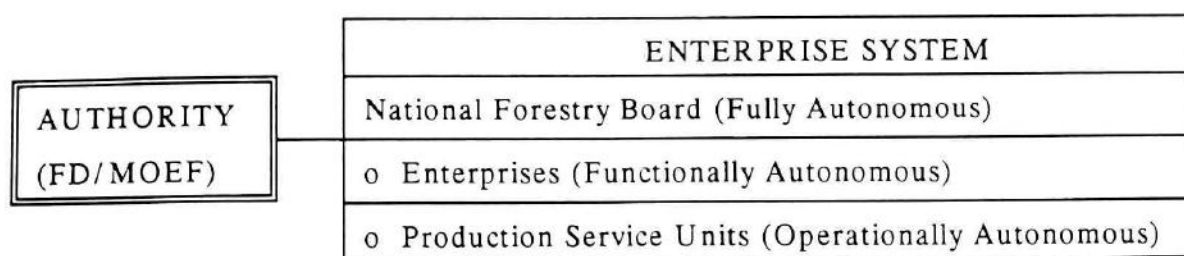
3. Scenario 2

This envisages a high resource management intensity which will result in:

- Increased growing stock/high quality and yield
- High input/high output, detailed plantation plan, integrated land use
- Appropriate infrastructure
- Multiple product/multiple landuse
- Non destructiveness (Eco-tourism, non-wood forest products)
- Better management of protected/preservation watershed areas
- Increase in area under trees cover/hill forest loss negligible (0.4 percent)
- Improved logging/minimise pilferage/improved conversion/residue utilization
- Use of improved tools and techniques

- Direct employment will increase by 11 percent per year in place of 3.5 percent under Scenario 1
- Human resource development will be ensured
- Peoples participation will be encouraged and ensured
- High return on investment

In order to achieve these objectives, the FMP recommends the induction of Scenario 2. This envisages a complete re-structuring of forestry sector organizations by separating the authority functions from enterprise function; and providing full fledged (functional and financial) autonomy to the enterprises. The enterprises should promote private sector, cooperative sector and organised people participation. The restructuring will take the following shape.



The authority will be the Forest Department under MOEF and it will be vested with power for enforcement of Govt policies, legal enactments and regularations related to forestry (and wild life conservation). The authority will also have the powers to collect taxes, levies and other charges on behalf of the Government Other functions of the authority will include maintenance of sectoral statistics, preparing sectoral plans in consultation with sectoral institutions, monitoring and evaluation of sectoral activities, advising the Government on policy matters and logistics, issuing policy guide lines/ interpretations to sectoral institutions, submitting periodical reports on the state of forest to Government It will also be the role of the authority to initiate and pursue appropriate actions against those enterprises which do not comply with policy guide lines and regulations of the government. The authority has to be rigid and strict in its enforcement functions.

The development and management of forestry (and wildlife) in Government lands will be organised under a system of autonomous enterprises/entities, consisting of a fully autonomous central Board/body with a number of functionally autonomous enterprises/entities under it. These enterprises/entities in turn will have more than one component units with limited operational autonomy. The characteristic/ details of the system of autonomous enterprises/entities will be as follows:

- o All development activities on Government lands (not given over to independent public or private sector units on lease or other conditions e.g. pulp and paper mills) will fall under the purview of the system. It will have necessary flexibility for jointly undertaking activities in partnership with private sector, NGOs, local organization and cooperatives with established reputation as well as for foreign collaborations.
- o At the Central/National level, it will consist of an autonomous Board or body in which all relevant interests of Forestry (i.e. conservation, production, trade, industry, finance, science and technology, Forest Research, Education and training, rural Development, tourism etc) will be represented. The Board will have a Chief Executive and necessary staff to implement programmes within broad State directive and its own terms, rules and missions. In order to support, guide and coordinate the activities of component enterprises, the Board will have specialised groups (Divisions) dealing with finance, planning and budgeting, policy and analysis, human, resources development/ management, contract and legal aspect, monitoring and evaluation, public relations, technology development, environmental conservation, trade and marketing (including export and import), adminstration, coordination etc. It will have

complete control of its financings within national guide lines of Bangladesh Bank and the Ministry of Finance. The Forest Research Institute, Bangladesh Forest Academy, Forest Schools and FDTC will be a part of parcel of the National Board of Forestry.

- o The enterprises under the National Board may be integrated (e.g. integrated development of sundarbans, Northern Bangladesh, CHT etc. or specialised (e.g. rubber plantations, large processing complex, etc) in nature and they would comprise of several units (e.g. forest management, plantation, agroforestry, saw milling, furniture manufacturing, wood working etc) Management of wildlife, eco-tourism and environmental conservation can be included under the purview of the integrated enterprises. It can also take responsibility for forestry extension to support homestead forestry/village forestry.
- o The enterprises will promote policies (also of tribal communities, where relevant) participation, as partners in enterprises development through simple, viable legal arrangement (for example: long term leases with provision for periodical review). They can develop joint ventures with involvement of NGOs, cooperatives, women's groups, local membership organisation (and also with private sector and homestead woodlot owners), thereby having consolidated raw material base, efficient distribution of processing facilities, improved marketing arrangement etc. (The possibilities of such cooperation are enormous. The Govt owned resources or processing facilities can form the nucleus to which the resources of local people, communities, cooperatives can be added on and developed jointly - the 'nucleus - plasma' concept. For example rubber in different parts of Bangladesh, Sal in central and northern Bangladesh, teak plantations in Chittagong Hill Tracts and other areas can form the nucleus for effectively involving people and communities, private sector and NGOs.
- o The enterprises are to be based on a growth point (or points) and can be established consistent with the existing boundaries of civil or forests territories (Forest Division or part thereof with specific geographical out line).
- o Linkages and cooperation among the enterprises under the autonomous system will be ensured through simple arrangements.
- o Activities/programmes of the enterprises and their component units will be covered by proper feasibility studies and detailed plans. Copies of these will be made available to the Forest Authority.
- o Each enterprise will be supported by an Advisory Committee of persons representing relevant interests.
- o Successful functioning of the enterprises will stimulate other developments in the region and the gradual growth of a viable private sector.
- o The system of autonomous enterprises will also have the flexibility to carry out work for other agencies/parties on contractual basis.
- o The system of autonomous enterprises will initially be funded through grants, loans and generated incomes. It will achieve full self financing in due course and will be free to negotiate loans and reinvest profit. It will compensate the Government for the use/management of Government forests by transferring 25 percent of net profit to Government revenue.
- o To promote growth in forestry sector, the systems of autonomous enterprises will be encouraged (required) to reinvest savings into viable forestry projects.

The conversion of the present traditional system into a highly developed authority/enterprise system will not only necessitates breaking of the present staffing pattern but also, there will be great structural changes in the present day Circle/ Division/ Range/ Beat concept. The constitution of an enterprise sometimes may comprise of the total area of a circle or of the Division or part of the Division. Naturally this conversion/integration will take years of sincere and serious exercise. The current thinking is that this conversion may take 3 to 4 years. The introduction of the system will need legal frame work covering the structures, functions, financial arrangements and autonomy etc. The rules and procedures will have to be drafted and approved so that the new system of high development can become functional and effective. The introduction of the new system is of unique type in Bangladesh; as no other Government organization has yet conceived of such a change.

The FMP team feels that this is the possible saviour of the rapid degradation of forest and environment. If the present (status quo) scenario is allowed to continue, the time is not far when there will be degraded land over which FD will have to exercise control and fight fruitlessly for its expensive recovery. If the Scenario 1 is considered for adoption (though the FMP team does not recommend), there will not be any big structural change over the present traditional pattern and the growth will be small and erratic, depending on the degree of decentralisation and delegation of power. The establishment and success of the Scenario 2 as recommended by the master plan will greatly depend on the "political will" of the Government and the seriousness for the implementation of the change for a higher growth and protection of the environment.

The direct manpower requirement of the three scenario is shown in Appendix 3. The detail organizational chart for Scenario 1 of FD to be developed from 1993 to 2003 is enclosed Appendix 3.

BFRI

The manpower requirement of BFRI for the Status Quo, Scenario 1 and 2 is given in Appendix 3.

HUMAN RESOURCE DEVELOPMENT

Manpower Employment in Forestry Sector of Bangladesh

In Bangladesh forestry sector is a labour intensive one. It is generally said that there is no lack of labour force but in real sense of the term, the bulk of the labour force is untrained and inexperienced. so the quality and quantity of output is not upto the mark. The activities in the forestry sector is considered to be a strenuous and hard job and as a result, generally the workers do not prefer the job. In forestry sector, the man power is engaged in various areas. A comprehensive list is given below:

- Personnel directly engaged in Forest Department (public sector)
- Personnel directly engaged in Forest Research Institute (public sector)
- Personnel engaged in BFIDC Head Office (public sector)
- Rubber plantation and processing (public sector)
- Plantation forestry in public sector (indirect employments)
- Rural tree plantation in village wood lots (private sector)
- Natural Forest and plantation harvesting (timber, fuel wood and bamboos etc. in private sector)
- Homesteads wood lot harvesting (private sector)
- Homestead bamboo harvesting (private sector)
- Forest based industries both in public and private sector

- Forest based cottage industries, mostly based on bamboos, cane and wood (private sector in rural and urban areas)

The personnel directly engaged in Forest Department consist of:

- Professional staff (CCF, DCCF, DCF/ACCF and ACF, all are members of B.C.S (Forest) Cadre service. Sr. F.R. and Forest Range officers are proposed to be upgraded by selection and through a conversion course as A.C.Fs and Forest Ranger post is to be gradually abolished.
- Technical staff (DRs, Frs)
- Sub-technical staff (Forest Guard)
- Supporting staff
- Class IV employees

The total sanctioned posts currently stands at 9,614 of which 8,497 are in position and the rest 1,117 posts are vacant (Appendix 3).

The personnel directly engaged in BFRI consists of some forestry professionals but mostly of different science discipline having a minimum of M.Sc degree appropriate to the respective field of research. Recruitment/promotions are made under approved rules framed by Government. They do not belong to any cadre service of B.C.S. The various positions are Director, Chief Research Officers, Divisional Officers in charge of Research Divisions, DFO, Senior Research Officers, Statistician, Junior Research Officers, Asst. Soil Scientist, ACF and other supporting personnel. The total sanctioned strength currently stands at 823 of which 696 are in position and 127 posts are vacant (Appendix 3).

The personnel employed under BFIDC Head Office consist of Chairman/Directors/ Secretary appointed by Government. From time to time as required, Executive Directors, General Managers, Managers, Chief Accountant, Chief Auditor, Auditors, Accountant other supporting personnel positions are filled up by the Chairman under the rules approved by Government under the BFIDC Ordinance. The current strength is 327 of which 74 are officers, 234 staff, 11 Regular worker and 8 casual workers.

The Rubber plantation and processing units of BFIDC under public sector has a total strength of 59 officers, 301 staff, 1,355 regular worker and 71 casual worker - with a total current employment of 1,786 persons.

The plantation forestry in public sector engages forest villagers where available or casual workers from the rural areas who are frequently changed as the same persons are not available when required. The operations involve seed collection from selected mother trees, extraction of seeds, drying and storage, nursery preparation, soil working, poly bag preparation with fertilised soil, sowing seeds, watering seedling, carrying of seedlings etc. to pln site, preparation of plantation site, planting, tending operations etc. under the status quo scenario, the total plantations has been worked out 8,903 ha for 1993. At the rate of 247 man days per ha of forestry plantation establishment and having 300 working days in a year, the total man power requirement stands at 7,330 man year for the year 1993.

The rural tree plantation in homestead wood lots and tree husbandry is spread over in 60,315 mouzas through out the country covering a crown covered area of 270,000 ha. Considering the fact that at present 66 percent of the wood supply comes from village wood lots, substantial development by way of tree plantation is necessary by the rural people. In the status quo scenario, the FMP proposes raising and distribution of 9.2 M tree seedlings in the year 1993 through the Forest Extension nurseries spread over in different district. NGO and other private nurseries will also supply considerable number of seedlings needed in the homestead. Based on the supply by FD extension nurseries and taking 0.20 man days per tree established in rural wood lot and

considering 300 working days in a year, the estimated requirement is 6,133 man year. The work is only a part time job but proper selection of spp and right method of planting is necessary. There is great scope of training of village leaders in the nursery and plantation practices. Also the NGOs with established reputation and experience and private sector be inducted in nursery raising for supply of seedling. FD should organise regular and continuous short course training of village leaders and other interested persons through the forest extension nursery centres.

Considerable labourers are engaged for harvesting timber, small wood, firewood, and bamboos etc. from natural forest and plantations. The work involves felling, logging, stacking, sawing with pit saws and transportation to loading places in boats or trucks etc for further transportation to marketing places established for the sale of forest produce. The right use and proper and timely sharpening of the tools not only improve production but also reduce wastage. A great scope for training exists in the area and FDTC can take care of the training of workers in batches. The introduction of the improved tools and their availability should be ensured. In the status quo scenario for 1993, the total supply for saw logs and poles from this source has been estimated at 0.95 million cubic meter. Taking 17.5 man days for forest timber harvesting per cubic meter and taking 300 working days per year, the total comes to 55,416 man years. For fuel wood harvesting, the 1993 Status Quo figure has been worked out at 2.13 million cubic meter. Taking 2.275 man days per cubic meter of fire wood harvesting will stand at 16,152 man year. For forest bamboo harvesting the supply for 1993 Status Quo scenario has been taken as 0.19 million tons. Taking 30 man days for harvesting and haulage of one ton forest bamboos, the total man power is worked out at 19,000 man year.

Homestead wood lot harvesting employs a big labour force for felling, branching, logging, stacking and carriage to truck bullock cart and boat loading places. The status quo scenario for 1993 has adopted a supply of 4.78 million cubic meter from homestead woodlot. Taking 3.96 man days per cubic meter of rural wood lot harvesting, and adopting 300 working days per year, the total manpower need stands at 63,096 man year. Introduction of improved cutting tools and training to use and maintain tools in the proper way expands the training scope in this area. This training can be programmed by the FDTC in a limited scale.

Homestead bamboo harvesting employs a large number of workers. It has been estimated in the Status Quo scenario for 1993 that village bamboos will contribute 5.29 tonne. Taking 16 man days for harvesting and haulage of 1 ton of village bamboos and carriage upto truck, bullock cart or boat loading points, the total employment will stand at 282,133 man year.

Forest based industries in public and private sector covers the Institutional public sector and some private sector areas. The area covers pit saw/band sawing, plywood manufacture, particle/hard board, pulp/paper/rayon, match factories/furniture factories, wood treatment plant etc and have been estimated to employ about 50,000 man in the status quo scenario for 1993. The workers are mostly trained on the job in situ. FDTC is conducting training in the field of saw milling with the help of mobile saw doctoring units. The field can be expanded in FDTC kaptai in drawing programmes on Blade sharpening and setting in plywood mills, Kiln drying training, wood preservation training in cooperation with FRI, FDTC, BFRI, BFIDC should cooperate in drawing such programme. FDTC should take the pioneering role.

Forest based cottage industries engage the maximum number of workers in the unorganized sector. These are based on bamboos, cane, wood and lac etc. These are spread over the rural and urban centres as homestead cottage industries or small shop owners. Women and NGOs take a substantially big share of the work force. A survey in 1986, reveals the fact that in different district and regions of Bangladesh, there are 170 listed women NGOs engaged in bamboo and cane craft. As per 1983/84 Agriculture Census, there are 144,000 households reported from rural Bangladesh who are dependent/engaged in bamboo and cane products manufacturing. The work force is spread throughout the rural areas and various urban growth centres. The workers have mostly on the job training and enough attention, in an organized manner, is not given to them.

There is a great prospect of growth of cottage based nonwood forest product industries and these have export potentials. The estimated work force in the status quo scenario has been estimated to be 288,000 man year, a substantial portion of that are women worker.

The total employment in Status Quo scenario for 1993 is given below:

Table 7 - Total Employment in Status Quo Scenario

	Organization/operational area	Number in 1993 status quo scenario
1.	Forest Department (Public sector)	9,614
2.	BFRI (Public sector)	822
3.	BFIDC (Head Office) (Public sector)	249
4.	Rubber pln and processing (Public sector)	2,452
5.	Plantation Forestry (Public sector)	7,330
6.	Rural tree pln in village woodlot (Private sector)	6,133
7.	Natural and plantation forest harvesting (Public sector)	90,568
8.	Homestead woodlot harvesting (Private sector)	63,096
9.	Homestead Bamboo harvesting (Private sector)	282,133
10.	Forest based industries (Private and Public sector)	50,000
11.	Forest based cottage industries (Private sector)	288,042
TOTAL		800,439

Say - 800,000 Man year

Human Resource Management

Out of the total man power need of the Forestry Sector, only the public sector institutions e.g. Forest Department, BFIDC and BFRI are covered by proper rules framed by Government for recruitment/promotion/transfer/punishment etc. In institutionalised private sector, the labour laws formulated by Government regulate the appointment/ promotion and punishment of workers. They have the right to form unions and negotiate terms and conditions if required and not covered by Labour Act. There are labour courts to settle disputes between management and workers.

1. Forest Department Recruitment Rules and Procedure

The professionals are recruited as per B.C.S recruitment procedures through competitive examination held by Public Service Commission. The ACFs are recruited in this procedure and then sent for Forestry Degrees (M.Sc) in foreign countries for 2 years. In the Professional cadre 2/3rd are recruited through competitive examination by P.S.C and 1/3rd are promoted from senior Forest Ranges. After the introduction of B.Sc (Hons.) course by the Institute of Forestry in Chittagong University and strengthening its course and syllabus to fit in with the professional level training, a decision has been made by FD, MOEF and planning commission to introduce two tier system of recruitment in forestry personnel and recruitment of ACF to be done through P.S.C under a competitive examination from amongst the B.Sc (Hons) in Forestry.

Unfortunately till 1992, the recruitment rules for ACF from B.Sc (Hons) in forestry could not yet be amended and as a result, the ACF recruitment has been stopped for last 6 years. So also the recruitment of Rangers have been stopped and forest College for training of Forest Rangers with B.Sc pass degree from the Chittagong University with which it was affiliated has stopped functioning for want of recruits. This has created a serious imbalance in the recruitment and training areas of Forest Department. The FMP supports the two tier system of recruitment and promotion of selected Rangers presently in service after a conversion course in the proposed Bangladesh Forest Academy to the rank of ACF and Ranger recruitment stopped. In the last batch of ACF recruitment, four women candidates have been selected by P.S.C and appointed as ACFs.

In the technical level, Foresters are recruited through competitive examination from the HSC passed students in science and from 1985, the training course of foresters has been extended to two years. The successful candidates are awarded diploma under Technical Education Board. In recent year, proposal has been initiated to make the diploma course of 3 years duration. These diploma holding foresters be given the salary scale of other similar diploma holders in polytechnics. The next higher post in the technical level is of Deputy Rangers. These posts are filled up by promotion and be and awarded a salary scale, one grade higher than the recommended grade of Diploma holder foresters.

In the sub-technical positions, Forest Guards with SSC qualifications are recruited and they are given 3 months training in Forest School, Sylhet. 10 percent of the Foresters vacancies are filled by promotion from the FGs through selection. Similarly 10 percent of Forest Guards vacancies are filled up by promotion of selected MLSS.

2. BFIDC Recruitment Rules and Procedures

The appointment, promotion, and disciplinary action against officers of BFIDC are guided by the service rules constituted by Government under section 18 of the BFIDC ordinance, 1959 vide notification in official gazette on 12th July, 1989. In the schedule attached to the above rule, provision exists for age limit of direct recruit, appointment procedure, qualification for direct recruits for various positions in finance group, engineering group, administration groups and security groups. The rules and procedure are suited to the present conditions.

3. BFRI Recruitment Rules and Procedure

The recruitment in BFRI is governed by the rules "The gazetted officers and staff (FRI, Chittagong) Recruitment rules, 1985. These have been framed in consultation with Public Service Commission and approved by the president. In the rules, for specified posts, the age limit for direct recruits, method of recruitment and qualification have been spelled out. The percentage of various posts to be filled up by promotion and through direct recruit have been specified. The rules are quite suitable for the Research Institute. The main problem is faced when the vacancy falls in one discipline, where as the eligible senior most person is located in a different discipline. These problems can be solved if government agrees to 'in situ' promotion of the eligible senior most person.

4. Women in Forestry

In the institutionalised sector, women are not yet considered to be suitable for the type of job, forestry personnel are required to perform in the field. In the last batch of ACFs, four women ACFs have been recruited. This is the first case of its kind. In the office supporting positions, there are some women recruited in recent years. In the unorganised sector women are playing vital role particularly in the cottage based industries with bamboos and canes. In the handicrafts

business, women are coming up. In these field a large number of women NGOs are operating through out the country, in different urban/rural growth centres.

In nursery and plantation activities, women are playing a much bigger role. In the collection of fuelwood in rural areas, women are taking leading part.

Human Resource Need

1. Projection of Forest Department Manpower Requirement

The number of staff depends on the intensity of work programme. Forestry operation can be broken down into categories, each with its component of staff based on norms averaged on data from many tropical countries and weighted to suit actual local circumstances. The standard determined by Government vide their memo no Forest-2/159/75/475 dated 09.12.1975 was also consulted to determine the norm in manpower need. The work norm as modified from Redhead for forestry man power (1985) is given below:

Table 8 - Work Norms for Forestry Manpower

Work Category	Per units of	Professional (P)	Technical (T)	Vocational (V)
a. Plantations				
I Establishment (1-5 years)	1,400 ha	1	7	14
II Management (Over 5 years)	6,000 ha	1	6	12
b. Industrial wood supply from state forest land				
I Logs	0.08 M.CUM	1	8	16
II Industrial round wood	0.2 M.CUM	1	8	16
III Fuelwood	0.8 M.CUM	1	8	16
IV Bamboos	0.24 M.tons/year.	1	8	16
c. State forest land Management	Estimated * (9,000 ha)	1	8	16
d. Extension	Per Adm. District	2 **	4	8
e. Auciliary activities	30 percent of total of A-D	1	3	3

- * Based on the Area of average Range as per Government memo above.
- ** In consideration of upgrading of Forest Ranger's post of different Extension Nursery centres to ACF.

Based on the above norms estimates of future manpower requirements have been made in the following tables:

Table 9 - Projected Departmental Manpower Requirement under Scenario 1

Activity	Area Involved		1993			2003		
	1993	2003	P	T	V	P	T	V
a. Plantations								
I Establishment (1 to 5 years)	87,000 ha	118,400	62	434	868	85	595	1,190
II Management (over 5 years)	300,000	387,000 ha	50	300	600	65	390	780
b. Industrial wood supply from Government forests								
I Logs	0.66 M.CUM	0.81 M.CUM	8	64	128	10	80	160
II Industrial round wood	0.39 M.CUM	0.75 M.CUM	5	40	80	14	112	224
III Fuelwood	2.10 M.CUM	2.84 M.CUM	3	24	48	4	32	64
IV Bamboos	0.19 M.tons	0.33 M.tons	1	8	16	2	16	32
c. State Forest land management	2,258,510 (ha)	2,258,510 (ha)	250	2,000	4,000	250	2,000	4,000
d. Extension	64 districts	64 districts	128	256	512	128	256	512
e. Aucilliary activities	33 percent of A+D	33 percent of A+D	167	501	501	184	552	552
Sub-Total			674	3,627	6,753	742	4,033	7,514
f. For wildlife conser-vation and watershed management	Actual provision made		-	-	-	33	63	215
GRAND TOTAL			674	3,627	6,753	775	4096	7729

Note: P = Professional, T = Technical, V = Vocational.

Table 10 - Department Trained Manpower Need of Scenario 1

Year	Professional	Technical	Vocational	Remarks
1993	389	1,183	2,376	Actual in position
1993	674	3,627	6,753	Based on work norm estimate
2003	775	4,096	7,729	

Total estimated manpower need in three scenerios, in organised (Institutionalised) and unorganized areas of forestry sector is enclosed as Appendix 3. From the current work force estimated to be employed, the bulk of them are having casual and part time engagement in forestry operations. The estimate is however based on work load and capability of putting in inputs for different areas of activities in forestry sector taking 300 working days in a year. For

the year 1993, the total manpower need has been estimated at 800,000 man year (300 working days in a year). Out of this, the full time workers shall not exceed 5 percent and the rest are having seasonal or part time work. So the number of work force involved will be many times more on part time basis. A great percentage of them are untrained and have not got formal education. There is no short fall in the untrained work force but skilled work force is not available to the extent required. In the professional and technical foresters, there is a great gap between need on work norm basis and those actually engaged. The projection of professional, technical and vocation man power upto 2003 of FD has been shown above for Scenario 1.

HUMAN RESOURCE ISSUES TO BE ADDRESSED

Qualitative and Quantitative in-weaknesses

The labour productivity plays a very important role in the growth of different sector. Unfortunately, very little study has been made in developing countries on the productivity aspect of labour force in forestry sector. An interesting study was conducted on Indian forest workers in 1966 under the Indo-Swedish bilateral agreement. In this study, tests have shown that the work capability per unit of the body weight of an Indian Forest worker was comparable to that of Scandinavian forest worker. The average body weight of Indian forest workers was 70 percent of the Scandinavian forest worker and the ability of Indian worker to perform heavy muscle work was about 65 percent. The age, sex, body size, physical fitness, nutrition and health besides the work environment and social and psychological development of labour are the important points while considering the physical work capacity.

In developed countries, physical capacity is reported to be highest at 20 years of age and this declines rather rapidly after the age of 35 and may come down to level of 60 percent at 60 years of age. In developing countries, the decline would probably start earlier as the forest workers are rarely more than 35-40 years of age which is an indication that forest work is too taxing in relation to physical work capacity. The body size and weight have direct bearing on work capacity of forest worker.

The work capacity of female in developing countries is probably 25 percent lower than male as is found in developed countries. The most probable reason of physical work capacity, lethargy, sluggishness and urge for frequent rest in developing countries is the lack of adequate and balanced nutrition among the work force engaged in physical works in forestry activities. The influence of heat stress, adversely affects capacity for physical works. The social and psychological factors coupled with old age security have tremendous effect on capacity for work. The work environment, motivation, acquisition of skill through training and prospect for promotion are positive incentives for high productivity.

Productivity is defined by the ratio between out put and input in an enterprise, an industry or an economy as a whole. The resource at the disposal of the enterprise are (a) land and building (b) materials (c) machine and (d) manpower. The task of the management is to coordinate all the above resources within their control to achieve the highest productivity.

In the forestry sector of Bangladesh, there is no shortage of untrained work force availability but trained manpower is seriously lacking. In the organized (institutionalised) forestry sector, training and professionalism can be inducted but in the case of vast majority of work force scattered through out the length and breadth of the country, formal training is a very difficult propositions.

Action Proposals for Institutional Development

1. Forest Department/ BFRI/ BFIDC

Scenario 2 - For the institutional development, three scenarios have been elaborated above. These are Status Quo, Scenario 1 and Scenario 2. The FMP recommends the Scenario 2. This necessitates a total structural change of forest organization and functional restructuring. This is a unique type of institutional set up in the public sector having no precedence in any other organisations in public sector in Bangladesh. The necessity for restructuring of the organization of FD for the protection of national forest, maximising the development and use of forest resources and obtaining the maximum value from the resources have been emphasized earlier. The change needs a total political commitment for successful implementation. The components for the restructuring of the Department are:

- Separate enterprise and authority functions
- Authority to be constituted for rigid enforcement of forest policy
- Enterprise is to be made fully autonomous and flexible.
- People's participation to be ensured in the real sense
- A high input/high output technology (giving a higher incremental capital/output ratio in terms of production and conservation).

The structure, will be as given in Figure 2.

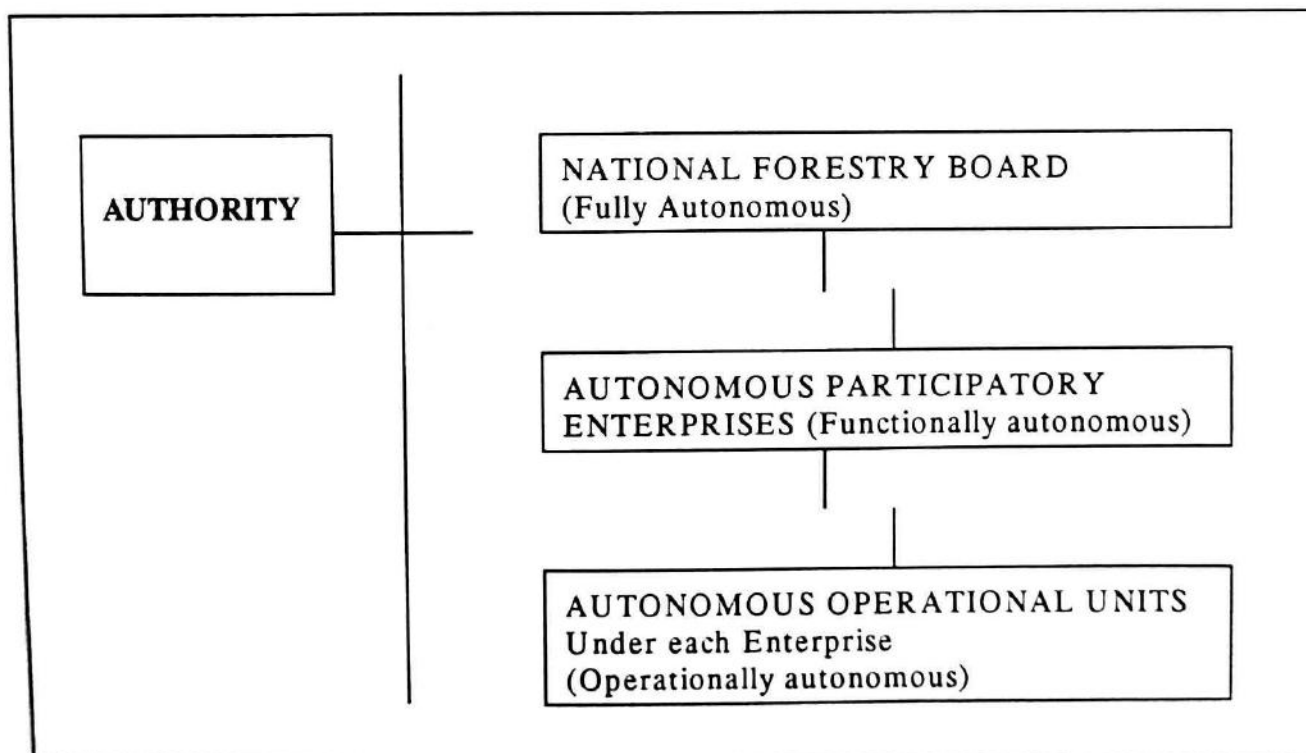


Figure 2 - Separating Authority and Enterprise Functions in Forestry.

An indicative structuring of the Forestry sector under Scenario 2 is shown in Figure 3.

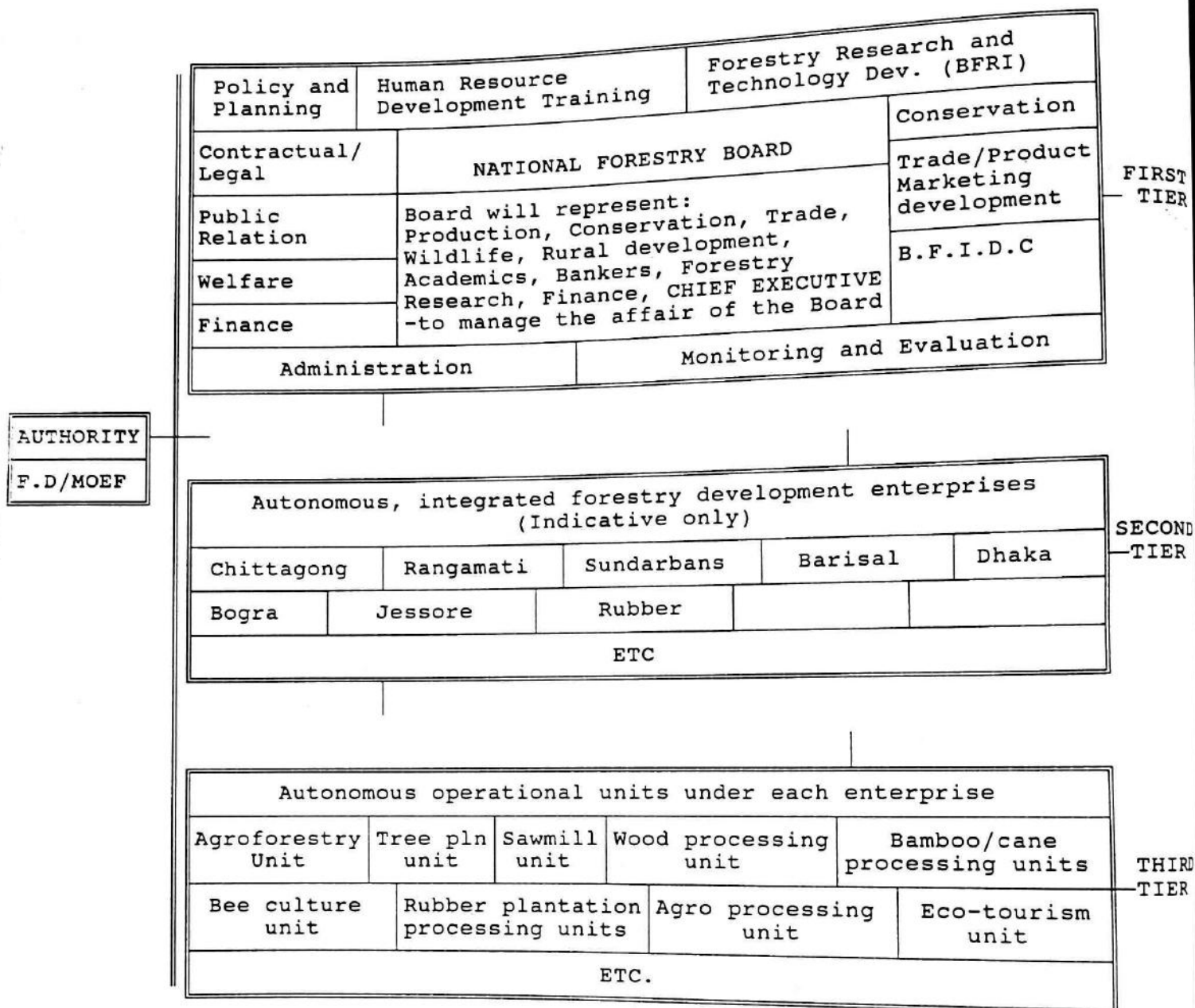


Figure 3 - A Three Tier Structure of Enterprise System in Forestry

In order to initiate a structure as indicated above, legal enactment is the first step after the proposal is accepted by the Government. The Act should include among other things, the bifurcation of authority and enterprise functions, responsibilities, constitution of Forest Authority, responsibility and accountability should be clearly specified under rules to be framed under the Act. The Act will have to be approved by the Parliament, and on that basis action will have to be taken. The conversion period from the present system to the proposed restructured system is estimated to be 3-4 years.

- BFRI is reorganised under Scenario 2 as provided in Appendix 3 as part of the National Forestry Board.
- BFIDC should be integrated as a part of National Forestry Board.

Scenario 1 - In Scenario 1, the following actions are to be taken by FD

- The reorganization with suitable modifications to the indications given in Appendix 3 is to be enforced and staffing provided for within 2003.
- The CCF shall have the salary scale of a Secretary of the Ministry (and designated ex-officio secretary to the Government).
- The Senior ACFs shall have the salary scale of SDFO.
- The power of Additional CCF should have the same as CCF in their respective line area except they cannot correspond directly with the Ministry.
- The Deputy Rangers post is upgraded from class-III to class-II.
- The Additional CCF shall function as staff officer and line officer under the overall control of CCF as shown in the organogram vide Appendix 3.
- The extra staff provided in the organogram and included in Appendix 3 under scenario-I should be sanctioned and/or created. At this stage it is necessary to reconsider the rationable and efficacy of keeping wildlife and parks management under the FD, based on the approved policy in than regard.
- Sylhet Forest Division is transferred from Central Circle to Chittagong Circle.
- Two new forest extension Divisions are created under Bogra Circle, Three under Dhaka Circle (redesignated central circle) and one Forest Extension Division under Jessore Circle.
- The Sundarbans forest circle is created under the charge of CF and the forest is divided into 3 Forest Divisions, DFO Bagerhat, DFO Sathkhira and DFO Sundarbans.
- The DFOs posts of working plan Dhaka and Chittagong be upgraded to CF and a new working plan division under the charge of a CF be created with head quarter at Khulna.
- CF plantation circle is renamed as CF coastal Afforestation Circle and the head quarter is shifted to Barisal.
- The FD shall execute the function and powers recommended by "Enam Committee" and approved by the CMLA (Appendix 3).

The total annual expenditure on account of salary of extra personnel by 1903, has been estimated to be about 120 million Taka. The details are given in Appendix 3.

In the Scenario 1, the following actions are recommended for BFRI.

- BFRI should be made autonomous organization under MOEF
- The reorganization of BFRI should be completed within 2003 as per staffing pattern shown in Appendix 3 under Scenario 1.

In the Scenario 1, the BFIDC should take the following action in order to vitalise their economy and for better growth.

- All industrial enterprises except those located in Kaptai and Kalurghat are disinvested to private sector in a phased manner.
- Industrial enterprises located at Kaptai and Kalurghat are converted into public limited company with 51 percent share with the Government (BFIDC).
- The harvesting operation of wood lots now being carried out by FD through auctioning to private sector is transferred to BFIDC for harvesting and transportation to pre-determined depots outside the forest where from the produce will be sold by BFIDC in auction or otherwise. The FD will be paid pre-determined stumpage value by BFIDC. Private sector will carry out trading from depots onward. This will enforce a restriction on unauthorised entrance and illicit fellings of trees in and around the coup areas.
- BFIDC should organise private sector Auctioning Agents in suitable growth centres to sell the rubber produced in various Rubber Estates of public and private sector in an organised manner like tea auctioning agents in Chittagong.
- The public sector rubber estate should be gradually disinvested with the growth of viable private sector entrepreneurship in rubber growing and processing in the country.

2. The Recommended Scenario

As has been stressed elsewhere in this report, the situation of forestry in Bangladesh warrants a drastic change in its institutional structure as reflected in Scenario 2. The concept, the rationale, the alternatives, and the steps/stages involved in such a change has been discussed previously. The changeover has to be clearly planned and designed and it can advantageously be handled as a project, with donor support. A project profile in this regard is given in Appendix 3, the profile includes a lumpsum/ block provision for field testing of the concept on a pilot scale along with rest of the project activities, so that improvements in the structure can be made during the period of the project itself.

Vital Importance of Political Commitment

It bears re-emphasizing in this connection, that the forestry sector of Bangladesh has been continuously been afflicted by institutional problems and inherent institutional weaknesses. The present situation of overall sectoral debility is attributable to the inappropriate nature of the institutional structure. Improvement in the situation needs urgent and drastic action. It calls for strong political commitment.

EDUCATION AND TRAINING

LINKAGE WITH HUMAN RESOURCE DEVELOPMENT

The critical importance of human capital for development in Bangladesh is recognised especially due to the deficiency in most developmental resources except population. Sustained development can be based on the abundant man power that can be mobilised for productive activities by way of upgradation and enrichment through education, skill formulation, improved health, sanitation, nutrition and other measures.

The estimated employment in Forestry sector has been estimated for Status Quo scenario, Scenario 1 and Scenario 2 for the years 1993, 2003 and 2013 and shown in Appendix 3. The work force is divided into:

- Public sector (Institutionalised) organizations e.g. FD, BFRI and BFIDC.
- Private sector forest based industries (institutionalised)
- Unorganised sector-scattered through out the country and are part time casual workers.

General System of Education

The present educational system in Bangladesh follows the pattern established under British rule and consists of 5 main tiers:

- Primary education consists of 5 years schooling from the age of 5. The participation in 1989-90 is 75 percent and 12.345 million students attended the primary education.
- Secondary education takes 5 years and is divided into 2 stages and ends with a Secondary School Certificates (SSC) examination. In 1989-90 some 5.20 million students attended the secondary schools which corresponds to participation of 36 percent.
- Vocational training at certificate level has been available since the mid sixties. There are vocational training institutes and vocational training centres for various trades.
- Higher Secondary Education consists of two years leading to Higher Secondary Certificate (HSC) examination. The education is provided at intermediate colleges and Intermediate sections of degree colleges. In 1989-90, the students attended for HSC course -0.19 M.
- Higher education starts after the HSC examination and is available at general and Technical universities as well as at general technical and professional degree colleges.

There are two Bachelor degree courses, Pass and Honours; Pass courses are given at general degree colleges where students after 2 years of successful studies receive a B.Sc/ B.A. (Pass) degree. About 0.69 M students attended degree college in 1989-90.

Honours degree courses are offered at the Universities but also at some of the degree college. The courses take three years and successful students are awarded the Bachelors degree (Hons.) in Arts, Science or Commerce.

Honours degree holders are eligible for admission to Master's degree courses of 1-2 years in the relevant subject. Also holders of B.Sc pass degree may be admitted to Master's courses.

There are 4 General Universities. Dhaka University (established in 1921) with 18,585 enrolled students in 1989-90; Rajshahi University (established in 1953) with 11,110 students in 1989-90;

Chittagong University (established in 1966) with 6,997 students in 1989-90 and Jahangir Nagar University (established in 1970) with 2,878 students in 1989-90.

In addition there are two technical universities offering Bachelors and one year Masters degree courses. The University of Engineering and Technology in Dhaka (established in 1962) having 4,150 students in 1989-90, and the Agricultural University at Mymensingh (established in 1961) having 3,258 students in 1989-90. The latter has some 40 Departments under 6 faculties.

Other higher education institutions are 4 Engineering Colleges. Where students get B.Sc Engineering degree after 4 years of successful studies. There is also an Agricultural Institute in Dhaka which is affiliated to Agricultural University, Mymensingh and offers 4 years bachelors degree course in agriculture.

There are 8 Medical Colleges offering Bachelors degree in medicine and surgery after a four years course of selected H.S.C qualified students. Total number of students attended in 1988-89 were 7016.

Forestry Education

Forest Department needs the following trained manpower:

- Professional graduates/B.Sc (Hons.) in Forestry from Universities
- After the recruitment of professionals, they are given a 6 months orientation course in the Bangladesh Forest Academy.
- Technical foresters are given Forestry Diploma course covering 2 years in the Forest School Sylhet and Rajshahi under the control of FD and affiliated to Bangladesh Technical Education Board. Recently, proposal has been approved for a 3 years Diploma course to technical foresters and entry qualification is S.S.C. A new Forest School is being planned for Chittagong with an annual input of 50 forester recruits for a 3 years training.
- Sub-Technical Forest Guards are given inservice vocational training for 3 months in Forest School Sylhet and recruited after S.S.C.
- FDTC at Kaptai covers the following workers training courses covering: timber harvesting techniques and road construction; operation and maintenance of logging, timber extraction and transport equipments; saw doctoring and sawmill maintenance and extension in forestry for local community development and rural reformation.
- A short training course on forest extension and social forestry to village leaders and others in the various forest extension nurseries and other temporary centres.

REVIEW OF EXISTING SYSTEM OF FORESTRY EDUCATION AND TRAINING

Institute of Forestry, University of Chittagong

The Institute of Forestry (IFCU) is the only institute in the country to offer university level education in Forestry. It was established in 1976 as a constituent institute of Chittagong University within the Faculty of Science, with a separate governing body in which the Forest Department and forest industries are strongly represented. The statute regarding the establishment was formally approved in 1983, although the Institute mounted a crash programme for 11 M.Sc students who graduated in 1979-80.

1. Staff Strength and Development

To strengthen the teaching, research and extension capabilities of IFCU, a UNDP/FAO Project "Development of Professional Education in the Forestry Sector" (BGD/85/011) was initiated in November, 1986. The project provided:

- a. Technical expertise (internationally recruited professors) in rural sociology and forest extension, silviculture, agro-forestry and forest ecology, forest inventory, photogrammetry and remote sensing, forest resource management and forest economics, forest engineering and logging and wood utilisation.
- b. Fellowship for IFCU staff to pursue higher degrees in prestigious institutions abroad in the fields of social and community forestry, Forest management, logging and harvesting, forest mensuration and inventory, wood utilization, silviculture and forest ecology and land use planning and management.
- c. Teaching materials (lecture notes prepared by expatriate professors), books, scientific journals and other references for IFCU library.
- d. Various equipments for teaching and research.

Besides the currently 15 regular teaching staff of the Institute, several experienced professional foresters, scientists from FRI, and professors from various related department of the university of Chittagong are employed on part time basis.

Sufficient facilities are available to the students and faculty members of Chittagong University. Among others, they include - library, computers, hostel, cafeteria, infirmary and transports etc.

Under the World Bank finance, the new complex with facilities are being developed in the campus site of CU. These elaborate facilities are designed to promote teaching and research excellence at IFCU.

2. Academic Year

IFCU has a semester system. The four year course leading to B.Sc (Hons.) degree in forestry consists of 8 semesters. Semesters runs from January to June and July to December. Every year in January 40 students are enrolled.

3. Admission Requirements

IFCU accepts both male and female students. To qualify for admission, by Bangladesh nationals, a student must take an entrance examination. A candidate must have attained 2nd division (55 percent) in Secondary School Certificate or in H.S.C or its equivalent with at least 1st Division in either SSC or HSC. He or she must have physics, chemistry, mathematics and biology in HSC or an equivalent qualifications from any institutions from Bangladesh or else where. In case of mathematics or biology in HSC level, one must not get less than 45 percent marks. More over, the aspiring applicants have to pass HSC examination in the 1st year of the session in which admission will be sought or in the previous year. For foreign students first division in both SSC and HSC or its equivalent levels must be there. Admission list is exempted for foreign students, but they must fulfil other criteria for admission.

4. Annual Enrolment

Annually 40 national students are enrolled which includes two from the tribals in the B.Sc (Hons.) forestry course. There is also provision for 5 seats for students from abroad with special preference for the SAARC countries.

5. Forestry Syllabus

The semester wise syllabus is given in Appendix 4 for eight semesters covering 4 years. The syllabus covers practically all the subjects required to be taught in the B.Sc (Hons.) in Forestry. It covers theory, practical, field trips and viva voce. The course content of "environmental forestry" needs improvement.

Bangladesh Forest Academy

Bangladesh Forest College was established at Chittagong in 1964 with an intake of 15 students every second year, following a 2 years programme leading to Diploma in Forestry for Forest Rangers. The College is under the administrative control of Forest Department and manned by forest officers. In 1977, the College was affiliated to Chittagong University leading to the award of B.Sc (Pass) Forestry degree and the entry requirement was raised from HSC to B.Sc (Pass) degree in natural science, keeping the same two years course for B.Sc (Pass) degree in forestry. The intake was increased to 25 per year in 1982 and the course continued, till 1985, when the two tier system of recruitment was agreed upon by FD and the Ministry. From 1985, the recruitment of Forest Ranges trainees has been discontinued. The College is proposed to be named as Bangladesh Forest Academy and to serve as an Inservice Training Institute of FD. This needs strengthening to provide facilities to teach 3 types of inservice training/refresher courses:

- Orientation courses to newly recruited ACF with B.Sc (Hons.) degree in Forestry for a period of 6 months.
- Conversion courses for 3 months to selected Forest Rangers before promoting them as ACF.
- Refresher courses covering a period of 3 months for senior Forestry personnel.

1. Syllabus

The course content for the above three courses is enclosed as Appendix 4. These courses could not be initiated due to lack of decision for recruitment of ACF and adoption of two tier system of recruitment; on the other hand Forest Ranger recruitment and training is also stopped from 1985. It is important to take firm decisions and activate the courses mentioned above. The subject wise details of the three proposed courses have been worked out by Marsater, appears to be adequate. Periodic revision may be carried out with the progress of the courses.

2. Present Staffing

The present position of teaching staff in the Bangladesh Forest College is as follows:

Table 11 - Situation of Present Staffing at the Bangladesh Forest College

Category	Sanctioned Post	In position	Vacant Positions
Conservation of Forests	1	1	-
Professors (DCF)	2	1	1
Lecturer (ACF)	2	2	-
Demonstrator (Sr. FR)	3	1	2

The teaching personnel is inadequate for carrying out the three types of inservice training/refresher's courses. Guest speakers should be organised from F.R.I, F.D, I.F.C.U and others relevent to the subject.

3. Development of Further Facilities

Proposals have been submitted to develop further facilities for training at a time 60 students. The detail estimate has been enclosed as Appendix 4.

Forest Development and Training Centre

FDTC was established at Kaptai in 1976, as a joint GOB/SIDA project with continued support till July 1981. Between January 1982 to December 1986, support was given by UNDP/FAO project BGD/81/020. Substantial facilities were provided for the project but unfortunately these are under utilised. The primary objective of FDTC is to provide vocational level training with a yearly output of 300 trainees. The following fields are to be covered:

- a. Basic logging techniques, timber harvesting and road construction.
- b. Operation and maintenance of logging, timber extraction and transport equipments and road building machineries.
- c. Saw doctoring and sawmill maintenance.
- d. Extension Forestry for local community development and rural reformation.

1. Staff Position

The sanctioned teaching staff position of FDTC Kaptai is given below:

Table 12 - Current Position of Teaching Staff in the FDTC

Category of Teaching Staff	Sanctioned Posts (Nos.)	Vacant Positions
Director (CF)	1	-
Section Chief (DCF)	2	2
Asst. Section Chief (ACF)	3	1
Instructors (Senior Forest Rangers)	7	6

The teaching staff are not adequately trained to impart the type of training needed to fulfil the objective. So far the objective could be fulfilled in a very limited way and the output of trainees was below the capacity. The number trained are as follows:

Table 13 - Output of Trainees of the FDTC

Year	Forest Extension	Saw doctoring	Basic logging	Total
1987-88	125	122	-	247
1988-89	103	280	51	434
1989-90	95	208	121	424
1990-91	58	132	35	225

Source: F.D.T.C, Kaptai

The average direct cost per trainees is worked out as follows:

Table 14 - Average Cost Per Trainee at the FDTC

(Taka)

Year	Total expenditure	Total Trainees	Average Cost per trainee
1988-89	1,617,400	434	3,727
1989-90	1,936,500	424	4,567
1990-91	2,150,000	225	9,556

Source: F.D.T.C, Kaptai

In Scenario 2 there will be over 130 need to modern sawmills in the country by 2013 employing about 4,000 skill operators who should be trained on the job by the supplier of the equipments. Technical School qualified trainees will be locally available for the job. This should be monitored by D.T.C

Forest School, Sylhet

The school began in 1948 and expanded in early 1980's. The present facilities developed at the Forest School, Sylhet are:

Library	27.31 m ²
Class room - 1	95.59 m ²
Class room - 2	54.63 m ²
Store	40.96 m ²
Teacher's common room	27.31 m ²
Canteen	27.31 m ²
Sr. Instructors room	27.31 m ²
Instructors room	27.31 m ²
	41.62 m ²

In addition the old office building serves as museum and office. The dormitory accommodation can accommodate 100 but buildings requires expensive repair and replacements.

1. Training Position

Training began with 15 students who followed an one year course leading to the certificate of Forestry. After enlargement, the school accommodated 70 students following a 2 years diploma in forestry programme to qualify as foresters and 30 students who under took 3 months training as forest Guards. The school continued to train foresters in a two years diploma course under the Technical Education Board as per syllabus approved by the Board and examinations conducted under affiliation from the Board. Due to non-recruitment of foresters, the training has been suspended and forest guard's training has been reactivated.

The syllabus for two years diploma course in forestry as approved by Technical education Board is enclosed as Appendix 4. The FG training syllabus for 3 months is enclosed as Appendix 4. It is proposed to increase the diploma course from 2 years to 3 years and Foresters School is shifted to the newly proposed Forest School at Chittagong for which funds have been allocated under World Bank assisted Forest Resource Management Project (1992-93 to 1998-99). Provision has been made for consultancy service to revise the syllabus of diploma forestry and Forest Guards course.

By 1983-84, the total number of foresters given one year training and awarded certificates stood at 1182. Thereafter, the diploma course of two years duration has been inducted and upto 1989-90. The number of foresters who obtained diploma stands at 292.

2. Staffing Position

The staffing provision is shown in Table 15.

Table 15 - Current Position of Teaching Staff at the Sylhet Forest School

Name of Posts	Sanctioned (nos)	In position (nos)	Vacant (nos)
Director Forest School (D.C.F)	1	1	-
A.C.F	7	2	5
Forest Ranger	24	4	20
Physical instructor	2	1	1

Source: Director, Forest School, Sylhet

Forest School, Rajshahi

The school was established by FD with ADB finance in 1985. It was designed to 50 students with an output of 25 per year following the two years. Diploma in forestry programme with the same curriculum as the Forest School, Sylhet. In addition, the school holds short courses on forestry extension. The academics, dormitory and residential accommodate is given below:

Library	55.74 m ²
Class room - 1	65.03 m ²
Class room - 2	65.03 m ²
Laboratory - 1	53.97 m ²
Laboratory - 2	61.59 m ²
Book issue room	30.66 m ²

Assembly hall	121.88 m ²
Herbarium	61.59 m ²
Reading Room	<u>41.43 m²</u>
Total	556.92 m ²

Dormitory accommodation 24 rooms = 269.78 m²
 Guest room 3 x 31.21 m² = 93.63 m²

1. Training Position

The course started from 1985-86. The output of diploma holding Foresters trained in the school are given below:

1987-88	23 Nos.	
1988-89	24 Nos.	
1989-90	25 Nos.	
1990-91	<u>25 Nos.</u>	
	97 Nos.	
1991-92	<u>20 Nos.</u>	Under training in 2nd year
	117 Nos.	

2. Staffing Position

The teaching personnel sanctioned and in position is given in Table 16.

Table 16 - Position of Teaching Personnel at the Rajshahi Forest School

Category	Sanctioned Posts	In Position	Vacant
Director (DCF)	1	-	1
ACF	3	1	2
Sr. FR	-	1	-
Forest Rangers	2	4	+2

Source: Director, Forest School, Rajshahi

The staffing position is not satisfactory.

Forest School, Chittagong

With World Bank financial support, a new forest school for the training of Foresters is being sanctioned for Chittagong. It will be a 3 years diploma course given to forester recruits will S.S.C qualification. The facility is planned for an annual input of 50 trainees. The facilities are planned to be developed for accommodation 150 Students at a time. It is also planned to utilise the Forest School, Sylhet for training of only forest guards.

Special Requirements of Industries and Private Sector

In Scenarios 1 and 2, the work force required by 2003 by the following wood based industries are:

Table 17 - Projected Workforce Requirement of Wood-Based Industries by 2003

Industry	Scenario 1	Scenario 2
(1) Saw milling	11,400	14,400
(2) Pulp and Paper	<u>16,800</u> 28,000	<u>17,400</u> 31,800

The professional staff required by the mill will be available from technical universities and schools. The mechanics needed will also be available from locally trained sources. However, they need to be trained on the job and specially with new types of sawmills as contemplated in the FMP. It is recommended that special on-the-job training be organised by the supplier when the machines are installed. The training of sawmill operators can also be looked after by FDTC.

CONSTRAINTS/ ISSUES

The Institutions having direct linkage with the forestry sector education and training will be discussed. These are: IFCU, BFE, FDTC, FS (Sylhet), FS (Rajshahi).

Inadequacies of Facilities

1. Curriculum

IFCU curriculum is regularly updated for B.Sc (Hons) course in forestry. The Institute is planning for introduction of M.Sc course in forestry and the preparation is on. The B.Sc (Hons) curriculum is enclosed as Appendix 4.

Bangladesh Forestry Academy has prepared the curriculum for three course - orientation course - conversion course and refresher course. These are adequate but will need periodic revision as the course progresses. Due to administrative bottlenecks, the courses could not be started as programmed. The curriculum is enclosed as Appendix 4.

Diploma in Forestry curriculum in operation and being practised in Forest School, Sylhet and Rajshahi. The syllabus, as approved by the Technical Education Board is enclosed as Appendix 4. The curriculum is adequate.

The curriculum for Forest Guard's training course of 3 months has been prepared and is in practice. This is enclosed as Appendix 4. The syllabus needs revision taking into consideration of the fact that social forestry and extension forestry is taking a bigger role and appropriate training syllabus should be incorporated. The course cannot be regularly executed due to shortage of physical facilities.

FDTC was designed for workers training programme for a yearly output of 300 trainees as well to train a pool of instructors in the following fields:

- Basic logging technique, timber extraction and forest road constructions.
- Operation and maintenance of logging, timber extraction and transport as well as road building machineries and equipments.

- Saw doctoring and mill maintenance.
- Extension in forestry for local community development and rural reforestation.

During the past years, the following list of documents and training materials were prepared while the courses were continued:

- Integrated forestry extension programme for the Chittagong Hill Tracts region by A.C. Duldulao
- Forestry Extension Training Manual - Do -
- Agro-forestry Development guide - Do -
- Public information and education programme in forestry - Do -
- Operation and maintenance of logging equipment - Do -
- Forest Road Planning and Construction by H.G. Mattsson Marn
- Illustrated hand books with transparencies on forestry and saws - Axes -tools in basic logging, Tree felling, Tree loss cutting, Forest aids etc.
- Sound slide sets and slide sets with illustrated Manuals - Video tapes etc.

These training materials are quite suitable for purpose and are to be amended with the progress of activities. The continuity of teaching personnel is important to maintain and develop the syllabus.

2. Teaching Staff

IFCU during the past years got substantial support from International assistance for training the teaching personnel in different fields. Though there is need for further foreign training of teaching staff, presently they meet the need by hiring resource personnel on short term basis from FRI, FD and other institutions located at Chittagong. The syllabus is presently fully covered by teaching staff and outside arrangement. The physical facilities are to be developed to have an annual input of 45 students.

In the BFA, the courses could not be started due to administrative bottlenecks. The sanctioned teaching staff is not only inadequate but are not imposition at the present time.

In all other inservice training institutions, the sanctioned staff are not only inadequate but are not in position for a long time. The position of teaching staff is given below:

Table 18 - Vacancies of Teaching Staff at the In-Service Training Institutions

Name of Institutions	Sanctioned teaching staff	Actual in position	Vacant
Bangladesh Forest Academy	8	4	4
FDTC, Kaptai	13	4	9
Forest School, Sylhet	32	7	25
Forest School, Rajshahi	6	6	-

Source: Forest Department

This gives a gloomy picture of the training institution of FD and needs to be revitalised.

3. Physical Infrastructure

IFCU has a capacity input of 45 students per year for a 4 years course in leading to B.Sc (Hons) in Forestry. The new Institute building and facilities are being completed. Additional facilities are to be completed in next 7 years under World Bank loan. The cost of construction is provided under Appendix 4.

The construction of buildings and other facilities is expected to be completed by another 7 years. The details are given in Appendix 4.

The FDTC does not need any further physical infrastructure facilities but funding annual training of 10 students coupled with maintenance of existing infrastructures and their replacement in due time is essential to maintain a continuous flow of trained work force.

The Forest School, Sylhet is presently planned for an annual input of 75 students for a two years course leading to Diploma in Forestry under Technical Education Board. The proposed buildings and renovation is expected to be complete in seven year time as per details given in Appendix 4.

The estimated cost of books/journal/equipments/transport etc for forest school, Sylhet, Bangladesh Forest Academy together with capital and operating cost of vehicles are given in Appendix 4.

Facilities to be developed in the existing forest extension nurseries for short courses of training in forest extension to village teachers and NGOs are included in Appendix 4.

Table 19 gives the summary of cost for development of physical facilities by 2003.

Table 19 - Cost of Developing Physical Facilities for Forestry Education and Training (Tk million)

Institution	Cost of Construction/ Renovation	Cost of Books Journal/ Equipment/ Transport/ Operating cost	Total
1. IFCU	33.24	14.28	47.52
2. Bangladesh Forest Academy	44.00	20.70	64.70
3. Sylhet - Forest School	4.25	3.73	7.98
4. Chittagong-Forest School	52.17	23.33	75.50
5. Forest Extension in the existing 97 nursery centres	57.60	-	57.60
6. Forest Dept. HQ	-	0.30	0.30
Total	191.26	62.34	253.60

Issues

Due to unusual delay in amending the rules for recruitment of B.C.S (Forestry) cadre personnel from the B.Sc (Hons) qualified students of IFCU, the recruitment ACF could not be carried out by FD for last 6-7 years, inspite of fact that vacancies existed in the sanctioned strength.

Due to adoption of two tier system of recruitment by FD and MOEF, the recruitment of Forest Rangers and their training in Forest College Chittagong has been suspended for several years. Instead, the Forest College is restructured as Forest Academy for imparting (a) orientation courses to newly recruited ACFs (b) conversion training of selected FR for promotion as ACF and (c) refresher courses. None of these are effectively functioning for seven years.

Due to non-recruitment of Forester students, the training of Foresters in Diploma courses has been suspended in Forest School, Sylhet and will stop in 1992 in Forest School, Rajshahi after completion of training of the preset batch.

The above issues are to be resolved with priority if proper and scientific management of the forest resource are aimed at. Immediate attention of the Government and FD is warranted to activate the training centres.

The training personnel of FD resents a posting in the training institutes. There should be provision for special pay and allowances to attract such personnel. It should be made obligatory for those selected for posting in the Institute to stay there for at least 3 to 4 years and later they are transferred to better places to compensate their grievances.

TRAINING NEED ASSESSMENT

Professional Foresters

In the low development scenario the professional forester's requirement has been estimated at 846 by 2003. The estimate on work load basis stands at 775. Accepting the to work trend norm of 775 persons by 2003, the normal calculation stands at 25 B.Sc (Hons) graduate recruits per year.

Bangladesh Forest Academy

- (a) Orientation courses (6 months) - Freshly recruited 25 ACFs.
- (b) Conversion courses of selected FRS (3 months) - 25 per year
- (c) Refresher's courses for 1-3 months for CFs, DCFs, SD, FOs and ACFs - 5 to 25 per year.

Forestry Diploma Training

According to Scenario 1, the total requirement of Foresters/Deputy Rangers stands at 4096 on work norm basis by 2003. In the staffing pattern shown for Scenario-1, the total requirement of Foresters has been calculated at 1370 and Deputy Rangers at 653. The total comes to 2023. Taking 30 years service life for retirement, the annual need is of 67 Forester recruits (136 on work norm basis). Taking out 10 percent to be promoted from Forest Guards, the annual recruitment of Foresters will stand at 60. This can be taken care of by the new Chittagong Forest School to be established and the Rajshahi Forest School.

Forest Guards Vocational Training

The estimated requirement of FGs under Scenario 1, stands at 3,810 by the year 2003. In estimate based on work norm calculation, the need stands at 7,633 by year 2003. In Scenario 1, the annual

recruitment need of FGs stands at 127. On basis of work norm analysis, the need will be double by 2003. The training of 127 FG annually in a 3 month's training course is possible with the facilities to be developed in Forest School Sylhet.

FDTTC facilities exist for annual intake of 300 trainees per year on short courses on the designated subjects. This is not adequate to cover the need.

Training Local Leaders

The 97 forest extension nurseries when developed, can train 30 trainees on a 10-15 days basis in each centre. The annual turnover will be around 30,000 trainees in forest extension activities. The Thana Banayan Prakalpa planned a training for about 14,000 village leaders and NGOs, including forest extension and cottage industry programmes in 1994.

This will be extended to an annual output number of at least 50,000. Under the programmes, special courses can be organised for training in bamboo/cane/lac growing and processing where there is a local need for such courses.

Estimated Manpower Training Programme

The following table summarises a partial estimate of training potential based on existing institutions. There is need to improve the education and training facilities covering the multi-disciplinary areas.

Table 20 - Estimated Training Needs to the Year 2013

(Number)

Sl. No.	Institutions	Categories of Trainee	Input per year	Input upto 2013	
				Scenario 1	Scenario 2
1.	I.F.C.U	Professional Forestry	45	900	900
2.(a)	Forest School, Chittagong	Technical (Foresters)	50	750	750
(b)	Forest School, Rajshahi	Technical (Foresters)	15	300	300
3.	Forest School, Sylhet	Sub technical (FGs) (3 months)	150/ 300	3,000	6,000
4.	F.D.T.C. Kaptai	Workers Training	300/ 600	6,000	12,000
5.	B.F.A. Chittagong	Orientation Course (6 months)	25/ 40	500	800
		Conversion Course (3 months)	10/ 15	200	300
		Refresher's Course (3 months)	10/ 25	200	500
6.	Forest Extension Nurseries Training Centres	Skill Development (10 days)	25,000/ 50,000	500,000	1,000,000

AREAS REQUIRING IMPROVEMENT/STRENGTHENING

Planning

The man power development planning is extremely important for the successful implementation of the programmes taken up by the training institutions. The planning includes regular:

- annual recruitment;
- annual promotion;
- periodic consultation of service records/ annual confidential reports;
- training programme (in-service training);
- refresher course planning to embrace the current developments in and around the country;
- and
- needed foreign training for Ph.D and M.S;
- maintenance of norm in transfer and posting of officers; as well as,
- utilisation of foreign trained personnel in the needed areas.

Curriculum/ Staff

In recent years curriculum in forestry education and training has developed substantially to cover the training need. The latest syllabus is attached and included in Appendix 5. Periodic revision is however, warranted. The proportion of theory vs. practical appears to be rational.

Teaching staff details were provided previously.

Special Needs of Industries

The professional staff needed by forest based industries are generally available from IFCU trained B.Sc (Hons) degree holders and engineers from BUET and Diploma Engineers from Polytechnic Institutions of the country. At these levels, there is no serious short fall of new recruits. But many small private wood based industries are reluctant to recruit professionals with high salary and facilities.

The technical level personnel are recruited from various technical schools and mostly on the job trained mechanics are retained. The saw mill industry in private sector are deriving some training benefits for saw doctoring from FDTC, Kaptai. But this is not adequate. No training facilities exists of wood seasoning/ wood preservation/ wood processing. The incumbent (small in number) take help from BFRI. BFRI can organise short courses of training in sawmilling, seasoning, preservation and plywood technology etc. in public/private sector industries.

Special Need for Complementary Skills

In the unorganised sector, the bulk of the work force is unrolled. Their employment is seasonal or part time. The activities in which they are involved are:

- Seed collection, seedling raising, planting and tending operations
- Tree harvesting, felling, logging, stacking, carriage of wood/ small wood/ fuelwood
- Harvesting of bamboos in the forest and village woodlots
- Harvesting of non-wood forest product
- Bamboo and cane processing in cottage industries

All these operations need development of skill for more efficient performance. The works force is so scattered and casual that formal training be comes a real problem. By organising courses in the forest extension countries, scattered throughout the country, the training facilities will be brought close to their homes. Through the existing nurseries annually 50,000 workers can be given short course of training. Any where a regular forest extension centre is established, there should be provision for short course training centre to disseminate the improved practices and better maintenance of cutting tools.

- To attend seminar/workshops in neighbouring countries on forest education/forest extension/social forestry etc.
- To organise study tour in neighbouring countries on areas of common interest
- Fellowship and foreign training
- Initially hiring specialist teaching personnel on specific subjected on order to tide over the present short fall.

INVESTMENT PROPOSALS

The investment proposals for forestry education and training are summarised in the following tabulation:

Table 21 - Summary of Forestry Education and Training Investment Proposals (Tk million)

Detail	Cost
Cost of Construction of IFCU	33.24
Construction Cost of Bangladesh Forest Academy	44.00
Construction Cost of Forest School, Sylhet, equipments, Vehicle, Technical assistance, miscellaneous exp.	7.98
Cost of Construction of need forest Schoold including procurement of land at Ctg including lostal, equipments, books transport etc to accommodate 150 foresters students with an annual input of 50 students	75.50
Estimated cost of Books/Journals for Bangladesh Forest Academy and FD HQ for 7 years	1.05
Equipment for Bangladesh Forest Academy for 7 years	2.34
Capital and Operating cost for vehicles for BFA and IFCU for 7 years	32.00
Construction of Buildings/ instruments and furniture in the balance 72 existing Forest extension centres for providing training facilities to village leaders etc. by 2003	57.60
Sub total	253.60
Foreign Training need of FD by 20013	358.80
Foreign Training need of BFRI by 2013	261.60
Foreign Training need of IFCU by 2013	114.40
Sub total	734.80
GRAND TOTAL	988.40

Continuing Education

Through refresher's courses of different level of forestry professional staff, the improved technology and changing trends of development can be inducted. Besides, the refresher's courses, the following steps will help in improving and updating the knowledge of the professional officers.

- Development of a good library in Head Quarter and all CFs and DFOs offices
- Subscription of journals and literature on regular basis
- A five yearly conference of forest officers dealing with all administrative and technical problems.
- Foreign study tour in related countries to exchange ideas and gather knowledge
- Periodic interaction of forest officers with Forest Research Officers.
- Senior officers should freely exchange ideas with Junior officers and probationers
- Officers should be encouraged to write in journal's on technical matters.
- Periodic seminars on environment and forestry to be organised by FD.

Environmental Education

In IFCU, the Environmental Forestry is taught to students of B.Sc (Hons) in Forestry. The course comprises of:

- Definition and components of environment
- Renewable and non renewable natural resources
- Concepts of environmental conservation and management
- Effects of man's activities on environment
- Various types of pollution and their effect on human life.
- Environmental policy-education, research and coordination
- Environmental legislation in Bangladesh and elsewhere
- Role of forest in environmental conservation
- Environmental Impact Assessment (EIA) analysis

In the Bangladesh Forest Academy, environmental education should be included in the syllabus for refresher training courses and in conversion courses.

In recent years, there is a great increase in the environmental consciousness of educated people. This is due to increased attention by Government to check the deteriorating environment of the country mainly due to over population and mass illiteracy. The mass media has taken on important role in arousing such consciousness. This should be continued on a regular basis. The compulsory Environmental Impact Assessment before approval of a development schemes, makes people more conscious about environment. The newspaper/radio/television should regularly highlight the importance of better environment for a more comfortable living and better world.

Community/Public Education

The community participation is essential for success of the training to be imparted at the forest extension nursery centres to train village leaders/ cottage industrial workers on bamboo/ cane/ lac crafts. The forest extension and tree planting programme can only be successful if the community supports the programme and assist in participation of village leaders etc in the training course organised in the centres. The media can play great role in encouraging the community participation.

Participation in Regional Network

The following areas should be covered:

- To attend seminar/workshops in neighbouring countries on forest education/forest extension/social forestry etc.
- To organise study tour in neighbouring countries on areas of common interest
- Fellowship and foreign training
- Initially hiring specialist teaching personnel on specific subjected on order to tide over the present short fall.

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APPENDIX 1
ABBREVIATIONS, TERMS AND CONVERSION FACTORS

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

APPENDIX 1
ABBREVIATIONS, TERMS AND CONVERSION FACTORS

ACCF	- Assistant Chief Conservator of Forests
ACF	- Assistant Conservator of Forests
ACR	- Annual Confidential Report
ADAB	- Association for Development Agencies of Bangladesh
ADP	- Annual Development Programme/ Plan
ADT	- Air Dry Ton
AG	- Accountant General
APP	- Alternate Panel Products
ARI	- Agricultural Research Institute
ASA	- Association for Social Advancement
AsDB	- Asian Development Bank
ASEAN	- Association of South East Asian Nations
AWG	- Agroforestry Working Group
BADC	- Bangladesh Agricultural Development Corporation
BAEC	- Bangladesh Atomic Energy Commission
BARC	- Bangladesh Agricultural Research Council
BARD	- Bangladesh Academy for Rural Development
BARI	- Bangladesh Agricultural Research Institute
BAU	- Bangladesh Agricultural University
BBPS	- Bangladesh Birds Preservation Society
BBS	- Bangladesh Bureau of Statistics
BCIC	- Bangladesh Chemical Industries Corporation
BCSIR	- Bangladesh Council of Scientific and Industrial Research
BFA	- Bangladesh Forest Academy
BFIDC	- Bangladesh Forest Industries Development Corporation
BFL	- Basic Forestry Law
BFRI	- Bangladesh Forest Research Institute
BIDS	- Bangladesh Institute of Development Studies
BLRI	- Bangladesh Livestock Research Institute
BM	- Boat Man
BMRE	- Balancing Modernisation Rehabilitation Expansion
BNH	- Bangladesh National Herbarium
BPBC	- Bangladesh Paper and Board Corporations
BRAC	- Bangladesh Rural Advancement Committee
BRDB	- Bangladesh Rural Development Board
BSCIC	- Bangladesh Small and Cottage Industries Corporation
BTRI	- Bangladesh Tea Research Institute
BUET	- Bangladesh University of Engineering and Technology
BWDB	- Bangladesh Water Development Board
CA	- Coastal Afforestation
CAF	- Chinese Academy of Forestry
CCF	- Chief Conservator of Forests
CF	- Conservator of Forests
CFP	- Community Forestry Project
CGIAR	- Consultative Group on International Agricultural Research
CHT	- Chittagong Hill Tracts
CHTDB	- Chittagong Hill Tracts Development Board
CIDA	- Canadian International Development Agency
CIFOR	- Centre for International Forestry Research
CIRDAP	- Centre for Integrated Rural Development for Asia and the Pacific
CITES	- Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLAS	- Commercially Less Acceptable Species
CMLA	- Chief Martial Law Administrator
CRO	- Chief Research Officer
CSO	- Chief Scientific Officer
D&D	- Diagnostic and Design
DAE	- Department of Agricultural Extension
DANIDA	- Danish International Development Assistance
DCCF	- Deputy Chief Conservator of Forests
DCF	- Deputy Conservator of Forests
Dev.	- Development
DFO	- Divisional Forest Officer
DG	- Director General
DO	- Divisional Officer
DOE	- Department of Environment
ECNEC	- Executive Committee of the National Economic Council
EIA	- Environmental Impact Assessment

EP	- East Pakistan
EPFIDC	- East Pakistan Forest Industries Development Corporation
EPIDC	- East Pakistan Industrial Development Corporation
ERD	- Economic Relations Division
ESCAP	- Economic and Social Commission for Asia and the Pacific
Est.	- Establishment
Eva.	- Evaluation
F/FRED	- Forestry/ Fuelwood Research and Development
FA	- Field Assistant
FAO	- Food and Agriculture Organization (of the United Nations)
FD	- Forest Department
FDTC	- Forestry Development and Training Centre
F/E	- Forest Extension
FG	- Forest Guard
FI	- Field Investigator
FMP	- Forestry Master Plan
FORSPA	- Forestry Research and Support Programme for Asia and the Pacific
FR	- Forest Ranger
FRI	- Forest Research Institute
FRIM	- Forest Research Institute of Malaysia
FSRD	- Farming Systems Research and Development
FYP	- Five Year Plan
GDP	- Gross Domestic Product
GEF	- Global Environmental Facility
GNP	- Gross National Product
GOB	- Government of Bangladesh
GUP	- Gono Unnayan Parishad, an NGO
ha	- Hectare
HQ	- Headquarters
HRD	- Human Resources Development
HSC	- Higher Secondary Certificate
HTDB	- Hill Tracts Development Board
IBPGR	- International Board for Plant Genetic Resources
IBRD	- International Bank of Reconstruction and Development
ICIMOD	- International Centre for Integrated Mountain Development
ICRAF	- International Council for Research in Agroforestry
ICRISAT	- International Crops Research Institute for the Semi-Arid Tropics
IDA	- International Development Association
IDRC	- International Development Research Centre (of Canada)
IFCU	- Institute of Forestry of the Chittagong University
IGF	- Inspector General of Forests
IITA	- International Institute for Tropical Agriculture
IMED	- Implementation Monitoring and Evaluation Division
IRR	- Internal Rate of Return
IUCN	- International Union for the Conservation of Nature and Natural Resources
IUFRO	- International Union of Forestry Research Organizations
JICA	- Japanese International Co-operation Agency
Jr	- Junior
JRO	- Junior Research Officer
KHM	- Khulna Hardboard Mills
KNM	- Khulna Newsprint Mills
KPM	- Karnafuli Paper Mills
Lab	- Laboratory
LAKH	- One Hundred Thousand
L.Cs	- Licence
LDC	- Lower Division Clerk
LO	- Local Organization
M&E	- Monitoring and Evaluation
m ³ /CUM	- Cubic Meter
MAB	- Man and the Biosphere Programme
MAI	- Mean Annual Increment
MDF	- Medium Density Fibreboard
ME	- Maintenance Engineer
Mgt	- Management
Mis	- Miscellaneous
MLSS	- Member of the Lower Subordinate Staff
MOA	- Ministry of Agriculture
MOEF	- Ministry of Environment and Forest
MPTS	- Multipurpose Tree Species
MTIB	- Malaysian Timber Industry Board
NA	- Nursery Attendant
NARS	- National Agricultural Research System
NBPM	- North Bengal Paper Mills
NCC	- Non Commercial Cover
NCS	- National Conservation Strategy
NFB	- National Forestry Board
NFSC	- National Forest Seed Centre
NGO	- Non-Governmental Organization
No.	- Number
Nor.	- Normal

NTCC	- National Technical Coordination Committee
NWFP	- Non Wood Forest Products
ODA	- Overseas Development Administration (of United Kingdom)
ODA	- Official Development Assistance
OFRD	- On-Farm Research Division
PCCF	- Principal Chief Conservator of Forests
PCP	- Project Concept Paper
PF	- Protected Forest
PH	- Negative Logarithm of Hydrogen Ion Concentration
Pln	- Plan/Planning
PLO	- Publicity and Liaison Officer
PM	- Prime Minister
PME	- Principal Maintenance Engineer
PNG	- Papua New Guinea
PP	- Project Proforma
PPTs	- Provisional Plus Trees
PSC	- Public Service Commission
PSO	- Principal Scientific Officer
Ptn	- Plantation
PWD	- Public Works Department
PWD	- Pulp Wood Division
R&D	- Research and Development
RA Gr.I	- Research Assistant Grade I
RDRS	- Rangpur Dinajpur Rehabilitation Service, an NGO
Rev.	- Revenue
RF	- Reserved Forest
RFS	- Rajshahi Forest School
RIMS	- Resource Information Management System
RSS	- Ribbed Smoked Sheets
SA	- Scientific Assistant
SAARC	- South Asian Association for Regional Corporation
SARP	- Second Agricultural Research Project
SDC	- Swiss Development Corporation
SDFO	- Sub Divisional Forest Officer
SFA	- Senior Field Assistant
SFR	- Senior Forest Ranger
SFS	- Sylhet Forest School
SFYP	- Second Five Year Plan
SIC	- Swiss International Cooperation
SIDA	- Swedish International Development Agency
SO	- Scientific Officer
SOE	- State Owned Enterprise
SPARRSO	- Space Research and Remote Sensing Organisation
SPDC	- Special Programme for Developing Countries
SPPM	- Sylhet Pulp and Paper Mills
Sr	- Senior
SRD	- Silvicultural Research Division
SRDI	- Soils Research and Development Institute
SRO	- Senior Research Officer
SRTI	- Sugarcane Research and Training Institute
SSO	- Senior Scientific Officer
SSC	- Secondary School Certificate
STIDC	- Sarawak Timber Industry Development Corporation
T&V	- Training and Visit
TA	- Technical Assistance
TBNP	- Thana Banayan Nursery Prokalpa
TFYP	- Third Five Year Plan
Tk	- Taka, the Bangladesh currency
TOR	- Terms of Reference
TPA	- Tons Per Annum
TPD	- Tons Per Day
TT	- Tappers Training
TTMU	- Technology Transfer and Monitoring Unit
TTU	- Technical Training Unit
UDC	- Upper Division Clerk
UNCED	- United Nations Conference on Environment and Development
UNDP	- United Nations Development Programme
UNESCO	- United Nations Educational, Scientific and Cultural Organization
USAID	- United States Agency for International Development
USF	- Unclassed State Forest
VFI	- Village Forest Inventory
WB	- World Bank
WL	- Wild Life
WFP	- World Food Programme
WP	- Working Plan
WSB	- Wildlife Society of Bangladesh
yr	- Year

APPENDIX 2
TERMS OF REFERENCE

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

APPENDIX 2
TERMS OF REFERENCE

Institutional Structures

- a. Review the organization of forestry institutions in Bangladesh;
- b. assess the structures of the various institutions and analyze past performance (measured against the objectives of the Third Five Year Plan) and present capability;
- c. recommend organizational changes needed to streamline operations and to improve the effectiveness and relevance of these institutions;
- d. assess the planning capability of forestry institutions and propose measures to strengthen this capability;
- e. recommend measures to improve monitoring and evaluation functions within forestry institutions;
- g. prepare measures to streamline the system of recruitment and promotion within forestry institutions; and
- h. prepare a detailed manpower development plan for the forestry sector of Bangladesh.

Education and Training

- a. Review and assess forestry education and training services available in Bangladesh;
- b. critically examine courses and curricula available and recommend the necessary changes/updating which would improve the effectiveness of education and training;
- c. examine available facilities (buildings, books, equipment, furniture, teaching aids, etc.) and prepare a programme to upgrade and expand these facilities;
- d. review and assess forestry training services offered to non-forestry personnel (i.e. social forestry training for the general public) with regard to its relevance and effectiveness;
- e. assess the effectiveness of local and international training assistance offered through development assistance projects; and
- f. identify projects/ programme(s) needed to improve forestry education and training in Bangladesh.

**APPENDIX 3
INSTITUTIONS DETAILS**

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

APPENDIX 3
INSTITUTIONS DETAILS

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1. EXISTING ADMINISTRATIVE STRUCTURE OF FOREST DEPARTMENT

Circles	Divisions	Area in ha	No. of Sub-Div.	No. of Ranges	No. of Beats/co ups	No. of F/Extension Nursery Centres	No. of Check/Rev Stations	No. of Petrol Posts/Camps	No. of Parks
JESSORE	Jessore	9.0	-	-	-	10	-	-	-
	Kushtia	8.0	-	-	-	6	-	-	-
	Faridpur	10.0	-	-	-	5	-	-	-
	Khulna	-	-	-	-	4	-	-	-
BOGRA	Bogra	7.0	-	-	-	4	-	-	-
	Rangpur	2,723.0	-	2	9	8	-	6	-
	Rajshahi	2,905.0	-	1	6	8	-	-	-
	Pabna	-	-	-	-	4	-	-	-
	Dinajpur	10,105.0	-	4	17	4	1	14	-
CENTRAL	Tangail	22,460.0	-	9	25	3	7	7	-
	Sylhet	76,725.0	-	10	53	5	6	-	-
	Comilla	1,696.0	-	2	7	5	-	1	-
	Mymensingh	28,486.0	-	6	28	8	10	5	-
	Dhaka Ext.	9.0	-	-	-	8	-	-	-
	Dhaka	26,221.0	-	4	24	-	5	4	1
RANGAMATI	CHT (North)	312,442.0	2	9	18	✓	-	1	-
	CHt (South)	254,882.0	-	7	12	✓	-	7	4
	Jhoom control	22,503.0	-	8	30	✓	1	-	-
	Pulp wood (Kaptai)	29,279.0	-	10	29	✓	-	2	-
	USF	102,495.0	-	9	-	✓	-	2	-
	Khagrachari	83,482.0	-	5	-	✓	1	3	-
CHITTAGONG	Chittagong	109,912.0	2	20	62	✓	4	11	1
	Cox's Bazar	117,774.0	2	18	65	✓	2	9	8
	P.W.(Bandarban)	58,236.0	-	8	21	✓	-	2	-
	Utilization	-	-	2	-	-	-	-	-
	Bandarban	118,790.0	-	7	-	✓	1	2	-
	Lama	75,149.0	-	6	-	-	-	1	-
PLANTATION	Sundarban	577,285.0	-	6	22	-	-	16	36
	C/A. Patuakhali	21,168.0	-	7	3	-	2	-	40
	C/A. Chittagong	88,151.0	-	11	38	-	-	-	23
	C/A. Bhoia	20,183.0	-	5	20	-	1	-	-
	C/A. Noakhali	95,329.0	-	10	26	-	3	-	21
	** Botanical Garden	86.0	-	-	-	-	-	-	-
TOTAL		2,258,510.0	6	186	515	97	85	170	4

** Controlled by Chief Conservator of Forests.

Source: Forest Department

2. FUNCTIONS AND DUTIES OF CHAIRMAN AND DIRECTORS OF BFIDC

(As outlined by Order No. 1, Dated 06.01.1977 by Chairman BFIDC)

In the interest of smooth and efficient administration of the affairs of the Corporation and subject to any restrictions as may be posed by rules or orders of the Govt. or the Board of Directors or under any law, the duties and responsibilities of the Chairman and the Directors of the Corporation are defined and allocated as follows:

1. Functions of the Chairman

a) As Chairman of the Board:

- i) To approve agenda of the meeting; to call Board meetings; to preside over the meetings and to guide and control deliberations of the meetings with a view to reach decisions in conformity with the policy directions of the Govt.
- ii) To recommend appointment and withdrawal of the Directors.

b) As a Chief Executive of the Corporation:

- i) To allocate/ reallocate the duties as well as to delegate powers from time to time at his direction, to the functional directors and other officers of the Corporation for their day to day functions while, as the legally appointed Chief Executive, he retains at all times the overall authority, responsibility and accountability for the affairs of the Corporation and the enterprises under it.
- ii) To formulate corporations policies and guide lines with the assistance of functional directors and in keeping with Government directives on the one hand and the enterprises requirements on the other.
- iii) To present to the board, the annual programme and budget of the Corporation alongwith a summary of enterprise's programmes and budgets; as well as the annual reports for the Corporation and for the enterprises as a whole for the previous financial year.
- iv) To implement the policies and programmes through the activities of the Corporation in controlling, co-ordinating and supervising the affairs of enterprises/ projects.
- v) To co-ordinate the activities of the Corporation with the Government through the Forest, Fisheries and Livestock Division of the Ministry of Agriculture.
- vi) To keep the Board generally informed of the affairs of the Corporation and to bring such matters for the consideration of the Board as he may feel necessary from time to time.
- vii) To act as controlling officer of the Directors and other officers as may be reporting to him directly from time to time.
- viii) To appoint personnel of the Corporations Head Office as per Organogram approved by the Government and personnel of projects/ enterprises down to a level Managers and Officers equivalent to Managers as per approved Organogram through properly constituted selection Board from time to time.
- ix) To promote, post and transfer officers of enterprises/ projects down to the level of Managers or equivalent posts.
- x) To promote, post and transfer officers, staff and other personnel of the Corporations Head Office.
- xi) To order enquiries in the affairs of the Corporation and the enterprises/ projects and take disciplinary actions where necessary under the provision of rules.
- xii) To act as an appellate body against punishment awarded to any personnel of the project/ enterprise by authorised persons.
- xiii) The overall control of the activities of the Secretariate Divisions of the Head Office.
- xiv) The overall control of the MIS, Security and Public Relation Branches of the Head Office.

2. Functions of Director (Finance)

a) As member of the Board:

- i) To participate in the deliberations of Board's Meetings.

b) As Functional Director:

- i) To carry out such duties of the Corporation with such powers as may be allocated & delegated to him by the Chairman from time to time.
- ii) To keep himself in constant contact with the related functions of other directors and to keep the Chairman informed about the current progress, problems and programme of activities of his Directorate.
- iii) To ensure performances and to initiate proposals for improvement of activities relating to his Directorate.

- iv) To prepare annual budget of the Corporation for approval of the Board and the Government.
- v) To prepare annual balance sheet profit and loss account and revenue account of the Corporation in prescribed forms and to place them before the Corporation's Board for approval and adoption and to submit copies thereof to the Government.
- vi) To develop, design, and introduce advance accounting system including costing and store accounting and designing of various standard forms to be used in both Corporation's Head Office and by the enterprises and to see that the systems are properly introduced and followed by the Corporation and the enterprises.
- vii) To examine and approve proposals within the total approved budget provisions (capital) for reappropriation of funds from one capital head to another (other than ADB fund utilisation) as may be referred to by the enterprises; except those cases where the Director (Finance) is a Director-in-charge; which cases will be referred to Chairman for approval.
- viii) To deal with insurance and tax matters of Corporation's Head Office and to guide and assist the enterprises in these matters.
- ix) To introduce an effective Internal Audit system both for Corporation's Head Office and the Corporation's Head office and in the enterprises and place before the Chairman and any serious irregularities which are detected and to keep liaison with the Government Commercial Audit and to attend audit queries thereof.
- x) To prepare ADP budget and foreign exchange budget both for development and non development activities in consultation with Functional Directors and after obtaining concurrence of the Corporation's Board to submit the same to the Government in time for their approval.
- xi) To liaise continuously with Government agencies for allocation and release of ADP fund and foreign exchange in cash, barter, loan and grant etc.
- xii) To submit returns to Government on utilisation of ADP funds local and foreign.
- xiii) To assist the enterprises in procuring import licences, import permits, category pass books in any from relevant Govt. agencies and for opening of L.Cs.
- xiv) To establish letters of credit for imports arranged by Head Office and to arrange retirement of such import documents.
- xv) To scrutinise the budgets of enterprises and to get them approved by the Corporations Board before the commencement of the financial year.
- xvi) To develop and introduce a comprehensive budgetary control system for enterprises and to analyse at an interval of at least once in every quarter the variance with respect to budgetary provisions and to place before the Chairman any major deviation of the budget for appropriate actions.
- xvii) To appoint external auditors for the enterprises with the approval of the Corporation's Board.
- xviii) To prescribe procedures and forms for submission of balance sheets, profit and loss account and manufacturing and trading accounts and cash flow statements by the enterprises.
- xix) a) To design and develop standard proformas for costing of different products of the enterprises.
- b) To made proper costing and submit price proposals for products which are controlled items after obtaining approval of the Corporations Board, to the Govt. based on data to be supplied by the enterprises and to get such pricing approved by the Govt. To review prices so fixed from time to time and to submit proposals for refixation of prices if necessary.
- c) To obtain and scrutinise and get approved by Corporation's Board the costing and pricing proposals of enterprises for products which are not controlled items and to review prices from time to time.
- xx) To identify fiscal anomalies and submit proposals to the Govt. for remedy.
- xxi) To prepare cases for subsidy, compensation, tariff concessions, export incentives, duty drawbacks, restrictions on imports of items manufactured by the enterprises and submit the same to the Govt. and to take follow up actions.
- xxii) To act as the ex-officio Chairman of the "Head Office provident fund trust".
- xxiii) To obtain returns from the enterprises in prescribed forms (Fortnightly/ Monthly/ Quarterly/ Annually) on financial matters.
- xxiv) All other functions as may be assigned and reassigned by the Chairman from time to time.
- e) As Director-in-charge:
- i) To act as Director-in-charge and as the chain of command and control of the Corporation's Chairman on the enterprises/projects.

(Proj. 372001/18, App. 3)

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- ii) To guide and control the enterprises/ projects in the implementation of policies & programmes as approved by the Corporation's Board and as directed by the Chairman from time to time.
- iii) To report to the Chairman about the affairs of the enterprises.
- iv) To coordinate/ liaise with the functional Directors of the Corporation to expedite solution of the problems of the enterprises as well as in the improvement of the performances of the enterprises.

3. Director (Planning & Development)

a) As a member of the Board:

- i) To participate in the deliberation of Board's meeting.

b) As functional Director of the Corporation:

- i) To carry out such duties of the Corporation with such powers as may be allocated and delegated to him by the Chairman from time to time.
- ii) To keep himself in constant contact with the related functions of other Directors and to keep the Chairman informed about the current progress, problems and programmes of activities of his Directorate.
- iii) To ensure performances and to initiate proposals for improvement of activities relating to his Directorate.
- iv) To sponsor, prepare and process feasibility studies for enterprises.
- v) To sponsor, prepare and process new Development Schemes as agreed upon by the Chairman.
- vi) To prepare and process BMRE schemes of enterprises as sponsored by the Director (Production & Commercial) with the approval of the Chairman.
- vii) To prepare specifications and tender documents for project implementation, both for new and BMRE Schemes, Expert services and feasibility studies.
- viii) To evaluate offers received against tender enquiries for new development projects, BMRE Schemes, market studies, Expert services and feasibility studies.
- ix) To monitor, coordinate and execute upto the stage of successful trial production of new development projects, BMRE Schemes, market studies, Expert services and feasibility studies.
- x) To prepare ADP in consultation with Director (Finance) and keep liaison with Planing Commission, other Ministries and concerned Govt. offices regarding development schemes, BMRE.
- xi) To submit monthly, quarterly and annual progress reports on various development schemes/ studies to the Government after obtaining reports from the enterprises and in consultation with the Director (Finance). To obtain fortnightly/ monthly/ quarterly and annual reports from the projects in prescribed forms regarding the development Schemes.
- xii) To assist and guide the enterprises with regard to proper and timely maintenance and upkeep of plants, machinery and equipments and to ensure that the maintenance schedule is properly drawn and executed by the enterprises.
- xiii) To develop a well defined system for repair and maintenance including preventive maintenance of plants, machineries and equipments.
- xiv) To offer assistance and guidance in the area of production engineering i.e. works study, method study, works measurement, time and motion study, value analysis with a view to achieve maximum efficiency of men and machines.
- xv) To help developed various workshops of the enterprises so as to enable such workshops to manufacture spare parts as far as practicable.
- xvi) To collect and completed data periodically in respect of plants, machineries and equipments and abnormal behaviour in plant and machinery as well as the stock position of spares, general hardware and construction material and to circulate such date/information among the enterprises which might help the enterprises, particularly in regard to common and similar stores, spares and equipments.
- xvii) To prepare safety schemes for enterprises, guide and assist the enterprises in implementing such schemes and to inspect periodically their enforcement.
- xviii) To plan, design and undertake all civil, electrical, mechanical engineering works in respect of new projects and manor civil, electrical and mechanical engineering works of existing enterprises in close cooperation with the enterprises.
- xix) To assist and guide the enterprises in matters of minor civil engineering works.
- xx) To develop standard plan for residential housing and other ancillary facilities for the enterprises.

- xxi) To sponsor proposals for foreign assistance in the form of maintenance services and Expert services connected therewith in respect of existing enterprises in consultation with the enterprises and the Director (Production & Commercial).
- xxii) All other functions as may be assigned from time to time by the Chairman.
- c) As Director-in-charge:
- i) To act as Director-in-charge and as the chain of command and control of the Corporations Chairman over the enterprises.
 - ii) To guide and control the enterprises/ projects in the implementation of policies and programmes as approved by the Corporation's Board and as directed by the Chairman from time to time.
 - iii) To report to the chairman about the affairs of the enterprises/ projects.
 - iv) To coordinate and liaise with functional Directors of the Corporation in expediting the solution of the problems of the enterprises as well as in the improvement of the performances of the enterprises.
4. **Director (Production & Commercial)**
- a) As member of the Board:
- i) To participate in the deliberation of Board's meeting.
- b) As Functional Director:
- i) To carry out such duties of the Corporation with such powers as may be allocated and delegated to him by the chairman from time to time.
 - ii) To keep himself in constant contact with the related function of the Directors and to keep the Chairman informed about current progress, problems and programme of the activities of his Directorate.
 - iii) To ensure performances and to initiate proposals for improvement of activities relating to his Directorate.
 - iv) To prepare annual production and sales targets for the enterprises in consultation with the concerned enterprises and the Director-in-charge and to obtain Board's approval of the targets and to communicate the targets so fixed to the enterprises well in advance.
 - v) To supervise and assist the enterprises in the preparation of production, plan and material and utility plan for each year well in advance.
 - vi) To guide and assist the enterprises in achieving the approved targets and to review constantly the performance of the enterprises including the position of finished stock. Major deviation in targets and usage ratio is to be brought to the notice of the Chairman.
 - vii) To assist enterprises in process control and development, product development and product diversification and to ensure that standard quality of product diversification and to ensure that standard quality of product is produced by the enterprises.
 - viii) To collect International and National standards for the Products of the enterprises, to examine the standard and to introduce appropriate standards in concerned enterprises.
 - ix) To sponsor development of national standard of products of the enterprises and to liaise with Bangladesh Standard institute.
 - x) To sponsor BNRE Schemes for the existing enterprises in consultation with the local management.
 - xi) To prepare incentive bonus scheme in consultation with the enterprises, Director-in-charge and the Finance Director before the commencement of the financial year for the approval of the Board and the Government.
 - xii) To prepare and review specifications of raw material used in production in consultation with the enterprises.
 - xiii) To assist enterprises to draw energy and material balance in order to find out the usage variance in man hour, machine hour, raw and processed materials and energy consumption per unit of finished product for maintaining approved usage ratio.
 - xiv) To undertake and arrange bulk import of raw material required by more than one enterprise and where such centralised purchases are financially advantageous to the enterprises and to see that such purchases are made at appropriate time and in appropriate quantity in accordance with the requirement of the enterprises.
 - xv) To undertake and arrange import of plant and machinery not covered by Turnkey/ Semi Turnkey Contracts in close cooperation with Director (Planning & Development).
 - xvi) To undertake and arrange import of raw materials and spares for new projects which are not covered by Turnkey/ Semi Turnkey contracts in close cooperation with the Director (Planning & Development). This does not include import of spare parts for enterprises which is the responsibility of the operating enterprises. The enterprises should, however, be assisted in this matter by the production & Commercial Directorate.

- xvii) To prepare a central list of items of imports to be dealt with by the Corporation based on commercial considerations and economic advantages and these to be imported by the enterprises. Each year well in advance in consultation with the enterprises. Such list should be sent to the enterprises well in advance.
 - xviii) To prepare in consultation with the enterprise sale and distribution policies including export policy for the approval of the Board and to review the same from time to time to ensure that the policies are properly observed by the enterprises.
 - xix) To review constantly, at home and abroad, the source of supply and price trends of raw materials and spares and to publish market intelligence report at regular intervals for guidance of the enterprises.
 - xx) To undertake extensive market research and survey for market creation and market expansion of the same at home and abroad in close cooperation with the enterprises.
 - xxi) To initiate with the active participation of the enterprises the sales promotion activities including publicity and advertisement.
 - xxii) To initiate, compile and publish catalogues of the products of the enterprises in cooperation with the Public Relation Branch.
 - xxiii) To make annual sales forecast for home market and for export and to review the same constantly.
 - xxiv) To provide market intelligence services for finished products to the enterprises.
 - xxv) To provide feed back information to the enterprises in respect of product strategy, pricing strategy, distribution strategy and promotional strategy and guide the enterprises in the desired.
 - xxvi) To arrange export sales including barter and to maintain liaison with Bangladesh Embassies in Foreign Countries for maximising the export at maximum available price. To ensure fulfilment of export commitments quantity and quality and delivery by the enterprises and the fulfilment of the terms and conditions thereof.
 - xxvii) To assist and coordinate with the enterprises in domestic sales with Government and Semi-Govt. agencies and in the collection of sales proceeds thereof.
 - xxviii) To examine and review the Tariff structure, export and import policies and advise the enterprises to prepare proposal for grant of subsidy, protection and tariff concession etc. in consultation with the Director (Finance).
 - xxix) To advise, guide and assist the enterprises in obtaining duty drawbacks, export performance licence in consultation with the Director (Finance).
 - xxx) To obtain fortnightly/ monthly/ quarterly/ annual returns in prescribed forms from the enterprises/ projects in the field of production, sales, procurement, purchase and stocks etc.
 - xxxi) All other functions which may be assigned or reassigned from time to time by the Chairman.
- c) As Director-in-charge
- i) To Act as Director-in-charge of the enterprises and as a chain of command and control of the Corporation's Chairman on the enterprises.
 - ii) To guide and control the enterprises/ projects in the implementation of policies and programmes as approve by the Corporation and as directed by the Chairman from time to time.
 - iii) To report to the Chairman about the affairs of the enterprises.
 - iv) To coordinate and liaise with the functional Directors of the Corporation in expediting the solution of the problems of the enterprises as well as in the improvement of performances of the enterprises.

3. ALLOCATION OF DEPARTMENT AND BFRI FUNCTIONS AND CHARTER OF DUTIES

Allocation of Functions of Forest Department & charter of duties of Forest Department and Bangladesh Forest Research Institute Officers. (As specified by the Martial Law Committee on organizational set up of Forest Department and approved by the Chief Martial Law Administrator Vide notification no. 7002/1/civ-I dated Dhaka 15.03.1983)

ALLOCATION OF FUNCTIONS

The functions allocated to the department as custodian of national forests are given below:

- a. Protection and management of forest wealth of the country.
- b. Harvesting of forest produces on sustained-yield basis to meet the requirements of consumers and wood based industries.
- c. Raising of plantations with fast growing and high yielding variety of species to improve the quality of forests.
- d. Horizontal expansion of tree cover within the country through forest Extensions Service.
- e. Realisation of revenue, preparation of budget, auditing, accounting, etc.
- f. Education and training of manpower.
- g. Research on forest product (for forest based industries) and forest management.
- h. Protection and propagation of wildlife coupled with enforcement of the wildlife (Preservation) (Amendment) Act. 1973.

CHARTER OF DUTIES

Chief Conservator of Forests:

1. To act as administrative head and is responsible for overall administration of the department.
2. To act as an advisor to the Administrative Ministry on technical matters and on formulation of policies concerning the Department.
3. To act as principal Accounting officer of the Department within the budget provision.
4. To be responsible for the administration and execution of function of the Department as per Act. Ordinance, Rules and Regulations and directives issued by the Govt. from time to time.
5. To be responsible for proper functioning and discipline of the Department.
6. To provide executive and operational guidance to the field staff and exercise control and supervision over them.
7. To be responsible for appointing Classes II, III and IV employees of the Department as per existing procedure and also responsible for promotion and confirmation of such officers and staff.
8. To be responsible for issuing clear standing orders laying down the maximum extent of delegation of power to the officers serving under him.
9. To be responsible for disposal of disciplinary and appeal cases falling within his powers.
10. To be responsible for transfer and posting of all Class-I officers upto the rank of D.C. Fs/D.F. Os and inter-circle transfer of all S.D.F.O/ A.C.Fs and other transferable subordinate staff.
11. To control and supervise the work of the Department.
12. To represent the Department and where personal representation is not possible to select representative on his behalf.
13. To grant earned leave etc. to all Class-I Officers under him.
14. To meet all officers under him located in the same station once in a month to review cases pending for disposal for over a month.
15. To be responsible for inspection of his office at least once in month and field offices at least once in a quarter in addition to Annual Inspection.
16. To allocate duties of officers as and when required.
17. To ensure revenue collection where applicable and safeguard Govt. property under his charge.
18. To be responsible for maintaining proper security measures of the Department.
19. Any other duties assigned by the Government.

Deputy Chief Conservator of forests (Development Planning):

To act as a staff officer of the Chief Conservator of Forests and to look after the following:

1. Preparation of sub-sectoral development plans, programmes etc. in conformity with national objectives and strategies.
2. All matter relating to Development schemes, programmes, A.D.P and development budget and supervision of functions of Asstt. Chief conservator of Forest.
3. Initiate proposals for foreign assistance and scrutinise the appraisal report connected with the project.
4. Initiate proposal for transfer of development projects to normal budget after completion of the development schemes.
5. Programming for foreign training and higher education of forestry personnel under various foreign assistance.
6. Disposal of all urgent papers regarding development planning in absence of Chief Conservator of Forests.
7. Any other duties assigned by the Chief Conservator of Forest.

Deputy Chief Conservator of Forests (Management Planning):

To work as a staff officer of the Chief Conservator of Forests and to look after the following:

1. Drawing up of programme for preparation of management plan for all Forest Divisions in conformity with national objectives and in accordance with the provisions of working plan manual.
2. Supervision and technical guidance in the preparation of management plans for different Forest Divisions.
3. Preparation of schedule for training of all category of officers and staff in the local training institutions.
4. Control of budget and expenditure of the Technical divisions and training Institutions under his administrative control and auditing of their accounts.
5. Supervision and administrative control of the Technical Training Institutions and divisions under his administrative control.
6. Periodical tour and inspection of the Institutions and Divisions under his administrative control.
7. Any other duties and responsibilities assigned by the Chief Conservator of Forests.

Deputy Chief Conservator of Forests (Extension):

To work as a staff officer of the Chief Conservator of Forests and to look after the following:

1. Drawing up of detailed plan and programme for Forest Extension works.
2. Supervision and technical guidance for proper implementation of Extension Programme.
3. Drawing up of programme, organise and co-ordinate the works connected with the free plantation campaign observed at the National level.
4. Co-ordination of all types of extension work under all the territorial circles.
5. Periodical tour and inspection of areas covered by Extension work.
6. Any other responsibilities assigned by the Chief Conservator of Forests.

Conservator of Forests, Administration and Wildlife:

To work as a staff officer of the Chief Conservator of Forests and to look after the following:

1. All correspondences relating to appointment, promotion, confirmation of Gazetted and non-Gazetted staff, compilation of Gradation list and service records, transfer and posting of staff.
2. Control of revenue budget and expenditure of the department including revenue earning of the department.
3. General correspondence regarding sales of forest produce, forest land, complaints, schedule of rates and other miscellaneous correspondences.
4. Correction, modification and revision of manuals and to keep them upto date.
5. Deal with disciplinary and appeal cases, and processing of pension and provident fund cases.

6. Correspondences and co-ordination of work in connection with wildlife management and protection under Wildlife Preservation Act.
7. Technical guidance to the concerned officials in connection with wildlife protection and propagation.
8. Any other duties assigned by the Chief Conservator of Forests.

Assistant Chief Conservator of Forests (General):

1. To act as drawing and disbursing Officers in respect of General Director, Division-preparation of budget and maintenance of accounts in respect of General Director Division.
2. to be responsible for all correspondences relating to sale of forest produce and schedule of rates.
3. To be responsible for all correspondences regarding public complaints, paper cutting etc.
4. To be responsible for acquisition and de-requisition of land.
5. To be responsible for maintenance of Manual, Rules, Regulation their correction, modification and revision.
6. To be responsible for tour note and tour diary of officers.
7. To be responsible for visit of Dignitaries.
8. To be responsible for preparation of periodical reports and returns.
9. To be responsible for Assembly Questions and other miscellaneous correspondences.
10. To be responsible for all correspondences relating to wildlife Management.
11. To be responsible for rents and royalty in respect of mineral classified as Forest Produce.
12. To be responsible for reservation and de-reservation of forests.
13. To be responsible for review of pending cases.
14. Any other duty to be assigned by the C.C.F./D.C.C.F./C.F

Assistant Chief Conservator of Forests (Personnel & Accounts):

1. To be responsible for all correspondences regarding recruitment, promotion, confirmation, transfer and posting of Gazetted and non-Gazetted Staff.
2. to be responsible for preparation and maintenance of gradation list, service records and confidential reports of subordinate staff.
3. to be responsible for correspondences regarding disciplinary and appeal cases.
4. To be responsible for correspondences relating to miscellaneous establishment matters.
5. To be responsible for correspondences with all Autonomous Bodies including agreements.
6. To be responsible for compilation of Annual Report.
7. To be responsible for F.A.O Statistics.
8. To be responsible for reports and returns on establishment
9. To be responsible for important correspondences on Accounts and Budget matters (normal)
10. Any other duty assigned by the C.C.F/D.C.C.F./C.F.

Assistant Chief Conservator of Forests (Development & Planning):

1. To be responsible for preparation and revision of development schemes, processing and follow-up of schemes for obtaining approval from competent authority.
2. To be responsible for undertaking project appraisal and economic analysis.
3. To be responsible for preparation and revision of ADP and follow-up.
4. To be responsible for processing and obtaining approval of break-up sanction.
5. To be responsible for processing and obtaining expenditure sanction.

6. To be responsible for preparation of project list of each individual scheme.
7. To be responsible for processing of proposal for obtaining financial sanction of each individual project from higher authority and transmission of the same to the Circles.
8. To be responsible for compilation and submission of monthly disbursement position of all development projects.
9. To be responsible for checking of monthly expenditure forms relating to development projects.
10. To be responsible for evaluation of physical and financial progress of work of all development projects.
11. To be responsible for preparation and submission of monthly, quarterly and annual progress report of all development schemes including completion report of completed schemes.
12. To be responsible for co-ordination of the activities of technical assistance/ Programmes, of World Bank, British Technical Assistance e and Asian Development Bank.
13. To be responsible for compilation of reports of aided projects particularly in connection with cost disbursement and re-imburement.
14. To be responsible for processing and obtaining approval for procurement of equipment etc. under all aided projects through International Competitive biddings.
15. To be responsible for collection, collation, analysis and assembly of statistical data relating to resources, production, consumption of forest produces.
16. To be responsible for all correspondences relating to foreign training.
17. Any other duty assigned from time to time by the C.C.F./D.C.C.F./C.F.

Assistant Chief Conservator of Forests (Management Planning):

1. To be responsible for all correspondences relating to preparation of management plans of different Divisions.
2. To be responsible for collection and updating of data in connection with management plans.
3. to be responsible for compilation of list of trainees in the Forest School, Forest College and other technical institutions.
4. To be responsible for auditing the expenditure forms of Technical Divisions and training Institutions.
5. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Assistant Chief Conservator of Forests (Extension):

1. To be responsible for all correspondences relating to implementation of extension programme.
2. To be responsible for correspondences relating to tree plantation campaign and co-ordination of work connected there with.
3. To be responsible for collection of data on extension works and compilation of reports and returns
4. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Budget Officer:

1. To be responsible for compilation of annual revenue and development budget for the department.
2. To be responsible for all correspondences relating to budget and expenditure of the Department.
3. To be responsible for maintenance of records on progress of expenditures and revenue earning of the Department.
4. To be responsible for submission of progress reports to concerned authorities.
5. To be responsible for verification of revenue and expenditure figures with Accountant-General of Bangladesh.
6. To be responsible for appropriation of accounts and fixation of net grant.
7. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Accounts Officer:

1. To be responsible for sanction of expenditure under revenue budget.
2. To be responsible for all correspondences in connections with Accounts matter.

3. To be responsible for auditing the forms connected with accounts of the Chief Conservator of Forests office and the circle offices.
4. To be responsible for re-imbursement proposal for all foreign aid.
5. To be responsible for settlement of outstanding audit objection of the Accounts General of Bangladesh.
6. To be responsible for Store Accounts.
7. To be responsible for checking of T.A. Bills.
8. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Research Officer:

1. To be responsible for preparation and revision of Development Schemes.
2. To be responsible for collection and processing of data on forests and forests produce.
3. To be responsible for preparation of monthly, quarterly and Annual progress reports.
4. To be responsible for assisting the Assistant Chief Conservator of Forests (Planning) in carrying out his functions.
5. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Director, Forestry Development and Training Centre:

1. To be act as head of the Institute and responsible for overall administration of the Institute.
2. To be responsible for chalking out programme and field training.
3. To be responsible for co-ordination of work of the Foreign Experts attached to the Institute.
4. To be responsible for supervision and guidance of the officers staff of the Institute.
5. To be responsible for conducting tours and training of the students.
6. To be responsible for preparation of Budget and Revised Budget of the Institute and submission of account of the AG and CCF.
7. To be responsible for execution of all works of the Institute in time and within the budget allocation.
8. To be responsible for drawing and disbursing in respect of his office.
9. To be responsible for writing of A.C.R of all officers and staff posted in the Institute.
10. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Director, Forest College:

1. To be act as head of the Forest College and responsible for over all administration of the College.
2. To be responsible for imparting proper education to the trainees as per approved syllabus of the College.
3. To be responsible for supervision of the work of the teaching staff.
4. To be responsible for conducting examination of the College.
5. To be responsible for maintaining overall discipline in the College.
6. To be responsible for preparation of Budget Estimate and Revised Estimate for the Forest College.
7. To be responsible for completion of all works of the College within the budget allocation.
8. To be responsible for supervision and guidance of the teaching staff.
9. To be responsible for writing of A.C.R. of the teaching g and other staff.
10. To be responsible for submission of monthly accounts to A.G. and C.C.F.
11. Any other duty assigned by the C.C.F./D.C.C.F./C.F.

Director, Forest School:

1. To be act as head of the school and responsible for over all administration of the school.

2. To be responsible for imparting proper education to the students as per approved syllabus of the school.
3. To be responsible for maintaining over all discipline of the school.
4. To be responsible for supervision and guidance of the Teaching staff.
5. To be responsible for drawing up a programme for outdoor tours of the students.
6. To be responsible for conducting of periodical and final examination of the school.
7. To be responsible for drawing and disbursing in respect of school.
8. To be responsible for preparation of Budget Estimate and Revised Estimate fr the school.
9. To be responsible for completion of all works of the school within the budget allocation.
10. To be responsible for submission of monthly account to A.G. and C.C.F.
11. To be responsible for writing up of ACCR of staff of the School.
12. Any other duty assigned by the D.C.C.F./C.C.F.

Divisional Forest Officer, Working Plans Division:

1. To act as head of the Division and is responsible for overall administration of the Division.
2. To be responsible for preparation of management plans for different Forest Divisions.
3. To be responsible for field enumeration, survey and collection of data.
4. To be responsible for supervision and guidance to subordinate officers and staff including writing of their ACRs.
5. To be responsible for preparation of Budget Estimate and Raised Estimate for the Division.
6. To be responsible for completion of works within budget allocation and in time.
7. To be responsible for drawing and disbursing in respect of his office.
8. to be responsible for submission of monthly accounts to A.G. and C.C.F.
9. to be responsible for any other duties to be assigned by Chief Conservator of Forests/ Deputy Chief Conservator of Forests.

Conservator of Forests:

1. To be responsible for overall administration of the Circle.
2. To be responsible for completion of all works within the budget provision of the Circle and distribution of funds within his budget grant among the Divisions under him.
3. To be responsible for preparation of budget and Revised Budget of his circle.
4. To be responsible for appointment, promotion, Disciplinary action disposal of appeal cases, writing of A.C.Rs. of staff falling within his Administrative powers.
5. To be responsible for administration and ensuring execution of all functions in the Forest Divisions under him as per Act, Ordinance, Rules and Regulations and Directives issued by the Government from time to time.
6. To be responsible for providing proper executive and operational guidance to the field staff of the Divisions under him and exercise control and supervision of the Divisional Forest Officers.
7. To be responsible for preparation of annual programme of works of his circle.
8. To be responsible for periodical and annual inspection of Divisional offices.
9. To be responsible for supervision of Revenue Collection in the Divisions under him.
10. To be responsible for proper execution of all development programmes within his circle.
11. To be responsible for Auditing of divisional accounts and according financial and technical sanctions within his powers.
12. To be responsible for drawing and disbursing in respective offices as well as submission of Accounts to the Accountant General.
13. To be responsible for transferring and posting of SDFOs/ ACFs within the Circle.

14. To be responsible for inter-Divisional transferring of all transferable subordinate staff except the staff of his own office.
15. Any other responsibility assigned by the Chief Conservator of Forests.

Divisional Forest Officer:


1. To be responsible for overall administration of the Forest Division under him.
2. To be responsible for drawing and disbursing of fund within the Division.
3. To be responsible for collection of revenue of the Forest Division under him.
4. To be responsible for annual auction and sale of Forest produce of the Division under him.
5. To be responsible for proper functioning and discipline of the Division under him.
6. To be responsible for appointment of employees of the Division falling within his powers and dealing with all matters relating to establishment including writing of A.C.R. of subordinate officers/ staff.
7. To be responsible for transferring and posting of all subordinate staff within the Division except the staff of his own office.
8. To be responsible for preparation of annual budget and revised budget of the Division.
9. To be responsible for exercise of powers given under various Acts and Rules thereunder.
10. To be responsible for raising plantation and nursery with his jurisdiction.
11. To be responsible for Annual and periodical inspection of Range and Beat offices under him.
12. To be responsible for execution of all development programmes within the jurisdiction of his Division.
13. To be act as Principal Accounting Officer of his division.
14. To be responsible for compilation of all timber forms of his Division.
15. To be responsible for construction of buildings and roads within his Division.
16. Any other responsibility assigned by the C.C.F./ C.F.

Sub-divisional Forest Officer/Asstt. conservator of Forests:

1. To be responsible for inspection of Forests, Range Offices and Beat Offices within his jurisdiction.
2. To be responsible for exercise of powers given under various Acts and Rules thereunder.
3. To help Divisional Forest Officer in conducting smooth administration of the Division in which they are posted.
4. To help Divisional Forest Officer in ensuring collection of Revenue of the Division.
5. To help Divisional Forest Officer in annual auction and sale of Forest produce of the Division.
6. To help Divisional Forest Officer in the matter of construction of building and roads in the Division.
7. To help Divisional Forest Officer in the matter of maintenance of discipline in the Division.
8. To help Divisional Forest Officer in the matter of raising plantation and nursery within the jurisdiction of his Division.
9. To help Divisional Forest Officer in the matter of execution of Development programme within his jurisdiction.
10. To help Divisional Forest Officer in the matter of checking theft and pilferage of Forest produce.
11. To help Divisional Forest Officer in the matter of checking encroachment of Forest areas.
12. Any other duty assigned by the C.F./D.F.O.

Director, Forest Research Institute, Chittagong:

1. To be act as head of the Forest Research Organisation.
2. To be responsible for planning, supervision and execution of all Forest Research Projects.

3. To be responsible for maintaining liaison with other Industrial and Agricultural Research Organisation of the country, related sector Corporation *i.e.* Bangladesh Forest Industries Development Corporation, Bangladesh Chemical Industries Corporation, Small Industries Corporation and other Govt. and Semi Govt. bodies.
4. To be responsible for overall administration of the Institute.
5. To be act as an advisor on Research matters.
6. To be act as Principal Accounting Officer of the Institute.
7. To be responsible for proper functioning and discipline of the Institute.
8. To be responsible for executive and operational guidance to the Research Staff in all sectors in the Institute.
9. To be responsible for appointment of employees of the Institute falling within his administrative powers.
10. To control and supervise the work of all Divisions of the Institute.
11. To be responsible for allocation of duties of officers as and when required.
12. To be responsible for maintaining proper security measuring of the Institute.
13. Any other duties assigned by the Chief Conservator of Forests. 

Chief Research Officer:

1. To be act as head of the Research Branch comprising several Research Divisions.
2. To be responsible for planning, supervision, co-ordination and execution of research projects of various Research Divisions under him.
3. To be responsible for preparation and identification of annual Research Programme, annual Research report and other technical report of the branch.
4. To be responsible for general training and guidance of technical personnel of the branch.
5. Any other duty assigned by the Director.

Divisional Officer/Divisional Forest Officer, Silvicultural Research Division:

1. To be responsible for identification of relevant problem areas, planning and execution of research project of the Division.
2. To be responsible for analysis of Research Data and write-up of Research paper and technical report.
3. To be responsible for imparting in service training to the Officers and staff of the Division.
4. To be responsible for supervision of the works of Research personnel and their guidance.
5. To be responsible for general administration of the Division.
6. Any other duty assigned by the Director of the Institute/ Chief Research Officer.

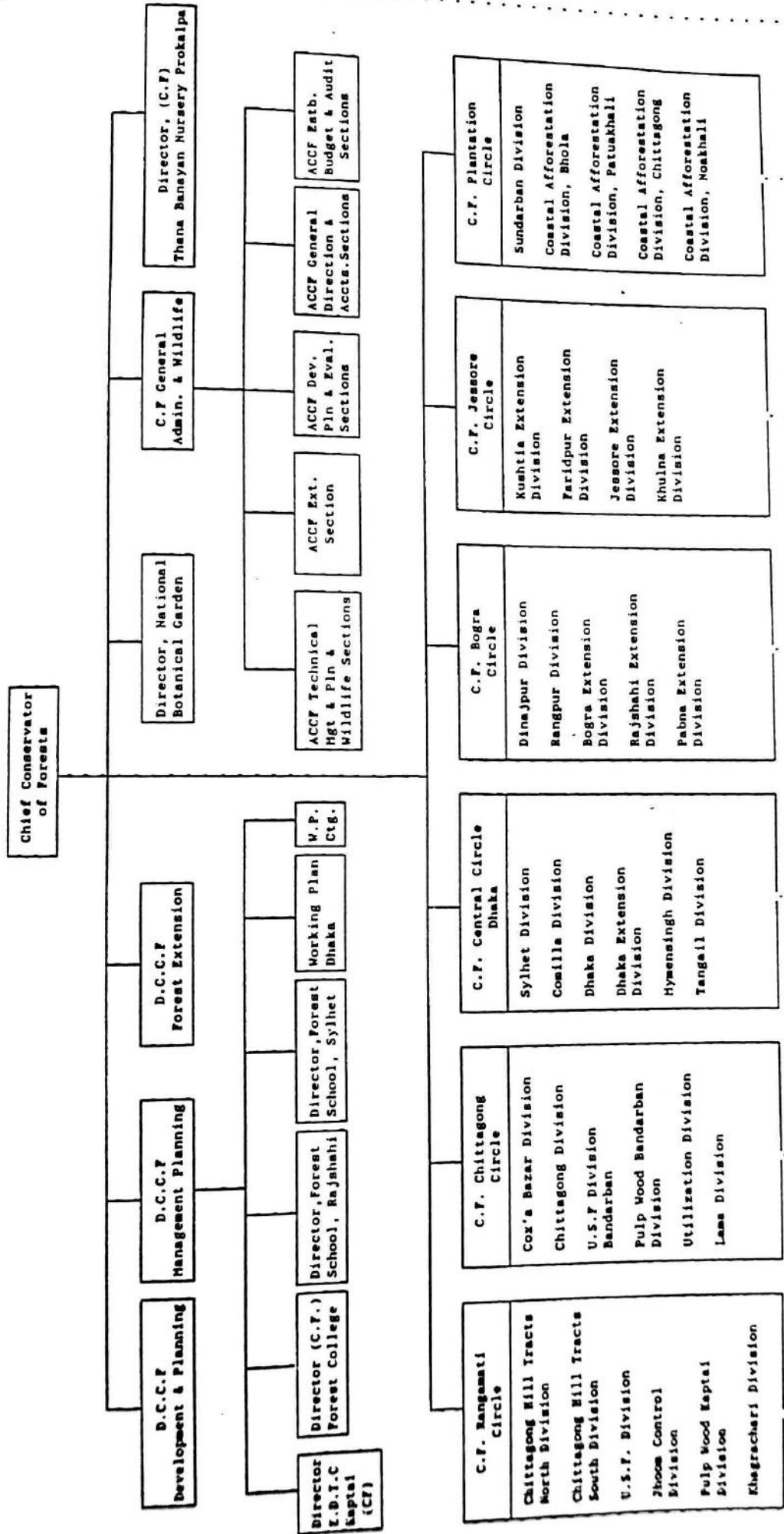
Senior Research Officer:

1. To be responsible for initiation of Research project proposal.
2. To be responsible for execution of Research programme of the project assigned to him.
3. To be responsible for analysis of Research Data, preparation of technical report and Research paper.
4. Any other duty assigned by the Director/ Chief Research Officer/ Divisional Officer.

Junior Research Officer:

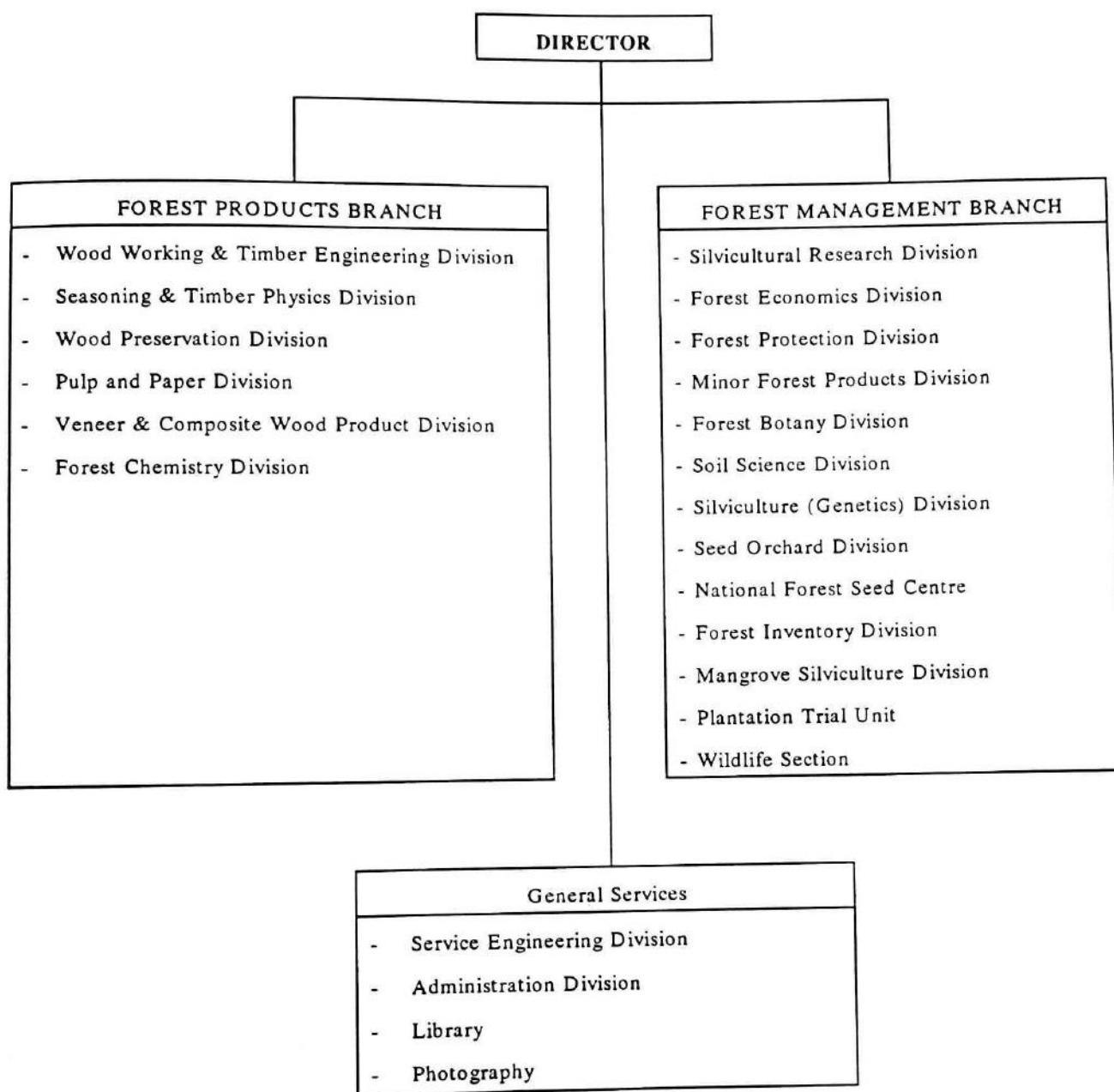
1. To be responsible for execution of research project assigned to him.
2. To be responsible for collection and analysis of research data and draft preparation of technical report and Research paper.
3. Any other duty assigned by the Director/ Chief Research Officer/ Divisional Officer.

4. EXISTING ORGANIZATION



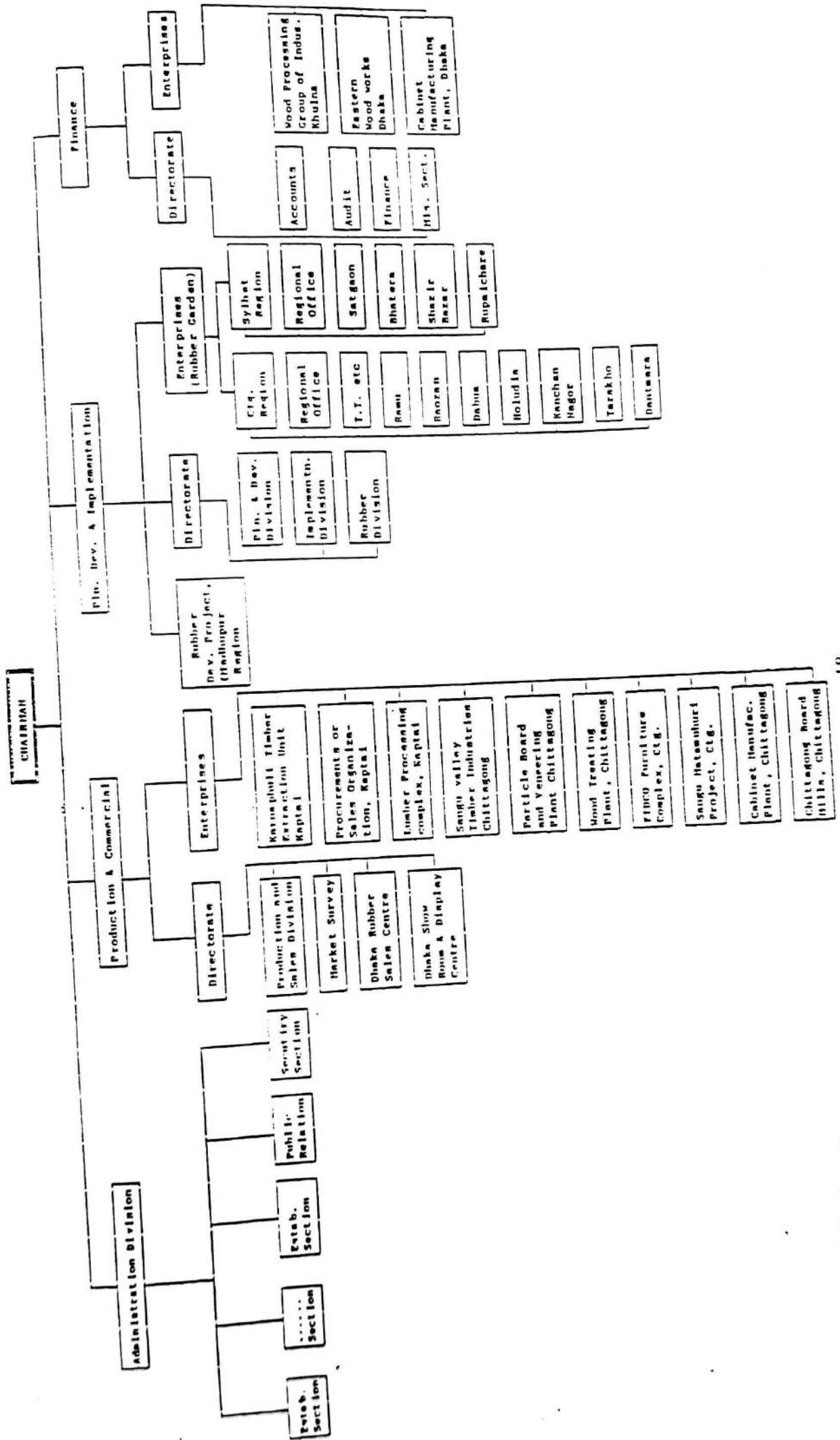
Source: Forest Department

Current Organization of Bangladesh Forest Research Institute



Source: B.F.R.I.

BFIDC Organization Chart



Forestry Personnel under Forest Department 1992

Class	Category of Personnel	Sanctioned strength			Actual in position			Vacant Position
		Nor.	Dev.	Total	Nor.	Dev.	Total	
I	Chief Conservator of Forests	1	-	1	1	-	1	-
	Deputy Chief Conservator of Forests	3	-	3	2	-	2	1
	Conservator of Forests/ Director	7	5	12	7	2	9	3
	Deputy Conservator of Forests	44	14	58	36	-	36	22
	Sub-Divisional Forest Officer	7	-	7	7	-	7	-
	Asst. Conservator of Forests	61	50	111	61	20	81	30
	Senior Research Officer	1	2	3	1	-	1	2
	Accounts Officer	1	4	5	-	3	3	2
	Research Officer	4	4	8	3	3	6	2
	Others	2	4	6	1	3	4	2
Total of Class-I		131	83	214	119	31	150	64
II	Administrative Officer	2	1	3	2	-	2	1
	Asst. Accounts Officer	-	1	1	-	-	0	1
	Others	4	-	4	4	-	4	-
	Total of Class-II	6	2	8	6	0	6	2
III	Senior Forest Rangers	13	-	13	9	-	9	4
	Forest Rangers	265	214	479	177	67	244	235
	Deputy Rangers/ Forester	1,056	433	1,489	900	283	1,183	306
	Forest Guards	2,063	593	2,656	1820	556	2,376	280
	Others	906	350	1,256	875	295	1,170	86
	Total of Class-III	4,303	1,590	5,893	3,781	1,201	4,982	911
IV	MLSS & Others	2,258	1,241	3,499	2,242	1,117	3,359	140
	Total of Class-IV	2,258	1,241	3,499	2,242	1,117	3,359	140
	GRAND TOTAL	6,698	2,916	9,614	6,148	2,349	8,497	1,117

Source: Forest Department

Sanctioned Strength of Personnel of BFRI
Particular of Manpower of Forest Research Institute, Chittagong
(Date: 16.04.1992)

Sl. No.	Name of Post	No. of Posts sanctioned		No. of Posts filled up		No. of Posts vacant		Remarks
		Nor.	Dev.	Nor.	Dev.	Nor.	Dev.	
	<u>Class-I</u>							
1	Director 8600-9500	1	-	1	-	-	-	-
2	Chief Res. Officer 7800-9000	2	-	-	-	2	-	-
3	Divisional Officer 7100-8700	17	-	6	-	11	-	-
4	Divisional Forest Officer 4800-7250	1	-	-	-	1	-	-
5	Sr. Research Officer 4800(19+1)	20	5	16	5	4	-	-
6	Statistician (SRO) 4800	1	-	1	-	-	-	-
7	Sr. Maintenance Engineer 4800	-	1	-	-	-	-	1
8	Jr. Research Officer 2850-5155	18	31	10	29	8	-	2
9	Asst. Soil Scientist 2850	3	-	2	-	1	-	-
10	Asst. Conservator of Forest 2850	1	-	-	-	1	-	-
11	Publicity Officer 2850	1	-	-	-	1	-	-
12	Maintenance Engineer 2850	1	-	1	-	-	-	-
13	Store Officer 2850	1	-	1	-	-	-	-
14	Librarian 2850	1	-	1	-	-	-	-
15	Asst. Librarian 2850	1	-	1	-	-	-	-
16	Executive Officer 2850	1	-	-	-	1	-	-
17	Curator 2850	1	-	-	-	1	-	-
18	Medical Officer, MBBS 2850	1	-	1	-	-	-	-
	Sub total Class-I	72	37	41	34	31	3	
		109		75		34		
	<u>Class-II</u>							
19	Administrative Officer 2300-4480	1	-	1	-	-	-	-
20	Asst. Accounts Officer 2300	-	1	-	2	-	-	-
21	Pay Officer 2300	-	1	-	2	-	-	-
22	Field Investigator 2300	20	6	8	1	12	3	-
23	Sr. Forest Ranger/ Field Investigator 2300	-	2	-	2	-	-	-
24	Research Asst. (1st Gr.) 2300	8	-	6	-	2	-	-
25	Senior Technician 2300	-	3	-	3	-	-	-
26	Computer Operator 2300	-	2	-	2	-	-	-
	Sub total Class-II	29	15	15	12	14	3	
		44		27		17		
	<u>Class-III</u>							
27	Res. Asst. (2nd Gr.) 1725-3725	19	-	-	-	19	-	-
28	Herbarium Keeper 1725	1	-	-	-	1	-	-
29	Documentation Asst. 1725	1	-	1	-	-	-	-

Sl. No.	Name of Post	No. of Posts sanctioned		No. of Posts filled up		No. of Posts vacant		Remarks
		Nor.	Dev.	Nor.	Dev.	Nor.	Dev.	
30	Forest Ranger 1725	12	-	2	-	10	-	
31	Draftsman 1725(N), 1375(D)	2	1	1	1	1	-	
32	Workshop Superintendent 1725	1	-	1	-	-	-	
33	Works Supervisor 1725	1	-	1	-	-	-	
34	Artist 1725	1	-	1	-	-	-	
35	Foreman 1725	2	-	2	-	-	-	
36	Office Superintendent 1475-3150	2	-	2	-	-	-	
37	Head Asst. 1475	2	1	2	-	-	1	
38	Steno Grapher 1475	4	-	3	-	1	-	
39	Steno Typist 1375-2970	12	-	11	-	1	-	
40	Accountant 1375	2	1	2	-	-	1	
41	Photographer 1375	1	-	-	-	1	-	
42	Cashier 1375	1	-	1	-	-	-	
43	U.D. Asst. 1375	8	4	8	4	-	-	
44	Security Inspector 1375	1	-	1	-	-	-	
45	Store Keeper 1375	1	-	1	-	-	-	
46	Asst. Store Keeper 1375	2	-	2	-	-	-	
47	Deputy Ranger 1375	9	-	9	-	-	-	
48	Inset setter 1375	1	-	1	-	-	-	
49	Botanical Garden Supervisor 1375	1	-	1	-	-	-	
50	Mechanic 1375	32	-	27	-	5	-	
51	Auto Mechanic 1375	2	-	2	-	-	-	
52	Calculator Asst. 1375	1	-	1	-	-	-	
53	Driver 1200/ 1300/ 1375(N) 1475 D-2 1375 PTU-1	16	3	16	3	-	-	
54	Skilled Workman 1300-2615	31	-	22	-	9	-	
55	Forester 1300	9	-	9	-	-	-	
56	Compounder 1300	1	-	1	-	-	-	
57	Sareng 1300	1	-	1	-	-	-	
58	Ref. Mechanic 1200-2335	3	-	3	-	-	-	
59	LDA-cum-Typist 1200	29	-	26	-	3	-	
60	LDA 1200	-	4	-	4	-	-	
61	Clerk-cum-Accountant 1200	-	1	-	1	-	-	
62	Library Asst. 1200	2	-	1	-	1	-	
63	Field Asst 1200	18	-	18	-	-	-	
64	Nursery Supervisor	6	-	6	-	-	-	
65	Saw Dotor	1	-	1	-	-	-	
66	Herbarium Asst. 1200	1	-	1	-	-	-	
67	Plumber 1200	1	-	1	-	-	-	
68	Turner 1200	1	-	1	-	-	-	

Sl. No.	Name of Post	No. of Posts sanctioned		No. of Posts filled up		No. of Posts vacant		Remarks
		Nor.	Dev.	Nor.	Dev.	Nor.	Dev.	
69	Senior Carpenter 1200	1	-	1	-	-	-	
70	Pump Driver 1200	1	-	1	-	-	-	
71	Tube-well-operator 1200	1	-	1	-	-	-	
72	Pump Operator 1200	1	-	1	-	-	-	
73	Lift Truck Driver 1200	2	-	1	-	1	-	
74	Timber Testing Machine Operator 1200	1	-	1	-	-	-	
75	Wireman 1200	1	-	1	-	-	-	
76	Machinist 1200	1	-	1	-	-	-	
77	Tools Keeper 1200	1	-	1	-	-	-	
78	Blacksmith 1200	1	-	1	-	-	-	
79	Speed Boat Driver 1200	-	2	-	2	-	-	
80	Semi Skilled Workman 1200	15	-	15	-	-	-	
81	Laboratory Asst. 1125-2170	6	-	6	-	-	-	
82	Dark Room Asst. 1050-1915	1	-	1	-	-	-	
83	Engineman 1050	1	-	-	-	1	-	
84	Painter 1050	1	-	1	-	-	-	
85	Pipe Fitter 1050	1	-	-	-	1	-	
86	Duplicating Machine Operator 1050	1	-	1	-	-	-	
87	Fieldman 975-1750	17	-	15	-	2	-	
88	Book Binder 975	1	-	1	-	-	-	
89	Forest Guard 975	23	10	23	10	-	-	
90	Plant Mounter 975	4	-	4	-	-	-	
91	Plant Collector 975	1	-	1	-	-	-	
92	Boiler Attendant 975	2	-	2	-	-	-	
93	Seed Collector 975	60	-	60	-	-	-	
94	Machine Attendant 975	19	-	16	-	3	-	
95	Asst. Welder 975	1	-	-	-	1	-	
96	Laboratory Washer 900-1530	1	-	1	-	-	-	
Sub total Class-III		408	27	347	25	61	2	
		435		372		63		
Class-IV								
97	Khalashi 900	2	-	2	-	-	-	
98	Laboratory Attendant 900	1	-	1	-	-	-	
99	Rest House Attendant/ Lab Attendant 900	12	-	7	-	5	-	
100	Metal shop Attendant 900	1	-	-	-	1	-	
101	Boatman 900	14	2	14	2	-	-	
102	Mazhi 900	-	15	-	15	-	-	

Sl. No.	Name of Post	No. of Posts sanctioned		No. of Posts filled up		No. of Posts vacant		Remarks
		Nor.	Dev.	Nor.	Dev.	Nor.	Dev.	
103	Darwan 900	19	-	16	-	3	-	
104	Security Guard 975(N)/900(D)	10	15	9	15	1	-	
105	Despatch Rider 1050	2	-	2	-	-	-	
106	Nursery Attendant (Mali) 900	60	5	59	5	1	-	
107	MLSS 900	48	5	48	5	-	-	
108	Gust House Attendant 975	1	-	1	-	-	-	
109	Laboratory Boy 900	2	-	2	-	-	-	
110	Sweeper 900	10	5	8	5	2	-	
111	Helper 900	3	-	3	-	-	-	
112	Electric Helper 900	1	-	1	-	-	-	
113	Sweeper-cum-Night Guard 900	1	-	1	-	-	-	
114	Night Guard 900	1	-	1	-	-	-	
Sub total Class-IV		188	47	175	47	13	0	
		235		222		13		

ABSTRACT

		Sanctioned		Filled up		Vacant	
		Nor.	Dev.	Nor.	Dev.	Nor.	Dev.
1.	Class-I	72	37	41	34	31	3
2.	Class-II	29	15	15	12	14	3
3.	Class-III	408	27	347	25	61	2
4.	Class-IV	188	47	175	47	13	-
		697	126	578	118	119	8
		823		696		127	

Source: BFRI

Existing Personnel of BFIDC
January, 1992

Office/ Units	Officers (Nos.)	Staff (Nos.)	Regular Worker (Nos.)	Casual Workers (Nos.)	Total (Nos.)
Head Office	74	234	11	8	327
Rubber Plantation units	59	301	1355	71	1,786
Timber Extraction Project, Kaptai	16	150	327	4	497
Procurement & Sales Centre, Kaptai	3	16	39	2	60
Sangoo-Matamuri, Timber Extraction	6	18	25	-	49
Lumber processing Complex, Kaptai	8	22	117	2	149
Wood preservation plant, Ctg.	5	24	153	-	182
Wood preservation plant, Khulna	5	43	37	3	88
Cabinet Manufacturing plant, Ctg.	3	17	76	2	98
Cabinet Manufacturing plant, Dhaka	4	26	108	-	138
Cabinet Manufacturing plant, Khulna	1	5	40	-	46
FIDCO furniture complex, Ctg.	4	26	117	2	149
Particle Board & veneering plant, Ctg.	7	31	116	-	154
Eastern wood works, Dhaka	2	32	92	2	128
Sangoo valley Timber Industries	11	34	143	-	188
Chittagong Board Mills	2	4	28	-	34
TOTAL	210	983	2,784	96	4,073

Source: BFIDC

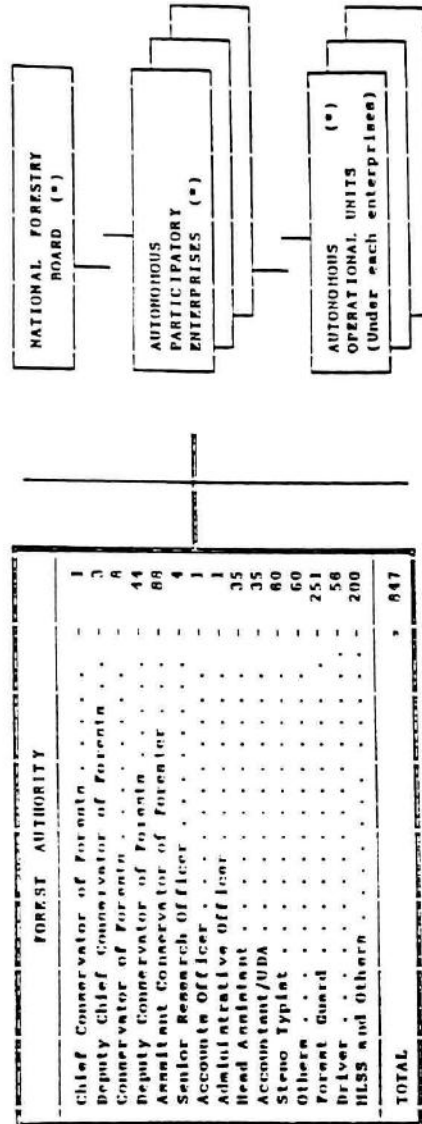
5. MAN POWER REQUIREMENT OF FOREST DEPARTMENT

5a. Summary upto 2003

Class	Category of Personnel	Status quo	Scenario-I
I	Chief Conservator of Forests	1	1
	Additional Chief Conservator of Forests	4	4
	Deputy Chief Conservator of Forests	3	3
	Conservator of Forests	12	17
	Deputy Conservator of Forests	58	90
	SPD/Senior ACY (Proposed)	7	87
	Assistant Conservator of Forests	111	644
	Senior Research Officer (SRO)	3	6
	Research Officer	8	21
	Accounts Officer	5	13
Others	6	25	
	Total of Class - I	214	911
II	Administrative Officer	3	4
	Assistant Accounts Officer	1	-
	Deputy Ranger (Upgraded)	-	653
	Others	4	8
	Total of Class - II	8	665
III	Senior Forest Ranger	13	(**)
	Forest Ranger	479	(**)
	Deputy Ranger/Forester	1,489	1,370
	Forest Guard	2,656	3,810
	Others	1,256	1,223
	Total of Class - III	5,893	6,403
IV	MLSS and others	3,499	4,810
	Total of Class - IV	3,498	4,810
	GRAND TOTAL	9,614	12,789

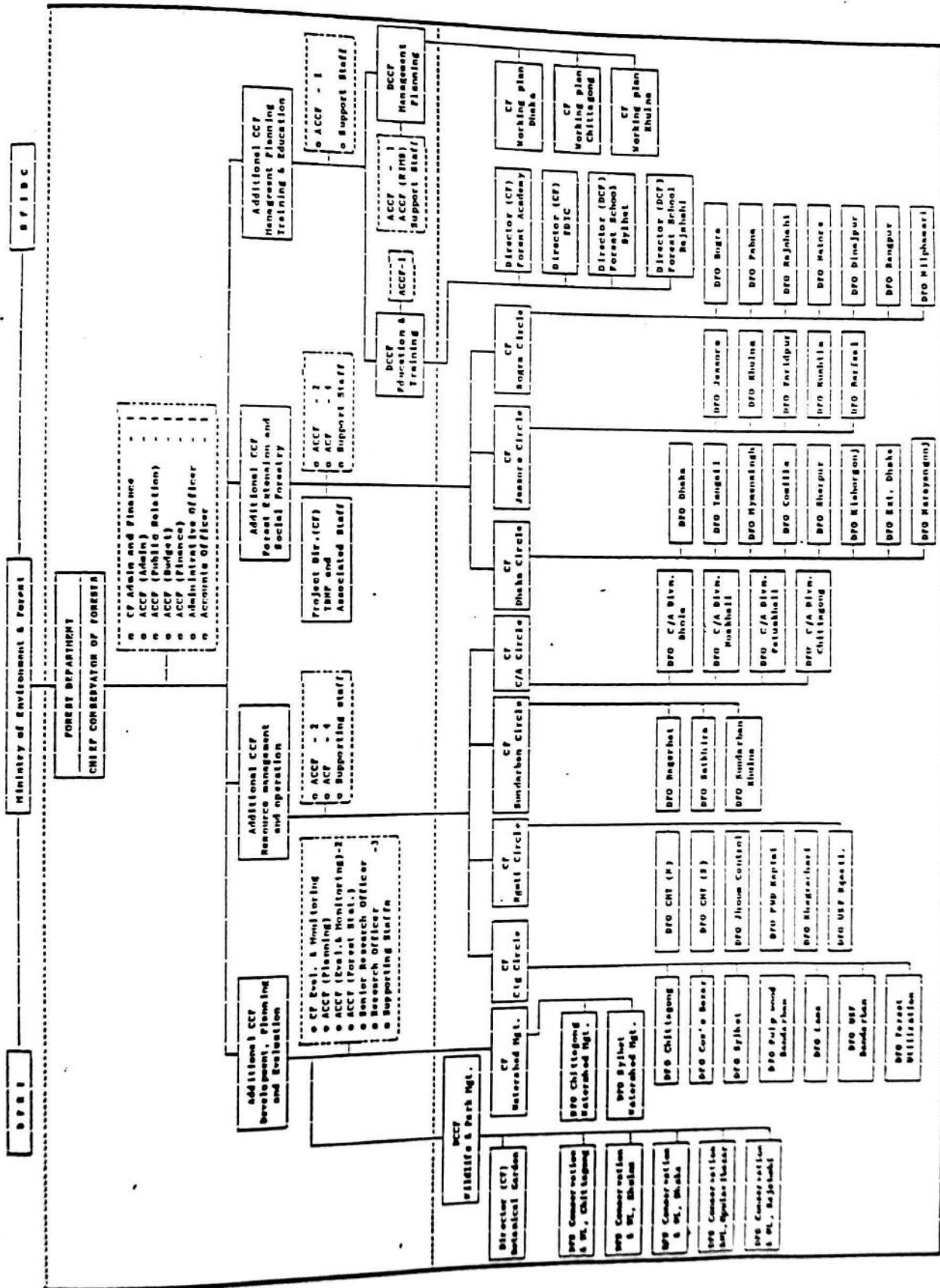
(**) Proposed to be amalgated with ACFs on two tier requirement basis.

Scenario-2



(*) The structure and the actual staffing will be worked out in detail at the time of formulation of such organization. An indicative requirement of total personnel by 2003 will be around 36,000 nos. or about 3 times of low development level scenario. (Estimated: 10 Enterprises & 100 operational units).

FOREST AUTHORITY	
Chief Conservator of Forests	1
Deputy Chief Conservator of Forests	3
Conservator of Forests	8
Deputy Conservator of Forests	44
Assistant Conservator of Forests	88
Senior Research Officer	4
Accounts Officer	1
Administrative Officer	1
Head Assistant	35
Accountant/UDA	35
Steno Typist	60
Others	60
Forest Guard	251
Driver	56
MLSS and Others	200
TOTAL	847



5c. Detail Manpower of Forest Department under Scenario 1 (1993-2003)

Sl. No.	Name of the Office	Name of the Posts																
		CCF	DCCF	ML and PM Director Botanical Garden	DFO Conv. and WL Ctg	DFO Conv. and WL Khulna	DFO Conv. and WL Dhaka	DFO Conv. and WL Moulavi Bazar	DFO Conv. and WL Rajshahi	CF Watershed Management	DFO WSM Chittagong	DFO WSM Sylhet	CF Chittagong	DFO Chittagong	DFO Cox's Bazar	DFO Sylhet	DFO PW Bandarban	DFO Luma
1	CCF	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Addl CCF	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	DCCF	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	CF	3	-	1	-	-	-	-	-	1	-	-	1	-	-	-	-	-
5	DCF	18	1	-	1	1	1	1	1	1	1	1	1	2	2	2	1	1
6	Senior ACF	7	1	1	-	-	1	-	-	-	-	1	6	6	5	1	1	-
7	ACF	20	-	2	2	2	3	2	1	2	2	2	-	35	35	35	13	10
8	Senior Research Officer	4	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
9	Research Officer	8	1	1	2	2	1	2	2	-	1	1	-	-	-	-	-	-
10	Account/Budget Officer	4	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-
11	Others	17	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-
	Sub total	88	6	5	5	5	6	5	4	7	5	5	4	43	43	42	15	12
12	Admin. Officer & Others	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Dy Ranger (Upgraded, Diploma holder)	-	-	3	3	5	3	3	3	1	2	2	1	35	30	25	10	10
	Sub total	4	0	3	3	5	3	3	3	1	2	2	1	35	30	25	10	10
14	Forester	-	2	5	5	5	5	4	3	1	4	4	-	110	100	80	19	20
15	Forest Guard	-	-	15	10	15	8	10	8	-	2	5	-	340	320	270	65	90
16	Head Assistant	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	UD/Accountant	30	3	3	3	3	3	3	3	2	1	2	4	5	5	5	4	4
18	LDC/Typist/Others	60	4	4	3	4	3	3	3	4	4	4	12	30	25	25	12	10
	Sub total	99	10	28	22	28	20	21	18	8	12	16	17	486	451	381	101	125
19	B.M/Mali	4	-	60	8	20	15	10	10	-	10	10	-	130	140	120	35	40
20	MLSS and Others	80	16	20	20	20	20	15	20	10	10	10	20	30	30	30	14	14
	Sub total	84	16	80	28	40	35	25	30	10	20	20	20	160	170	150	49	54
	TOTAL	275	32	116	58	78	64	54	55	26	39	43	42	724	694	598	175	201

Sl. No.	Name of the Offices	Name of the Posts																	
		DFO USF Bandarban	DFO Utilization	CF/Rangamati	DFO/CIT (N)	DFO/CIT (S)	DFO/Jhoom Control	DFO/IWD, Kaptai	DFO/USF, Rangamati	DFO/Khargrachari	CF/Sundarban	DFO/Bagerhat	DFO/Satkhira	DFO/Sundarban, Khulna	CF/Coastal Afforestation	DFO, Noakhali	DFO, Patuakhali	DFO/Chittagong Coastal	DFO/Bhola
1	CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Addl CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	DCCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	CF	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-
5	DCF	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Senior ACF	1	-	1	2	2	1	1	1	1	4	4	4	1	2	2	2	2	
7	ACF	10	2	-	18	18	18	15	10	-	14	15	15	-	25	20	20	15	
8	Senior Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	Account/Budget Officer	-	-	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-	
11	Others	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	
	Sub total	12	3	4	22	22	20	17	12	4	20	21	21	4	28	23	23	18	
12	Admin. Officer & Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13	Dy Ranger (Upgraded, Diploma holder)	13	3	1	20	18	18	18	12	13	1	30	28	28	1	45	30	25	
		13	3	1	20	18	18	18	12	13	1	30	28	28	1	45	30	25	
14	Forester	25	2	-	55	45	30	30	24	-	40	30	30	-	80	70	60	55	
15	Forest Guard	65	2	-	110	110	70	70	80	80	-	100	125	140	-	150	130	140	
16	Head Assistant	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
17	UD/Accountant	4	4	3	4	4	4	3	4	4	4	4	5	6	6	6	4	5	
18	LDC/Typist/ Others	15	5	5	15	15	10	10	10	10	12	30	30	60	12	25	20	20	
	Sub total	110	14	9	185	175	115	114	125	119	17	175	191	237	19	262	225	236	
19	B.M/Mali	65	-	-	90	80	80	60	60	40	-	210	200	210	-	220	210	200	
20	MLSS and Others	15	10	18	18	18	18	18	18	18	18	30	30	30	20	30	30	30	
	Sub total	80	10	18	108	98	98	78	78	58	18	240	230	240	20	250	240	230	
	TOTAL	215	30	32	335	313	251	227	227	202	40	465	470	526	44	585	518	539	

Sl. No.	Name of the Offices																
	Name of the Posts	CF/Working Plan Dhaka	CF/WP Chittagong	CF/WP Khulna	Director/Forest Academy	Director/FMDC	Director, FS Rajshahi	Director, FS Sylhet	CF/Dhaka Circle	DFO/Dhaka Divn	DFO/Tangail Divn	DFO/Nymensingh Divn	DFO/Comilla Divn	DFO/Sherpur Divn	DFO/Kishoregonj Divn	DFO/Dhaka Extn	DFO/Narayangonj
1	CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Addl CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	DCCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	CF	1	1	1	1	1	-	-	1	-	-	-	-	-	-	-	-
5	DCF	1	1	1	2	2	1	1	1	2	2	1	1	1	1	1	1
6	Senior ACF	-	-	-	1	1	1	1	1	2	2	1	-	-	1	1	-
7	ACF	3	3	3	6	6	5	10	1	12	25	15	10	10	10	10	10
8	Senior Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Account/Budget Officer	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
11	Others	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
	Sub total	5	5	5	11	11	7	12	5	16	29	17	11	11	12	12	11
12	Admin. Officer & Others	-	-	-	1	5	1	1	-	-	-	-	-	-	-	-	-
13	Deputy Ranger (Upgraded, Diploma holder)	3	3	3	-	4	2	6	1	18	20	8	6	6	6	8	8
	Sub total	3	3	3	1	9	3	7	1	18	20	8	6	6	6	8	8
14	Forester	3	3	3	-	2	-	50	-	40	40	30	12	12	12	18	18
15	Forest Guard	-	-	-	-	-	-	-	-	200	190	140	90	90	90	20	20
16	Head Assistant	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	UD/Accountant	1	1	1	3	2	4	4	4	5	5	5	3	3	3	3	4
18	LDC/Typist/ Others	5	5	5	15	15	15	18	12	22	22	20	10	10	10	12	10
	Sub total	10	10	10	19	20	20	73	17	268	258	196	116	116	116	54	53
19	B.M/Mali	-	-	2	2	2	2	5	-	45	55	55	45	45	45	50	55
20	MLSS and Others	10	8	8	20	15	15	15	15	20	20	15	10	12	12	15	12
	Sub total	10	8	10	22	17	17	20	15	65	75	70	55	57	57	65	67
	TOTAL	28	26	28	53	57	47	112	38	367	382	291	188	190	191	139	139

SL No.	Name of the Offices	Name of the Posts													TOTAL	
		CF Bogra	DFO/Bogra	DFO/Pabna	DFO/Rajshahi	DFO/Natore	DFO/Dinajpur	DFO/Rangpur	DFO/Nilphamari	CF/Jessore	DFO/Kustia	DFO/Jessore	DFO/Khulna	DFO/Barisal		DFO/Faridpur
1	CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
2	Addl CCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
3	DCCF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	CF	1	-	-	-	-	-	-	-	1	-	-	-	-	-	17
5	DCF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	90
6	Senior ACF	-	1	1	1	1	2	1	1	-	1	1	1	1	1	87
7	ACF	1	10	10	10	10	15	5	8	1	10	10	6	9	9	644
8	Senior Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
9	Research Officer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
10	Account/Budget Officer	1	-	-	-	-	-	-	-	1	-	-	-	-	-	13
11	Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
	Sub total	4	12	12	12	12	18	7	10	4	12	12	8	11	11	911
12	Admin. Officer & Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
13	Deputy Ranger (Upgraded, Diploma holder)	1	5	7	7	6	15	7	7	1	5	5	5	5	5	653
	Sub total	1	5	7	7	6	15	7	7	1	5	5	5	5	5	665
14	Forester	-	10	12	12	10	28	12	12	-	10	12	12	12	12	1370
15	Forest Guard	-	15	15	15	25	110	15	15	-	15	20	15	15	15	3810
16	Head Assistant	1	1	1	1	1	1	1	1	1	1	1	1	1	1	73
17	UD/Accountant	3	3	3	3	3	5	3	3	3	3	3	3	3	3	257
18	LDC/Typist/ Others	10	12	10	10	10	15	10	10	12	10	12	12	10	10	893
	Sub total	14	41	41	41	49	159	41	41	16	39	48	43	41	41	6,403
19	B.M/Mali	-	60	60	60	40	70	40	50	-	55	80	60	60	60	3,660
20	MLSS and Others	10	12	12	10	10	12	10	10	10	12	12	10	10	10	1,150
	Sub total	10	72	72	70	50	82	50	60	10	67	92	70	70	70	4,810
	TOTAL	29	130	132	130	117	274	105	118	31	123	157	126	127	127	12,789

5d. Bangladesh Forest Research Institute Requirements

Sl. No.	Category of Posts (Proposed changed designation)	Status-Quo	Scenario - I	Scenario - II
1	Director General	-	1	1
2	Director	1	4	4
3	Chief Research Officer (Chief Scientific Officer-C.S.O/ CME or equivalent)	2	10	24
4	Divisional Officer (Principal Scientific Officer-P.S.O/ P.M.E/ or Equivalent)	17	31	39
5	Divisional Forest Officer (Principal Scientific Officer-P.S.O)	1	**	**
6	Senior Research Officer (Senior Scientific Officer-S.S.O)	26	62	77
7	Deputy Director	-	1	1
8	Editor	-	1	1
9	Senior Maintenance Engineer	-	1	1
10	Publicity and Liaison Officer (Propose Equivalent to S.S.O)	1	1	1
11	Librarian (Propose Equivalent S.S.O)	1	1	1
12	Junior Research Officer (Scientific Officer-S.O)	49	122	128
13	Asst.Soil Scientist(Scientific Officer-S.O)	3	***	***
14	Asst.Conservator of Forest (Scientific Officer-S.O)	1	***	***
15	Executive Officer	1	1	1
16	Maintenance Engineer	1	2	2
17	Curator	1	1	1
18	Assistant Engineer (Works)	-	1	1
19	Assistant Director	-	2	2
20	Medical Officer	-	1	1
21	Accounts Officer	1	1	1
22	Assistant Editor	-	1	1
23	Store Officer	1	1	1
24	Asst.Librarian	1	1	1
CLASS I Sub total		108	247	290
25	Administrative Officer	1	1	
26	Assistant Accounts Officer	1	2	
27	Field Investigator (Scientific Officer-S.O)	28	***	
28	Research Asst.(Grade-I) (Scientific Officer-S.O)	8	***	
29	Senior Technician	3	3	
30	Computer Operator/ Pay Officer	3	3	
31	Research Asst.(Grade-II) (Scientific Asst.-S.A)	19	35	
32	Work Supervisor	1	1	

Sl. No.	Category of Posts (Proposed changed designation)	Status- Quo	Scenario - I	Scenario - II
		1	1	
33	Harbarium Keeper	12	**	
34	Forest Ranger (Scientific Asst.-S.A)	1	1	
35	Artist	3	3	
36	Draftsman	2	2	
37	Foreman	1	1	
38	Workshop Superintendent	1	1	
39	Documentation Assistant	2	2	
40	Office Superintendent	3	3	
41	Head Assistant	4	5	
42	Stenographer	1	1	
43	Photographer	3	4	
44	Accountant	1	1	
45	Store Keeper	1	1	
46	Cashier	12	13	
47	U.D.A	2	2	
48	Asst.Store Keeper	1	1	
49	Calculator Asstt.	12	18	
50	Steno Typist	1	1	
51	Botanical Garden Supervisor	1	1	
52	Insect Setter	9	12	
53	Deputy Ranger (Senior Field Asstt.-S.F.A)	1	1	
54	Security Inspector	2	2	
55	Auto Mechanic	32	32	
56	Mechanic	31	31	
57	Skilled Labour	9	9	
58	Forester	1	1	
59	Compounder	1	1	
60	Sareng	18	28	
61	Field Assistant	1	1	
62	Clerk-cum-Accountant	33	37	
63	Assistant-cum-typist	2	2	
64	Library Assistant	6	6	
65	Nursery Supervisor	1	1	
66	Herbariam Assistant	3	3	
67	Refrigerator Mechanic	1	1	
68	Senior Carpenter	1	1	
69	Saw-Doctor	1	1	
70	Plumber	1	1	
71	Turner	1	1	
72	Machinist	1	1	
73	Driver	1	1	
		19	22	

Sl. No.	Category of Posts (Proposed changed designation)	Status- Quo	Scenario - I	Scenario - II
74	Pump Operator	1	1	
75	Pump Driver	1	1	
76	Tubewell Operator	1	1	
77	T. T. Machine Operator	1	1	
78	Wireman	1	1	
79	Tools Keeper	1	1	
80	Blacksmith	1	1	
81	Semi Skilled Workman	15	15	
82	Lift Truck Driver	2	2	
83	Speed Boat Driver	2	5	
84	Senior Book Binder	-	1	
85	Cook	-	1	
86	Lab.Assistant	6	6	
87	Painter	1	1	
88	Book Sorter	-	1	
89	Dark Room Assistant	1	1	
90	Pipe Fitter	1	1	
91	Engineman	1	1	
92	Duplicating Machine Operator	1	1	
93	Despatch Rider	2	2	
94	Fieldman	17	22	
95	Seed Collector	60	64	
96	Plant Collector	1	1	
97	Plant Mounter	4	4	
98	Book Binder	1	1	
99	Forest Guard	33	33	
100	Boiler Attendant	2	2	
101	Mechine Attendant	19	19	
102	Assistant Welder	1	1	
103	Guest House Attendant	1	2	
104	Security Guard	25	30	
105	Labaratory Attendant	13	13	
106	Metalshop Attendant	1	1	
107	Electric Helper	1	1	
108	Helper	3	3	
109	Laboratory Washer	1	1	
110	M. L. S. S	53	57	Technical/ Sub- professional Staff=422 Support Staff=460
111	Boatman	31	45	
112	Laboratory Boy	2	2	

Sl. No.	Category of Posts (Proposed changed designation)	Status- Quo	Scenario - I	Scenario - II
113	Nursery Attendant	65	72	
114	Gate Keeper/ Night Guard	20	22	
115	Khalashi	2	2	
116	Sweeper	15	21	
117	Sweeper-cum-Night Guard	1	2	
Sub total		714	767	882
GRAND TOTAL		822	1,014	1172

** Converted to P.S.O.

*** Converted to S.O.

6. EMPLOYMENT IN FORESTRY SECTOR

Number in man year (300 days per year)

Sl. No.	Details	Number in man year (300 days per year)								
		Status Quo			Scenario 1			Scenario 2		
		1993	2003	2013	1993	2003	2013	1993	2003	2013
1	Forest Department/ Forest Authority and Enterprise									
	- State Forest Land	9,614	9,300	9,000	9,614	19,700	36,100	9,614	26,900	44,700
	- Private/ other Government Land	0	300	1,300	0	900	1,700	0	1,900	3,200
2	Forest Research Institute	822	863	906	822	1,014	1,115	822	1,172	1,289
3	B.F.D.C. Head Office	249	249	249	249	261	275	249	498	996
4	Rubber Plantation & Processing	2,452	2,697	2,967	2,452	3,187	4,781	2,452	12,260	60,000
5	Homestead woodlot harvesting	63,096	68,880	91,344	63,096	81,144	106,788	62,436	87,120	133,348
6	Homestead bamboo harvesting	282,133	282,133	282,133	282,133	282,133	282,133	282,133	324,800	324,300
7	Natural Forest & pln harvesting									
	a) Timber	55,416	77,583	57,750	55,416	47,250	107,000	43,750	52,500	275,916
	b) Fuelwood	16,152	15,698	18,124	16,152	15,394	16,607	15,558	17,365	22,219
	c) Bamboos	19,000	33,000	7,000	19,000	33,000	7,000	19,000	41,000	41,000
8	Forest Plantation	7,330	11,251	14,671	14,356	19,503	20,410	21,676	32,943	31,592
9	Rural tree plantation & husbandry	6,133	6,133	3,166	6,133	6,733	6,733	9,333	9,333	9,333
10	Forest based industries	50,000	51,700	56,870	50,000	63,000	85,000	50,000	100,000	200,000
11	Forest based cottage industries	288,042	316,800	348,480	288,042	350,000	450,000	288,000	576,000	1,000,000
	Total	800,439	876,587	893,960	807,465	923,219	1,125,642	805,023	1,283,791	2,148,393

(Source: Frame work studies on rural employment for the 3rd 5-year plan. Planning Commission - 1985)

Note:

3.96	Man days per cubic metre of rural wood harvesting
0.20	Man days per tree established in rural woodlot
16.00	Man days per ton for harvesting and haulage of village bamboos
247.00	Man days per ha of plantation establishment
17.5	Man days for forest timber harvesting per CUM
2.275	Man days for harvesting per CUM of Small wood/ firewood from forest
30.00	Man days for harvesting and haulage per ton of forest bamboos.

LABOUR FORCE PROJECTION FOR BANGLADESH

	1989-90	1999-2000	2012-13
Rural labour force	25.5M	29.6M	34.52M
Urban labour force	9.0M	15.7M	23.74M
Total	34.5M	45.6M	58.26M

Source: Task Force Report on Draft 4th 5 year plan.

7. ESTIMATED ANNUAL SALARY OF SCENARIO 1 EXTRA FD PERSONNEL

Sl. No.	Name of Post	At status quo (No.)	At Low Dev. (No.)	Proposed extra posts (No.)	Approximate Salary Scale	Total Salary per month in Tk
1.	CCF	1	1	-	-	-
2.	Addl. CCF	-	4	4	8,600-9,500 (9,050)	36,200
3.	DCCF	3	3	-	-	-
4.	CF	12	17	5	7,100-8,700 (7,900)	39,500
5.	DCF/ACCF	58	90	32	4,500-7,200 (6,000)	192,000
6.	SDFO/Sr. ACF	7	87	80	4,100-6,500 (5,300)	424,000
7.	ACF	111	644	533	2,850-5,150 (4,000)	2,132,000
8.	Senior Research Officer	3	9	6	4,800-7,200 (6,000)	36,000
9.	Research Officer	8	18	10	2,850-5,150 (4,000)	40,000
10.	Accounts Officer	5	13	8	2,850-5,150 (4,000)	32,000
11.	Others	6	25	19	2,850-5,150 (4,000)	76,000
Sub total Class-I		214	911	697	-	3,007,700
12.	Administrative Officer and other	8	12	4	2,350-4,840 (3,600)	14,400
13.	Deputy Ranger (upgraded) (Diploma holder)	-	653	653	(3,600)	2,350,800
Sub total Class-II		8	665	657	-	2,365,200
14.	Senior Forest Ranger	13	(*)	(-) 13	-	-
15.	Forest Ranger	479	(*)	(-) 479	-	-
16.	Deputy Ranger Forester	1,489	1,370	** (-) 119	-	-
17.	Forest guard others	3,912	5,033	1,121	1,050-2,170 (1,500)	1,681,500
Sub total Class-III		5,893	6,403	510	-	1,681,500
18.	Boatman/Mali	2,654	3,660	1,006	900-1,750 (1,300)	1,307,800
19.	MLSS	845	1,150	305	-	396,500
Sub total Class-IV		3,499	4,810	1,311	-	1,704,300
GRAND TOTAL FOR 1 MONTH						8,758,700

Total for 12 months 8,758,700 x 12 =
Miscellaneous expenses 15%

105,104,400
15,765,660
120,870,060

Say Taka 120 million per year.

- * Shown as upgraded to ACF
- ** Diploma holders shown upgraded to Class-II

**APPENDIX 4
EDUCATION AND TRAINING**

INSTITUTION STRUCTURES,
EDUCATION AND TRAINING

APPENDIX 4
EDUCATION AND TRAINING

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1. INSTITUTE OF FORESTRY, UNIVERSITY OF CHITTAGONG SYLLABUS

1a. Bachelor of Science, Honours in Forestry, 1991-92 Session

FIRST SEMESTER

<u>Course No.</u>	<u>Course Title</u>	<u>TH</u>	<u>PR</u>	<u>FM</u>
111	Introduction to forestry	75	00	75
112	English I	75	00	75
113	Adv. algebra and trigonometry	100	00	100
114	Forest botany	75	25	100
115	Chemistry	75	25	100
116	Forest Zoology	75	25	100
117	Field trip & viva-voce	-	-	50

Total marks				600

SECOND SEMESTER

121	Dendrology	50	25	75
122	English II	75	00	75
123	Analytic geometry and calculus	100	00	100
124	Sociology	100	00	100
125	Geology and soil science	75	25	100
126	Drawing and surveing	50	50	100
127	Field trip & voce	-	-	50

Total marks				600

THIRD SEMESTER

211	Physics	50	25	75
212	Forest ecology	75	25	100
213	Mycology, for.path.& for, Protection	50	25	75
214	Elementary statistics	75	25	100
215	Wood structures and properties	75	25	100
216	Building materials & construction	75	25	100
217	Field trip & viva-voce	-	-	50

Total marks				600

FOURTH SEMESTER

221	Principles of economics	100	00	100
222	Forest tree physiology	50	25	75
223	Forest tree improvement	50	25	75
224	Forest mensuration and inventory	75	25	100
225	Lumber manuf., seasoning & pres.	75	25	100
226	Forest transportation eng'g.	75	25	100
227	Field trip & viva-voce	-	-	50

FIFTH SEMESTER

311	Prin. & Prac. of silviculture			
312	Forestry extension	75	25	100
313	Wood & fibre composite materials	75	25	100
314	Forest harvesting	75	25	100
315	Rubber, tea & coffee	75	25	100
316	Forest entomology	50	25	75
317	Field trip & viva-voce	50	25	75
		-	-	50

Total marks 600

SIXTH SEMESTER

321	Plantation Silviculture			
322	Social forestry	75	25	100
323	Non-timber forest products	100	-	100
324	Agroforestry	75	-	75
325	Rural indus. & Community dev.	50	25	75
326	Photogram. & remote sensing	50	-	50
327	Field Engineering	75	25	100
328	Field trip & viva-voce	-	50	50
		-	-	50

Total marks 600

SEVENTH SEMESTER

411	Comm. organizing & rural inst.	50	25	75
412	Forest management	100	-	100
413	Forest economics & marketing	100	-	100
414	Research methodology	75	25	100
415	Introduction to Computer	50	25	75
416	Environmental forestry	75	-	75
417	Seminar	-	-	25
418	Field trip & viva-voce	-	-	50

Total marks 600

EIGHTH SEMESTER

421	Parks & Wildlife management	100	-	100
422	Watershed management	50	25	75
423	For. policy, Law & Administration	100	-	100
424	Review paper	-	50	50
425	Forest management plan	-	100	100
426	For. development planning	50	-	50
427	Landuse planning & management	50	-	50
428	Seminar	-	-	25
429	Field trip & viva-voce	-	-	50

Total marks 600

TH - Theory; PR - Practical; FM - Full marks
Duration of exam. for theory 100 marks - 4 hours
75 marks - 3 hours
50 marks - 2 hours

Practicals 50 marks - 8 hours
25 marks - 4 hours

Distribution of marks for field trip & viva-voce:

Field trip (Planting & nursing-5, Field report-7, Field tour exam.-8)
Viva-voce

= 20 marks
= 30 marks
Total = 50 marks

Source: I.F.C.U. - 1992

2. BANGLADESH FOREST ACADEMY

2a. Orientation Course

<u>Summary of six months course contents</u>		<u>Hours</u>
1.	Forest Law	- 28
2.	Forest Management	- 12
3.	Forest Engineering	- 28
4.	Forest Surveying	- 24
5.	Forest Mensuration	- 16
6.	Public Administration	- 16
7.	Service Rules and Regulations	- 12
8.	Silviculture	- 28
9.	Forest Account Procedures	- 180
10.	Ex-tempo speech	-
11.	Seminars	-
12.	Excursions; Field Practice	-
13.	Rifle Training	-

The subject wise details has been worked out by B. Marsater, Consultant in Consultation with the Director and others under Assistance to Forestry Sector of Bangladesh FAO/UNDP Project B.GD/88/085 - Phase-II, June 1990.

Source: B.F.A. Chittagong - 1992

2b. Conversion Course (6 months)

<u>Summary of course contents</u>		<u>Hours</u>
1.	A. Survey and drawing	- 26
	B. Forest engineering	- 29
2.	Forest Law	- 18
3.	Forest Management	- 22
4.	National parks, wildlife management, recreation	- 12
5.	Forest ecology	- 18
6.	Silviculture	- 24
7.	Forest resource economics	- 22
8.	Forest account and procedure	- 18
9.	A. Elementary statistics	- 13
	B. Forest mensuration	- 16
10.	Forest protection	- 25
11.	Public administration	- 19
12.	Service rules and regulations	- 22
13.	Timber technology and forest based industries	- 30
14.	A. Forestry extension	- 10
	B. Social forestry	- 6
	C. Rural development	- 7
15.	Extensions, field practices	- 337

The subject wise details have been worked out by B.Masater, Consultant, vide working paper no. 28 of FAO/UNDP/Project BGD/85/085, Phase II, June 1990.

Source: B.F.A. Chittagong - 1992

2c. Refresher Course (3 months)

Summary of course contents

	Hours
1. Forest Ecology	12
2. Silviculture	20
3. Survey and drawing	24
4. Forest management	32
5. Forest resource economics	32
6. Forest biometrics	20
7. National parks, wildlife management, recreation	12
8. Forest protection	12
9. Forest engineering	16
10. Forest law	16
11. Forest accounts and procedure	16
12. Forest extension, social forestry, rural development	24
13. Exercises, field practices	<u>236</u>

The subject wise details have been worked out by B. Marsater, Consultant vide working paper No. 28 of FAO/UNDP Project BGD/88/085 Phase II, June 1990.

Source: B.F.A. Chittagong - 1992

3. SYLHET FORESTRY SCHOOL

3a. Diploma in Forestry Course Content

DIPLOMA IN FORESTRY FIRST SEMESTER				
COURSE NO.	SUBJECT	T	P	C
FD 114	SOIL CONSERVATION & WATER SHED MANAGEMENT	4	-	4
FD 124	PHYSICAL SCIENCE	3	2	4
FD 134	FOREST MENSURATION	3	2	4
FD 143	GENERAL SILVICULTURE - I	3	-	3
FD 153	FOREST POLICY & LAW - I	3	-	3
FD 164	FOREST BOTANY - I	3	2	4
FD 176	SURVEYING - I	4	4	6
		23	10	28

T = THEORY
P = PRACTICAL
C = CREDIT

DIPLOMA IN FORESTRY SECOND SEMESTER				
COURSE NO.	SUBJECT	T	P	C
FD 212	SILVICULTURE SYSTEM	2	-	2
FD 225	FOREST ENGINEERING - I	3	4	5
FD 233	FOREST BOTANY - II	2	2	3
FD 243	FOREST POLICY & LAW - II	2	-	2
FD 253	FOREST ECOLOGY	3	-	3
FD 266	SURVEYING - II	4	4	6
FD 272	FOREST UTILIZATION	2	-	2
		18	10	23

DIPLOMA IN FORESTRY THIRD SEMESTER				
COURSE NO.	SUBJECT	T	P	C
FD 315	FOREST ENGINEERING - II	3	4	5
FD 323	FOREST MANAGEMENT	3	-	3
FD 336	GENERAL SILVICULTURE - II	3	4	5
FD 343	FOREST UTILISATION - II	3	-	3
FD 353	FOREST PROTECTION	3	-	3
FD 364	FOREST EXTENSION	3	2	4
FD 372	WILDLIFE AND RECREATION	2	-	2
		20	10	25

DIPLOMA IN FORESTRY FOURTH SEMESTER				
COURSE NO.	SUBJECT	T	P	C
FD 415	FOREST ACCOUNTS PROCEDURE	4	2	5
FD 424	SOCIOLOGY	4	-	4
FD 434	SOCIAL FORESTRY & RURAL DEVELOPMENT	4	-	4
FD 444	AGROFORESTRY	3	2	4
		15	4	17

Source: Forest School, Sylhet - 1992

3b. Rules for Conducting Examination of Forest Guard Trainees

THREE MONTHS COURSE

The examination will consist of 2 parts viz written and practical. There will be only one examination at the end of the course. The marks for written and practical examination will be as follows:

WRITTEN EXAMINATION

1.	Forest Extension	50
2.	Forest Measurement	50
3.	Silviculture	50
4.	Surveying	50
5.	Utilization	25
6.	Forest Law	50
7.	Forest Engineering	50
8.	Forest Protection	<u>25</u>
		350

PRACTICAL EXAMINATION

1.	Forest Measurement	25
2.	Silviculture	50
3.	Surveying	25
4.	Utilization	15
5.	Marathon race	25
6.	Conduct & discipline	25
7.	Attendance	25
8.	P.T. & Games	15
9.	First Aid	10
10.	Cycling	<u>10</u>
11.	Rifles Training	250
	Grand Total:	600
	Pass Mark :	50%

The examination will be conducted by the Director and Inspectors of the School, Sylhet.

Certificate and Prizes

On successful completion of the training the Forest Guards will be awarded a prescribed certificate of training from Director of the School.

There will be four prizes viz.:

- i) A silver medal for standing first in the class.
- ii) A bronze medal for best practical Forest Guard.
- iii) A cup for best Sportsman.
- iv) A cup for marathon race.

Prizes of Sports

Regular Sports will be held for each batch on at least 10 events. Prizes will be awarded to first & second winners of each event.

SYLLABUS FOR FOREST GUARD TRAINEES OF FOREST SCHOOL, SYLHET. AND DISTRIBUTION OF WORKING HOURS FOR EACH SUBJECT IN A COURSE OF 3 MONTH (75 days x 8 = 600 hours).

Sl. No.	Subject	Theory	Practical	Tour	Total	% of Total
1	Forest Extension	20	-	8	28	6.00
2	Forest Measurement	30	20	16	66	14.00
3	Silviculture	40	90	32	162	37.50
4	Forest Surveying	30	30	8	68	15.00
5	Forest Law	30	10	-	40	6.50
6	Forest Utilization	20	20	16	56	12.00
7	Forest Engineering	20	-	-	20	4.50
8	Forest Protection	20	-	-	20	4.5
	TOTAL	210	170	80	460	100%
9	Physical training	35	-	-	35	half an hour daily
10	Games, arms training cycling and First Aid	70	-	-	70	One hour daily
11	Examination & period in transit	35	-	-	35	
	GRAND TOTAL	350	170	80	600	

Sl. No. Subject

1.0 FOREST EXTENSION

1.1 Definition/ objectives.

1.2 Definition & technologies of the following disciplines.

- a) Social Forestry
- b) Farm Forestry
- c) Agro-Forestry
- d) Community Forestry
- e) Homestead Forestry

2.0 FOREST MEASUREMENT

2.1 a) Forest Measurement & its objectives

b) Units of Measurement

2.2 Measurement of single tree

- a) Breast height-its definition & meaning
- b) Measurement of diameter & its measuring instruments
- c) Height measurement & its measurement instruments
- d) Basal area & its measurement

2.3 a) Volume of stacked wood

b) Volume of logs/ scantlings

- i.
- ii.
- iii.
- iv.

Huber's Formula
Smalian's Formula
Quarter Girth Formula
Volume of scantlings/plank using log tables

- c) Volume table & its uses
- d) Yield table & its uses

2.4 Coup marking

3.0 SILVICULTURE

3.1 General idea on Silviculture

3.2 Artificial Regeneration

- a) Choice of species for reforestation
- b) Choice of species for afforestation of coastal belts and offshore island.

3.3 Nursery

Water supply, Nursery site, size of nursery, preparation of nursery bed addition of manure in nursery beds, protection fencing of nursery.

3.4 Seeds

Collection, extraction and storage, seed source, seed weight, selection of mother trees, method of seed collection extraction and storage, seed preservation, treatment of seeds before sowing.

3.5 Sowing and germination of seed

Sowing of seeds in seed beds, construction of seed beds, filling the seed beds, method of sowing in seed beds, depth of sowing in seed beds, mulching in seed beds, protection of seed beds against sun and rains.

3.6 Plotting out in poly begs

Size of poly begs, preparation of potting out soil, organic fertilizer for potting out soil cow dung etc.

3.7 Pricking out/ Directs

- i) Sowing in Nursery beds (Transplant Beds)
- ii) Seeds to be tried directly into nursery bed (transplant beds)
- iii) Inorganic Fertiliser and their use in Nursery
- iv) Method of Pricking out/ potting from seed beds

3.8 Tending of seedling in poly bags out Nursery Beds

Root pouncing, watering of poly bag and transplant beds weeding and disease in the nursery.

3.9 Planting in the Forest

Season to start planting sources of planting stock Direct sowing of seeds, planting of poly bag stocks, planting of stump stocks, Naked root planting, planting with ball of earth.

3.10 Control to seeds vacancy filling, double stem cutting.

4.0 FOREST SURVEYING

4.1 General idea on the subject and various method of survey with special reference to the types of survey carried out in Bangladesh.

4.2 The use of Ranging Rod, offset staff, peg, liners tape, steel taps, optical square, gunter's chain arrow, Plumbob, Spirit level etc.

4.3 Measurement of distance changing, offsetting laying out right angles, chaining on stoping ground, chaining across obstacles, testing the chain, adjusting the chain folding and unfolding the chain, Reading the chain, Ranging out survey line, direct ranging and indirect ranging, evrous is chaining.

5.0 FOREST UTILIZATION

5.1 Major Forest Produce

- a) Chief timber, their strength and other properties and their uses.
- b) Falling sawing, transportation and seasoning of timber.

5.2 Minor Forest Produce

Bamboo, grasses, rubber, lac, honey, wax, golpata, medicinal plants and seeds including their method of extraction and general information on their use in Bangladesh.

5.3 Forest Based industries

A general information about plywood mills, paper mill, News print mills match factories, Hard Board Factory, Furniture Factory of Bangladesh together with the species used in such factories and ultimate products derived therefrom.

5.4 Wood sample collection and identification of important economic species of Bangladesh.

6.0 FOREST LAW

6.1 Forest act, 1927 & Modified Forest act, section 1, 2, 26, 33, 41, 42, 52, 62, 63, 64, 68, 72, 79. Wild life preservation act.

6.2 Transit rules, drift timber rules, hunting and shooting rules.

6.3 Preparation of Forest offence report in compounding and prosecution forms together with seizure reports.

6.4 Execution of search warrant and prosecution of the same.

6.5 Power of forest officers (Forest and Guard)

6.6 Precaution to observed in use and protection of fire arms and ammunition.

6.7 Firing and action to be taken in case of injury and death.

7.0 FOREST ENGINEERING

7.1 Building Materials: Bricks, Cement, sand, aggregate, lime, M.S.Rod, timber bamboo, sungrass, golpata, C.I. sheet.

7.2 Method of making cement mortar, proportion sand and cement in cement mortar, duty of the officer who supervise the mixing of mortar and use of mortar. Name different parts of pacca & semi-pacca buildings.

7.3 General knowledge on brick works, cement concrete works and R.C.C. works.

8.0 FOREST PROTECTION

8.1 Agency which causes damage to forest such as Human animal, Various injuring plants and climber, Natural calamities.

8.2 Forest Fire, Cause of Fires, Classification of Forest fire and protection against fire.

SYLLABUS FOR FIRST AID

1. Introductory Lecture on Principles & practices of First Aid.
2. Dressing and bandage.
3. Management of Asphyxia and emergency resuscitation.
4. Management of wounds, bleeding, circulatory failure & shock.
5. Management of injuries of bone, muscles, ligaments and joints.
6. Management of poisoning.
7. Management of accident, Road drowning etc.
8. Handling & transport of injured persons.
9. Management of Burns, Scald, lightning electric caution, sunburn forest bits.
10. Management of Hanging, Strangulation, Throatling & choking.
11. Management of snake bits, insect bits, animal bits.
12. Management of head injury, patient stroke, Eip-lepsy, Hysteria fits convulsion, Diabetes, etc.
13. Emergency child birth & management
14. First Aid equipment in the home.

Source: Forest School, Sylhet - 1992

4. CONSTRUCTION COST FOR IMPROVEMENT ESTIMATES

4a. Institute of Forestry, Chittagong University

Construction Costs	Area (Sq. ft.)	Cost per building	No.	(Tk'000)			Total (Tk'000)
				Year 1	Year 2	Yrs 3-7	
Construction of 2nd and 3rd floor of new academic block	25,536	14,045	1	14,045	-	-	14,055
Constructin of 3rd floor of student hostel	10,110	6,066	1	6,066	-	-	6,066
Construction of residential apartment block	9,200	5,520	1	5,520	-	-	5,520
Site development	-	2,500	1	2,500	-	-	2,500
Furniture and fittings of academic and dormitroy building	-	2,011	-	-	2,011	-	2,011
Engineering and architect services	-	1,407	-	1,407	-	-	1,407
Maintenance of new construction and site works	-	-	-	-	844	844	1,688
Total Construction cost				29,538	2,855	844	33,237

Source: Bangladesh Forest Resource Management Project of I.D.A - 1991

4b. Proposed Renovation of Forest School, Sylhet

Items of Works	(in million Tk)							Total
	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	
I. Consturction (Civil works)								
A. Functional building								
a. Site development etc	0.50	-	-	-	-	-	-	0.50
b. Garage of workshop	0.50	-	-	-	-	-	-	0.50
c. Improvement of existing Academic buildings	2.50	-	-	-	-	-	-	2.50
B. Residential building								
a. Repairs to Hostel blg	0.75	-	-	-	-	-	-	0.75
Sub total A + B	4.25	-	-	-	-	-	-	4.25
II. Equipment & Vehicle								
A. Transport vehicle								
a. Pick up - 1 no.	1.80	-	-	-	-	-	-	1.80
Sub total of II	1.80	-	-	-	-	-	-	1.80
III. Other Cost (Organization)								
A. Technical assistance	0.04	-	-	-	-	-	-	0.04
Total investment cost	6.09	-	-	-	-	-	-	6.09
IV. Miscellaneous expenditure including fuel, maintenance of vehicles, etc	0.27	0.27	0.27	0.27	0.27	0.27	0.27	1.89
Total base cost	6.36	0.27	0.27	0.27	0.27	0.27	0.27	7.98

Source: Forest Resource Management Project (92-93 to 98-99)

4c. Bangladesh Forest Academy

(Tk'000)

Construction Costs	Area (Sq.ft.)	Cost per building	No.	Year 1	Year 2	Yrs 3-7	Total (Tk'000)
Academic Buildings							
Construction of 3rd floor on existing teaching wing:							
Multipurpose laboratory	1,000	600	1	600			600
Drawing room	1,000	600	1	600			600
Microscope and equipment store	200	120	1	120			120
Drawing materials store	100	60	1	60			60
Chemical store	100	60	1	60			60
Preparation room	200	120	1	120			120
Lecturers' office	150	90	2	180			180
Draftmans's office	100	60	1	60			60
Furniture and fittings for new buildings	-	180	-	-	180		180
Furniture and fittings for laboratories in existing buildings	-	72	-	72			72
Student dormitory and catering facilities	-	-	-	-			
Double bedrooms	150	90	30	2700			2,700
Toilets and shower rooms	240	144	2	288			288
Students' common room	1,200	720	1	720			720
Dining room	1,200	720	1	720			720
Kitchen	600	360	1	360			360
Prayer room	400	240	1	240			240
Store room	200	80	1	80			80
Furniture and fittings		511	-	-	511		511
Staff Housing							
Deputy Conservator of Forests	1,500	900	1	900			900
Asst. Conservator of Forests	1,300	780	2	1560			1,560
Senior Clerical/P.T. Instructor	800	480	12	5760			5,760
Junior clerical	600	360	20	7200			7,200
Other staff	400	240	20	4800			4,800
Renovation and extension of Director's residence		600	1	600			600
Site works							
Roads: approach road to College gate and internal roads	1,400	1,200		1,200			1,200
Construction of retaining wall 2,000 running feet		2,500		2,500			2,500
Construction of paved storm drains 3,000 running feet		1,050		1,050			1,050
Gas installation in new building		1,200		1,200			1,200

Construction Costs	Area (Sq.ft.)	Cost per building	No.	Year 1	Year 2	Yrs 3-7	Total (Tk'000)
Replacing main electricity line and re-wiring		1,700		1,700			1,700
Inatallation of Deep tupewell overhead reservoir, pump house and supply lines on new site		3,600		3,600			3,600
Engineer and architect's service				1,919			1,919
Maintenance costs of new construction and site works					1,172	1,172	2,344
Total Construction cost				40,969	1,863	1,172	44,004

Source: Bangladesh Forest Resource Management Project of I.D.A - 1991

4d. Proposed Cost of Establishment of New Forest School, At Chittagong

(in million Tk)

Broad items	1st to 7th year
A. Construction Costs	
1. Academic building construction ..	2,000 sq.ft 13.00
2. Dormitory & Catering facility ..	3,250 sq.ft 21.13
3. Staff housing..	2,920 sq.ft 16.06
4. Engineering/ Architect Service/ Site Development etc.	1.98 sq.ft 1.98
Sub total	52.17
B. Books/ equipments/ transport etc.	
1. Books & equipments	1.60
2. Vehicles (Buses-3; Jeep-I, Motor Cycle-4, Cycle-10)	6.98
3. Technical assistance	0.08
4. Recuring expenditure for 7 years	14.67
Sub total	23.33
Grand total	75.50

Source: Forest Resource Management Project (92-93 to 98-99)

5. OTHER ESTIMATED OPERATING COSTS

5a. Books and Journals

(Tk. '000)

Teaching Establishment	No. of Books/Journals	Yr. 1	Yr. 2	Yrs 3-7	Total
Bangladesh Forest Academy	1,000	750	-	-	750
Forest Dept. Headquarters	400	-	300	-	300
Total Cost		750	300	-	1,050

Source: Bangladesh Forest Resource Management Project of I.D.A - 1991

5b. Additional Equipment for the Bangladesh Forest Academy

	Tk '000
Forest Mensuration and survey	560
Drawing Office equipment	200
Forest Engineering	320
Forest biology and soil science	650
Silviculture	350
Fire-fighting equipment	100
Visual aid equipment	35
Office equipment	120
Total	2,335

Source: Bangladesh Forest Resource Management Project of I.D.A. - 1991

5c. Capital and Operating Cost of Vehicles

(Tk'000)

Teaching establishment/ Type of Vehicle	Unit Cost Delivered Tk'000	Number	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7	
			Capital	Opera.	Capital	Opera.	Capital	Opera.	Capital	Opera.	Capital	Opera.	Capital	Opera.	Capital	Opera.
Forest Academy, Chittagong																
30-Seater bus	1400	2	2800	700	-	700	-	700	-	700	-	700	-	700	-	700
16-Seater bus	1100	2	1100	340	-	340	-	340	-	340	-	1100	-	680	-	680
Jeep	1000	1	1000	360	-	360	-	360	-	360	-	-	-	360	-	360
Motor Cycle	60	4	120	42	-	42	-	42	-	120	84	-	-	84	-	84
Bicycle	4	10	20	5	-	5	-	5	-	20	10	-	-	10	-	10
Sub total	3,564	19	5,040	1,447	0	1,447	0	1,447	0	140	1,494	1,100	1,834	0	1,834	0
Institute of Forestry, Chittagong University																
30-Seater bus	1400	2	2800	700	-	700	-	700	-	-	-	-	-	700	-	700
Jeep	1000	2	2000	720	-	720	-	720	-	-	-	-	-	720	-	720
Bicycle	4	5	12	3	-	3	-	3	-	-	-	3	-	5	-	5
Sub total	2,404	9	4,812	1,423	0	1,423	0	1,423	0	140	2,917	1,108	3,259	0	1,425	0
Total Annual Cost	5,968	28	9,852	2,870	0	2,870	0	2,870	0	140	2,917	1,108	3,259	0	3,259	0

All vehicles educational and exempt from taxes and duties

Total Capital cost 10,960,000 Tk; Total operational cost in 7 years 21,364,000 Tk; Total in Tk 32,324,000

Source: Bangladesh Forest Resource Management Project of I.D.A. - 1991

5d. Training Facilities at Forest Extension Training Centres

Forest Circles	Number of existing Forest Extension Nurseries	No. of FE Nurseries where Training facilities are developed	No. of FE Nurseries where Training facilities are to be developed	Unit Cost	Total Cost
Jessore	25	8	17	800,000	13,600,000
Bogra	28	7	21	800,000	16,800,000
Central	29	7	22	800,000	17,600,000
Plantation	6	2	4	800,000	3,200,000
Chittagong	7	1	6	800,000	4,800,000
Rangamati	2	-	2	800,000	1,600,000
TOTAL	97	25	72		57,600,000

Note: Detail of unit cost:

(1)	Class Room Building and facilities 150 sq.m x Tk. 5000	= 750,000
(2)	Training Instruments	= 20,000
(3)	Furniture	= <u>30,000</u>
		800,000

6. FOREIGN TRAINING NEEDS

6a. Forest Department Requirement

Field of Training/ Subject Area	1993 - 2003				2003 - 2013			
	Ph.D	M.S	Study tour	Fellow- ship	Ph.D	M.S	Study tour	Fellow- ship
1. Tropical Forest Management	1	4	6	2	1	1	3	2
2. Forest Economics	1	4	-	-	-	1	-	-
3. Forest Soil	-	2	-	-	-	1	-	-
4. Cane/ Lac breeding	-	2	6	3	-	1	-	-
5. Cane/ Lac utilisation	-	1	6	2	-	1	3	1
6. Watershed Management	-	2	3	4	-	1	-	-
7. Agro-forestry/ Social Forestry	-	4	6	8	1	2	3	2
8. Land use Planning	1	2	3	4	-	1	-	-
9. Aerial photography	-	2	-	-	-	1	-	-
10. Wildlife Management	-	2	3	3	-	1	-	-
11. Wildlife breeding	-	2	2	1	-	1	-	-
12. Park Management Tourism	-	2	2	2	-	1	-	-
13. Tropical Silviculture	1	4	3	-	-	1	-	-
14. Mangrove Silviculture	-	1	3	-	-	1	-	-
15. Management & Planning of	-	2	-	2	-	1	-	-
16. Environmental Study	-	2	-	-	-	1	-	-
17. Rural Sociology & Forest	-	4	-	1	-	2	-	-
18. Forestry Education/ Training	-	1	3	1	-	1	2	1
19. Mensuration, survey and	-	2	-	1	-	1	-	1
TOTAL	4	45	46	34	2	21	11	7

Note: Ph.D = 48 man months
M.S = 30 man months
Study tour = 1 man month
Fellowship = 12 man months

6b. Forest Department Foreign Training Costs

Period	Level	Number	Man months	Unit Cost	Cost in US \$	Remarks
1993-03	Ph.D	4	4x48	\$125,000	500,000	
	M.S	45	45x30	\$100,000	450,000	
	Study tour	46	46x1	\$5,000	230,000	
	Fellowship	34	34x12	\$35,000	1,190,000	
	Sub total	129	-	-	\$6,420,000	
2003-13	Ph.D	2	2x48	\$125,000	250,000	
	M.S	20	20x30	\$100,000	200,000	
	Study tour	11	11x1	\$5,000	55,000	
	Fellowship	7	7x12	\$35,000	245,000	
	Total	40	-	-	\$2,550,000	
Grand Total of 20 yrs		169			\$8,970,000	

6c. Forest Management Research Requirement

Subject	1993-1998		1998-2003		2003-2008		2008-2013	
	M.S.	Ph.D	M.S.	Ph.D	M.S.	Ph.D	M.S.	Ph.D
Mangrove Silviculture/ Coastal Afforestation	4	2	2	2	1	-	-	1
Silviculture	4	1	2	1	1	1	1	1
Tree improvement	4	1	2	1	-	1	-	1
Forest Biometrics	2	1	1	-	-	1	-	-
Forest Inventory	2	1	1	-	-	-	1	-
Forest Genetics	1	1	1	-	-	1	-	-
Watershed Management	1	1	1	-	1	-	-	1
Forest Ecology	1	1	1	1	-	-	1	-
Forest Soils	2	1	2	1	-	-	-	-
Social Forestry/ Agroforestry	2	2	2	2	1	1	1	1
Tree Physiology	1	1	1	1	-	-	-	-
Forest Economics	2	1	2	1	-	1	1	-
Non-wood Forest Products	2	1	2	-	1	-	1	-
Wood Anatomy	1	1	1	-	-	-	-	-
Wildlife	1	1	1	-	-	-	-	-
Forest Management	2	2	2	2	1	-	-	1
Forest Pathology	1	1	1	1	-	-	-	-
Forest Entomology	1	1	1	1	-	-	-	-
Rubber Agronomy	-	1	1	1	-	-	-	-
Rubber Chemistry	-	-	1	-	-	-	-	-
Research Extension and Communication	2	-	2	1	-	-	-	-
Total	36	22	30	16	6	6	6	6

6d. Forest Products Requirement

Subject	1993-1998		1998-2003		2003-2008		2008-2013	
	M.S.	Ph.D	M.S.	Ph.D	M.S.	Ph.D	M.S.	Ph.D
Wood Working	1	1	1	1	1	-	-	-
Saw Milling	1	1	1	1	-	-	-	-
Wood Seasoning	2	1	2	1	1	-	1	-
Wood Preservation	2	1	2	1	1	1	1	-
Veneer, Plywood and Panel Products	2	1	2	1	1	-	1	-
Pulp and Pulp Products	2	1	2	1	-	-	-	1
Forest Chemistry	-	1	1	-	-	-	-	-
Timber Engineering	1	1	1	-	-	-	-	-
Total	11	8	12	6	4	1	3	1

6e. Forest Research Cost

Period	Level	No.	m/ m	Unit Cost	Cost(x \$1,000)	Proposed Country of Training
1993-1998	M.S	47	47x30 m/ m	\$30,000	1,410	South East Asia/ India
	Ph.D	30	30x48 m/ m	\$50,000	1,500	
	M.S/ Ph.D	77			2,910	
1998-2003	M.S	42	42x30 m/ m	\$30,000	1,260	
	Ph.D	22	22x48 m/ m	\$50,000	1,100	
	M.S/ Ph.D	64			2,360	
2003-2008	M.S	10	10x30 m/ m	\$30,000	300	
	Ph.D	7	7x48 m/ m	\$50,000	350	
	M.S/ Ph.D	17			650	
2008-2013	M.S	9	9x30 m/ m	\$30,000	270	
	Ph.D	7	7x48 m/ m	\$45,000	350	
	M.S/ Ph.D	16			620	
Total	M.S	108	108x30m/ m	\$30,000	3,240	
	Ph.D	66	66x48 m/ m	\$45,000	3,300	
GRAND TOTAL	M.S/ Ph.D	174			6,540	

6.f IFCU Foreign Training Needs and Costs

Sl. No.	Field of Training/ Subject Area	1993 - 2003			
		Ph.D (Nos.)	Man month	Unit Cost (\$)	Cost in US \$
1.	Agro-forestry/ Social forestry & Forestry Extension	2	2x36	110,000	220,000
2.	Soil Science	1	1x36	110,000	110,000
3.	Wood Science	1	1x36	110,000	110,000
4.	Forest Resource Economics	1	1x36	110,000	110,000
5.	Land use management	1	1x36	110,000	110,000
6.	Mensuration & Inventory	1	1x36	110,000	110,000
7.	Environmental Science	3	3x36	330,000	110,000
8.	Forest Ecology	1	1x36	110,000	110,000
9.	Silviculture	1	1x36	110,000	110,000
10.	Forest Soil	1	1x36	110,000	110,000
11.	Watershed Management	1	1x36	110,000	110,000
12.	Forest Genetics & Tree improvement	1	1x36	110,000	110,000
13.	Tree Physiology	1	1x36	110,000	110,000
14.	Microbiology	1	1x36	110,000	110,000
15.	Forest Entomology	1	1x36	110,000	110,000
16.	Forest Pathology	1	1x36	110,000	110,000
17.	Aerial Photography & Remote Sensing	1	1x36	110,000	110,000
18.	Rubber	1	1x36	110,000	110,000
19.	Non-Wood Products	1	1x36	110,000	110,000
20.	Forest Biometric & Data Processing	1	1x36	110,000	110,000
21.	Saw milling/ Season/ Preservation	1	1x36	110,000	110,000
22.	Composit-wood & Fibre Products	1	1x36	110,000	110,000
23.	Wildlife Management/ Recreation Forestry	1	1x36	110,000	110,000
TOTAL		26 Nos.			2,860,000(\$)

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বন অধিদপ্তর 11.1.93
মহাখালী - ঢাকা