



EVOLUTION OF FOREST POLICIES IN BANGLADESH: A CRITICAL ANALYSIS

Mahbubul Alam¹

Abstract

Bangladesh has a low forest cover, but those forests are diverse in nature and of significant importance for the national economy and local people's livelihood. Under the circumstances of severe forest degradation and depletion like in many other developing countries, the existing national forest policy was announced in 1994 after exactly one hundred years of the first forest policy announcement in 1894. This article aims to critically analyze the evolution of the national forest policy from the historical perspectives. The earlier versions of forest policy were characterized by commercialization of forest use for maximization of state revenue. The current policy is significantly departed from its previous versions and recognized the importance of people's participation in forest management. Yet the formulated policy, though rich in content, is not properly implemented because of a number of impediments. Future focus is recommended to be on eradicating the hurdles to implement the existing one rather than formulating new policies.

Keywords: *policy evolution, implementation, impediments, forest management, Bangladesh*

Introduction

Successful forest resource management depends largely on the content and efficient implementation of policy and legal instruments. State forest policy is one of the most important factors determining forestry developments and it depends on the general state policy, resource, and economical, ecological and social aspects of the state activity (Soloviy & Cubbage 2007). Forest policy formulation for developing countries is always a big challenge for policy and decision makers in the face of deforestation, population boom, and financial crisis. Besides ensuring sustainable management of forest resources, poverty reduction, and environmental protection are important goals of forest policies of the developing world. The earliest forest policies of

¹ The United Graduate School of Agricultural Sciences, Ehime University, Matsuyama, Japan.
Corresponding author: malam.ku@gmail.com

Asia date back to the 1800s (FAO-RAP 2003). Since then, forest policies of all countries of this region have been formulated, revised and refined in response to the current socio-economic scenario and perceived shortcomings of previous policies. The first forest policy of Bangladesh was promulgated in 1894 during the colonial era and since then three forest policies have come into force. Like other Asian countries, the earlier as well as existing forest policies of Bangladesh suffered from a number of shortcomings. Due to a myriad of difficulties, the implementation of policies remains a major bottleneck to achieving sustainable forest management goals. This article attempts to review and analyze evolution and development of forest policies of Bangladesh from historical perspectives. A further aim of the paper is to critically analyze and identify the drawbacks of hitherto existing forest policies in sustainable management of forest resources in Bangladesh.

The following two sections in this article give an overall account of forest resources and illustrate climate change implications of Bangladesh and its forestry. The next section gives a rundown of relevant policy and legal instruments that have direct or indirect impacts on forest policy implementation. The subsequent two sections critically analyze and discuss the evolution and development of forest policies from a historical perspective. The article concludes with a summary of recommendations for practitioners and future policymakers.

An Overview of Bangladesh Forestry

Bangladesh is one of the most populated countries of the world with a total population of 130.03 million living in a density of 839 per square kilometer and increasing at a rate of 1.54% per year (BBS 2003). In the northeast and south-eastern region, the hilly ridges run north-south and form part of the mountain that divides Myanmar and India. The northeastern region has hill system that consists of a number of hillocks and hills ranging from 30 to 40 m in height. Similarly, the southeastern region is dominated by the Chittagong Hill Tracts (CHT) that has many hills, valleys, and forests and is significantly different from other parts of the country in terms of physiography, physiognomy, and culture. In the winter the temperature varies from 5° - 23°C, while in the summer the maximum temperature shoots up to 40°C (FAO 1988). The average annual rainfall varies from 1229 to 4338 mm (WARPO 2000).

The forest management in Bangladesh started in 1864 and a reserved forest was established in 1875. A century old government organization started functioning from 1862 with the Imperial Forest Service, Provincial Forest Service, and Sub-ordinate Forest Service (GOB 2009). Before partition under British India in 1947, the forests of Bangladesh were under the control of the Bengal Forest Department and Assam Forest Department. After partition of

British India, the East Pakistan Forest Service was created comprising of East Pakistan Senior Forest Service and East Pakistan Sub-ordinate Forest Service. Responsibility for forestry was passed to the Bangladesh Forest Department after the independence of Bangladesh in 1971. Bangladesh Senior Forest Service was renamed as Bangladesh Civil Service (Forest) Cadre under Bangladesh Civil Service Cadre Rules, 1980. The administrative head of Forest Department is the Chief Conservator of Forest (CCF). The Forest Department is divided into 4 wings considering the magnitude of work and lines of jurisdiction. Each wing is administered by a Deputy Chief Conservator of Forest (DCCF). The wings are forest management wing, social forestry wing, planning wing and education and training wing. In the forest department there are 9 circles, each headed by a Conservator of Forest (CF). The circles are 5 forest management circles, 3 social forest circles, and 1 wildlife and nature conservation circle. Similarly there are 44 forest divisions each headed by a Divisional Forest Officer (DFO/DCF). There are 24 forest management divisions, 13 social forest divisions, 4 wildlife management and nature conservation divisions, and 3 management plan divisions.

Of the total land surface of Bangladesh 2.14 million ha is public forest and 0.27 million ha is private village forest. The area of government and village forests is about 16% of the total land area. However only 0.93 million ha (6.5%) is under tree cover, which is about 40% of the forests controlled by the government. The remaining 60% includes denuded lands (grassland, scrubland and encroached areas) (Islam 2003). Natural forests throughout the country are increasingly being depleted. In 1980s, the rate of forest destruction was 8,000 hectares per annum with the estimated annual deforestation rate of 3.3 percent. Consequently, per capita forestland had declined from 0.035 ha in 1969 to 0.02 ha in 1990 (BBS 1999). Major causes of deforestation and forest degradation include shifting cultivation, overexploitation of forest resources, organized illicit felling, conversion of forestland into non-forest use and encroachment. Various types of development activities are further intensifying deforestation, and destruction of natural forests in Bangladesh. Status of forest resources in Bangladesh are presented in Table 1.

Table 1. The Status of Forest Resources in Bangladesh (GOB 2009)

| Forest type | Location | Area million ha (% of country's total area) | Remarks |
|---------------------|------------|---|--|
| (i) Mangrove forest | | | |
| a) Natural mangrove | South-west | 0.60 (4.07) | World's largest continuous natural mangrove |
| b) Plantation | Coastline | 0.13 (0.88) | |

| | | | |
|--|--|----------------------------|---|
| (ii) Hill forest a) Managed forest b) Unclassed state forest (USF) | Eastern part Chittagong Hill Tracts (CHT) | 0.67 (4.54) 0.73 (5.00) | Denuded due to shifting cultivation |
| (iii) Plain-land <i>Sal</i> forest | Central and north-west region | 0.12 (0.81) | Under severe human interference |
| (iv) Village forest | Spread over the country on homestead lands | 0.27 (1.83) | Also known as homegardens ² |

On the basis of geographical location, climate, topography, and management principles, the forests of Bangladesh are broadly classified into hill forests, unclassified state forests (USF), deciduous *Sal* (*Shorea robusta*) forests, mangrove forests, coastal forests, and homegardens (Khan 2003, GOB 2009, GOB 1992, FAO 1998, Rahman 2005). Most of the hill forests are characterized as mixed evergreen type where tropical evergreen plant communities are mixed with tropical deciduous trees, in association with diverse herbs, shrubs, and bamboos. Among the dominant trees *Dipterocarpus turbinatus*, *Anisoptera scaphula*, *Syzigium grande* and *Artocarpus chaplasha* are most common. *Sal* forests are classified as tropical moist deciduous forests (Champion *et al.* 1965). FAO (2000) categorizes it into two subtypes, pure *Sal* and mixed *Sal*, on the basis of soil type and tree canopy. *Shorea robusta* is the main species which is associated with *Terminalia belerica*, *Dillenia pentagyna*, *Albizia procera* and, *Lagerstroemia parviflora* (Alam *et al.* 2008). Bangladesh has one of the most biologically resourceful and unique forests known as the Sunderbans, the largest continuous mangrove forest in the world (MOEF 2008), where *Heritiera fomes* and *Excoecaria agallocha* are two dominant species. Home-gardening is a common feature of the rural areas of Bangladesh and is a source of subsistence and cash income for poor villagers. Empirical studies (Rahman *et al.* 2005, 2006) show that these homegardens are rich in biological diversity.

Bangladesh Forestry in the Context of Climate Change

The Intergovernmental Panel on Climate Change (IPCC) quotes a 0.76 °C increase in the world's average temperature in the last century and predicts a global temperature rise between 1.8 °C and 4.0 °C by the last decade of the 21st century. This rise in temperature is leading to rising sea levels and drastic changes in rainfall patterns directly affecting production potential of natural ecosystems. The impacts of global warming on the climate, however, will vary

² Village forest or homegardens are described as a multi-storied vegetation of shrubs, bamboos, palms and trees surrounding homesteads that produce materials for a multitude of purposes in the village areas of Bangladesh (Douglas 1981).

in different regions of the world. In South Asia, the IPCC Fourth Assessment Report predicts that monsoon rainfall will increase, resulting in higher flows during the monsoon season in the rivers, which flow into Bangladesh from India, Nepal, Bhutan, and China (IPCC 2007).

Bangladesh is frequently cited as one of the most vulnerable countries to climate change. The physical, social, and economic conditions of Bangladesh are relevant to its status as one of the most vulnerable countries (Haq and Ayres 2008). Many of the anticipated adverse affects of climate change, such as sea level rise, higher temperatures, and an increase in cyclone intensity, will aggravate the existing stresses that already impede the overall development process of the country. UNDP has identified Bangladesh to be the most vulnerable country in the world to tropical cyclones and the sixth country most vulnerable to floods (UNDP 2004). All these impacts will have a detrimental impact on all of the forest ecosystems, and the Sundarbans, a world heritage site, are likely to be the worst affected. The changes in temperature and water resources with climate change will result in direct pressure on many climate-sensitive species, and cause increased erosion and deterioration of soil quality in many upland forested areas (MOEF 2008).

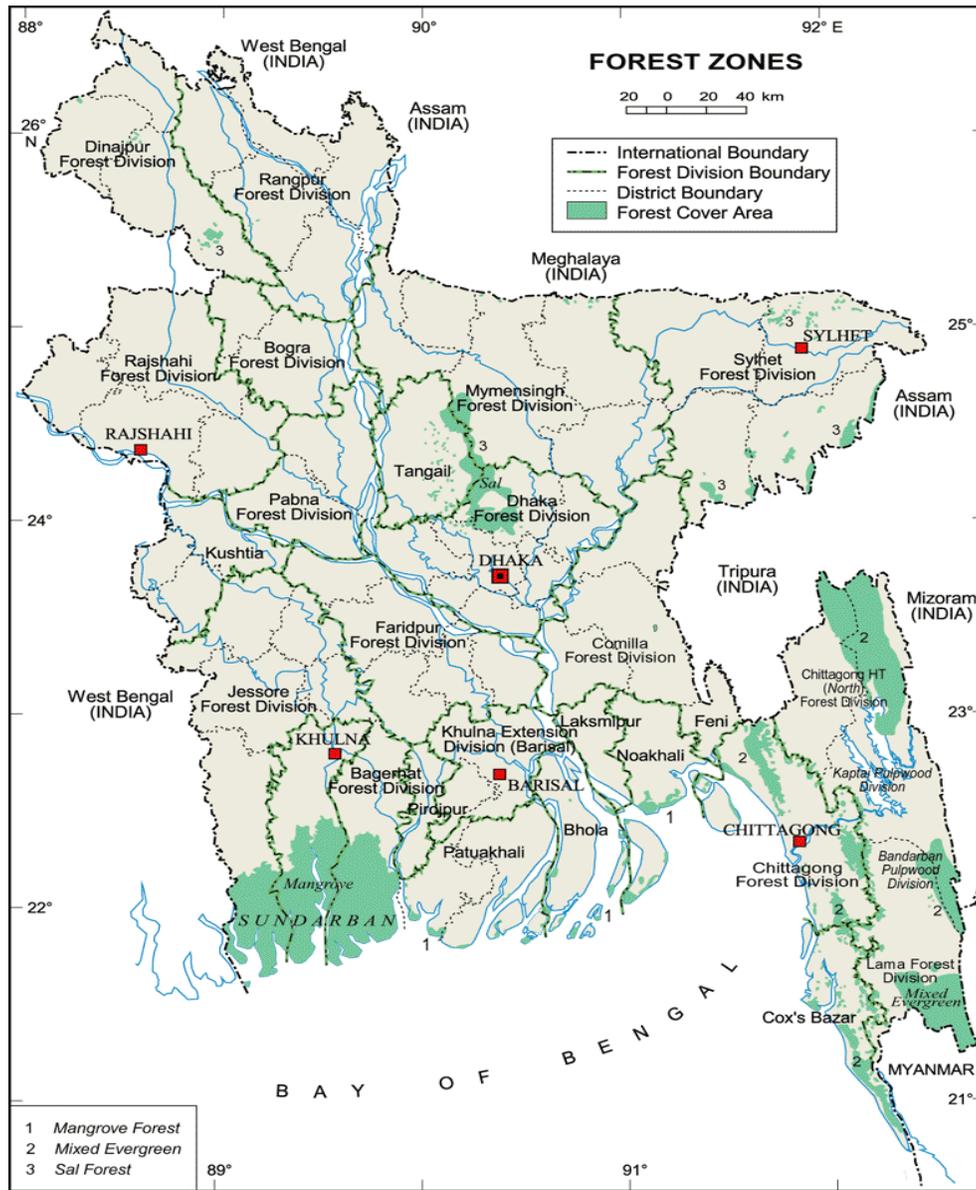
Policy and Legal Instruments Influencing Forestry Sector

This section reviews the influence of forest and environmental laws directly affecting the forestry sector. A list of cross-sectoral policies and legal instruments can be found in Table 2.

Forest Laws

The most widely known forest related law was enacted in 1927. It evolved from substantial revision of previous forest related legal instruments and customs. Since then the Forest Act has been amended many times; the last amendment was in 2000. A Private Forest Act was introduced in 1945, which was followed by the promulgation of the Private Forest Ordinance (1959), to regulate forest management on privately owned land. In 1959, the State Acquisition Tenancy Act was promulgated. Its main aim was to negate the control of landlord over their tenants and to bring tenants under direct control of the government. Under its provisions many private properties were declared non-retainable, including forestland. In 1989, the forest act was amended to strengthen forest protection by providing for stiffer penalties for offenders and restricting the discretionary powers of the forest officials and local magistrates. The revised act relied on traditional forest protection and did not favor social forestry. The strict provisions did not, however, achieve the desired results. To accommodate social forestry, the act was amended in 2000.

Figure 1. Map of Bangladesh Showing Distribution of Forest Resources



Environmental Policy and Legislation

Bangladesh National Environment Policy, approved in May 1992, sets out the basic framework for environmental action, together with a set of broad sectoral guidelines (EDA 1999). The key elements of the policy include:

- ◆ Maintenance of the ecological balance and overall progress and development of the country through protection and improvement of the environment.
- ◆ Protection of the country against natural disasters.
- ◆ Identification and regulation of all types of activities, which pollute and degrade the environment.
- ◆ Ensuring sustainable use of all natural resources.
- ◆ Active association with all environment related international initiatives.

In tackling the environmental problems of the country, various environmental laws have been made from time to time. There are more than 200 sectoral laws that are in force dealing with environmental issues (Chowdhury et al. 1999). The two important laws are Environmental Conservation Act, 1995 (ECA 1995) and Environment Conservation Rules, 1997 (ECR 1997). The main objectives of ECA (1995) are conservation and improvement of environment, and control and mitigation of the environmental pollution, where as, ECR (1997) are the first set of rules, promulgated under the ECA (1995). The rules set the National Environmental Quality Standards for ambient air, various types of water, industrial effluent, emission, noise, and vehicular exhaust requirement for and procedures to obtain environment clearance; requirement for IEE/EIA according to categories of industrial and other development interventions.

Five-Year Plans

The Fifth Five Year Plan (FIFYP) (1997-2002) is the most important planning and policy document of the government covering all major sectors of development and intervention. FIFYP has a separate chapter (chapter X, p-177 to 189) devoted to 'environment and sustainable development' (Haque 1999). Among other things the chapter gives an account of major environmental issues, disaster management and government-NGO cooperation in achieving relevant goals.

Table 2: Cross-Sectoral Policy and Legal Instruments Influencing Bangladesh

| Policy and legal instruments | Year of Enforcement |
|--|---------------------|
| The Explosive Act | 1884 |
| The Explosive Substance Act | 1908 |
| Rules to regulate Hunting, Shooting and Fishing Within the Controlled and Vested Forest, | 1959 |
| Bangladesh Wildlife (preservation) Act | 1973 |

| | |
|---|------|
| National Tourism Policy | 1992 |
| National Energy Policy | 1995 |
| Private Sector Power Generation Policy of Bangladesh | 1996 |
| Policy Guideline for Small Power Plants in Private Sector | 1997 |
| National Water Policy | 1998 |
| National Health Policy | 1999 |
| Industrial Policy | 1999 |
| National Land Policy | 2000 |
| Integrated Pest Management Policy | 2000 |

Development of Forest Policies in Bangladesh

The forest policy of Bangladesh has been highly influenced by political changes that have occurred in the country over a long period of history (Mustafa 2002). The first forest policy was enacted in 1894 during the colonial era. After independence of India in 1947, the Pakistan period (1947-1971) witnessed the formation of two forest policies in 1955 and in 1962 respectively. Bangladesh became a sovereign state in 1971 and the first forest policy of independent Bangladesh was enacted in 1979. The latest forest policy came to force in 1994, after one hundred years of the first forest policy formulation in the Indian subcontinent. Important features of hitherto existing forest policies are outlined in brief in the following sections.

More than one hundred years ago, in 1894, British India's first forest policy was formulated. The management of forests in the Indian subcontinent was a critical issue for the British colonial government, which recognized the importance of forests as a resource with the potential to yield significant economic returns (Qazi 1994, Shahbaz *et al.* 2007). After colonization of the subcontinent, around the middle of the nineteenth century, the British started with their land settlement process. The state extended its control over forests through Indian Forest Act of 1878, and as such nationalized one fifth of India's land area. Under this legislation punitive sanctions were introduced against transgressors, and a forest department was set up to police the forests in addition to regulating tree felling in the areas brought under government supervision (Banuri & Marglin 1993, Hassan 2001). The spirit of that act continued in the Indian forest policy of 1894 (Shahbaz *et al.* 2007). Agriculture was given priority over forestry within this forest policy and proposed that "demand for cultivable land can be, to some extent, met by clearing forest areas" (Hussain 1992 appearing in Khan 2001). But the first forest policy provided basic guidelines for the formulation of acts and rules for forest management. The Forest Act of 1927 was formulated under this policy and most reserved forests were declared under this act (Choudhury 2008). Some important provisions of the first forest policy include administration of state

forests for public benefit, categorization of forests into different classes and management of state forests to yield state revenue.

After partition in 1947, the Government of Pakistan (eastern part of Pakistan is now Bangladesh) declared its first forest policy in 1955. But this policy depicted all characteristic manifestations of the colonial forest administration (Khan 2001). The policy aimed at increasing the area under forests in the unused government lands and extensive linear plantations to be established along roads, canals, and railways. But as the policy did not address the problems of hill and scrub forests, these continued to deteriorate. Forests could hardly meet right holders' demands for timber and livestock grazing. The policy also ignored the pressing need to afforest denuded hills and to manage watersheds and rangelands (Shahbaz *et al.* 2007). Some important statements of the 1955 forest policy were:

- increased allocations should be made available to increase forest cover
- intangible benefits from forests should be recognized
- forests should be classified on the basis of their utility
- forests should be preserved carefully and managed scientifically
- all forests should be managed under approved management plans

In 1962, a second policy was launched by the Government of Pakistan. The policy had five foci, namely forestry, watershed management, farm forestry, range management and soil conservation (Mustafa 2002). In this policy, some unconventional suggestions, including acquisition of rights of tree removal and grazing from public forests, compulsory growing of a minimum number of trees on private lands and encouraging farm forestry were made. Recommendations were also made in encouraging fast growing species with shortened rotation to boost forest production. Some other features of the 1962 forest policy were intensive management of forest for commercial purpose, plantation development in state-owned wastelands and soil conservation in forests and private lands. But the rights and demands of local people remained ignored as before (Khan 2001).

In 1971 East Pakistan became separated from West Pakistan to become Bangladesh. The first forest policy of the independent Bangladesh was a two-page manifesto type statement launched in 1979. This policy had the focus on restructuring of the forest department, horizontal expansion of forest, careful preservation and scientific management of forest and optimum forest extraction and setting up of new forest-based industries. Bangladesh's first forest policy also additionally emphasized forestry research, training and education to meet the scientific, technological and administrative needs; but unfortunately that policy had only some generalized and somewhat vague directions.

The latest forest policy of Bangladesh was enacted in 1994.. It marks a major departure from commercialization to recognition of rights and

participation of people. Critical and careful examination of the policy statements can reveal the following main features.

- Horizontal expansion of forest to bring 20 percent of the land area under forest by 2015.
- Emphasis on planting for trees on village areas, newly built up mudflat areas, roadsides, railway track sides and embankments.
- Public and NGO participation in forest expansion and management (the government shall work jointly with NGOs and ensure people's participation. The government will undertake afforestation with people's participation and with the assistance of NGOs).
- Emphasis on urban forestry (the government shall promote special afforestation activities in municipal areas).
- Special attention on the Chittagong Hill tracts (in the hill districts of Banderban, Rangamati and Khagrachari massive afforestation programs will be undertaken in the USF by public and private agencies).
- Acknowledgements of the importance of biological diversity and protected areas.
- Promotion and development of forest-based small-scale enterprises.

General Discussion

Forest policies have been evolving over the years and gradually adjusting to the changing circumstances and needs of the time. The first instrument guiding the policy issues, the Charter of Indian Forests was promulgated as early as 1855 recognizing the importance of the reserve forests. However, the 1894 Forest Policy shifted its focus to revenue earning and framing of rules to that end, based on which, 1927 Forest Act came into being. The 1955 Forest Policy again focused on yield and this emphasis was influential in the later stages too.

The importance of people's participation for ensuring the sustainable forest management goals has been stressed by many authors from different parts of the world (e.g. Thankappan 2008, IGES 2006). It is argued that social forestry, which aims at ensuring economic, ecological, and social benefits to the people, can ensure sustenance of forestry in developing countries. Ascher (1994) argues that local people with established patterns of forest use are the key to sustainability, if they can organize themselves into effective communities. The author adds that community people are often the most appropriate managers and regulators of forest uses.

According to Ali *et al.* (2006), people's attitude towards forest is highly influenced and affected by the policy regime. The uncertainty created by past policies in people's minds about their future ability to use the forestland influenced the negative attitude to forestland use in Bangladesh. This is why

the Forest Policy (1979) clearly laid down the participatory approach to be followed in government-owned forestland and plantations on marginal land (Muhammed *et al.* 2005). The 1994 Forest Policy has made a significant departure in terms of people's participation in forest management. It is more or less a pro-people policy needing implementation and operationalization of its directives and provisions (CPD 2002). It enshrines elements of sustainability that are catering the needs of today and tomorrow. There are some provisions in this policy where it emphasized the creation of employment opportunities, poverty alleviation, and augmenting national income through forestry (See Table 3 for some other strengths of this forest policy). Even though the addressing of these issues remains incomplete and superficial, this is a welcome departure because, contrary to the traditional belief that poverty compels people to plunder forests, effective use of forest resources is intended to make a dent on poverty.

Table 3: SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis of Existing Forest Policy of Bangladesh

| Strengths | Weaknesses | Opportunities (to improve) | Threats (in implementation) |
|--|---|--|--|
| <ul style="list-style-type: none"> • Recognizing the importance of people's participation in several of its provisions. • Directives to extensive utilization of vacant and bare land area for forestry purposes. • Recognizing the importance of NGO involvement in forestry management. • Recognition of gender role in forestry sector. | <ul style="list-style-type: none"> • Policy was not formulated in bottom-up approach. This is why local people's views were not properly reflected. • Climate change implications of forestry in Bangladesh are not addressed at all. | <ul style="list-style-type: none"> • Recognition and encouragement of extensive research on forestry issues. • Directives to increase the capacity of forestry research organizations and public universities. | <ul style="list-style-type: none"> • At current pace it is difficult to obtain a 20% forest land area under forest cover by 2015. • Corruption of forestry staff (Muhammed <i>et al.</i> 2008). • Lack of proper collaboration among implementation agencies. • Conflict among cross-sectoral policies (Choudhury, 2008). • Lack of technically sound manpower. |

Policies, however good they may be, bring no benefits to forestry or communities unless they are implemented properly. In developing countries like Bangladesh, policies are often very well formulated – sometimes with foreign assistance – but are not properly implemented because of interference by influential interest groups such as local political leaders and social elites (Choudhury 2008). The formulated latest national forest policy (1994) of Bangladesh also, although fairly rich in content, is not always supported by necessary actions for implementation (ADB 2004). The directives, for instance, to increase afforestation in the villages have no visible translation that can be found in the ground. Rarely is there any government intervention to increase afforestation in the rural areas of Bangladesh. About 0.27 M ha homestead agroforests of Bangladesh, representing 10.5% of the total forestlands (Rahman *et al.* 2005), are claimed to supply more than 60 percent of various forest products in the country. But there is no program targeted to provide technical or financial support to improve the productivity of this important agroforestry system. Again, owing to the small forest area in the country, the forest policy instructed that forestland will be used for afforestation only. But in reality, aggressive conversion of forestlands into non-forest use can be found in many of the forest areas. Examples of such conversion can be observed across the tropical deciduous Sal (*Shorea robusta*) forests of Bangladesh. Poor implementation of existing laws has completely failed to save forestland and its resources (Alam *et al.* 2008).

It is not very difficult to identify the reasons for which many of the forest policy directives have not been implemented properly. A serious weakness is that the policy is neither sufficiently backed up with legislative provisions, nor is it followed up by program and strategy development, action plans, and operational tactics. For instance, the 1994 forest policy encourages people's participation in forestry activities, but the Forestry Act, however, was only amended in 2000 to accommodate social forestry. In addition, frequently forest policy conflicts with the policies of other sectors. The recent land-use policy, for instance, does not support forestry sufficiently. Choudhury (2008) mentioned,

The serious and continuing demand for agricultural land is a major constraint for expanding forest cover. Forestland that does not have the legal status of reserved forests is highly susceptible to conversion. Although the existing Forest Policy aims to increase forest cover, over the last two years 3000 ha were lost to unauthorized cultivation and occupation in the coastal belts of Noakhali and Chittagong districts alone. This indicates that there is no coordination among the concerned government agencies and no joint effort to implement the Forest Policy.

Besides, there is an incompatibility between two streams of management policies of the forest department, namely the traditional management plan and strategies versus the donor-funded development project oriented operation policies (Muhammed *et al.* 2008). The incompatibility exists because, being a developing country, Bangladesh is not presently in a position to accept and adopt internationally derived forest policies due to inadequate institutional support, political instability and poor governance. The authors described a number of problems, including technical (e.g. lack of adequate capacity among forest officials), managerial and logistical (e.g. lack of adequate supply of equipments), hindering the policy implementation in Bangladesh. Corruption in forestry sector is believed to additionally contribute to the observed problems. Lack of appropriate collaboration between and among different implementation agencies is also obstructing effective implementation of forest policy directives in a number of ways (Muhammed *et al.* 2008).

Conclusion and Policy Implications

Evolution of forest policy in Bangladesh is a result of the gradual adjustments to changing needs of people and circumstances over decades. Major focus is now more on people than on the forest itself and this is how the forest policy is now 'pro-people'. Ensuring local people's participation for creation, conservation and management of forest has become major policy goal. But poor implementation of most policy directives due to lack of adequate institutional capacity, legislative backup and law enforcement has been a major area of concern. Despite various constraints to policy implementation, however, there have been some remarkable developments. Afforestation has been carried out substantially in the marginal, fallow and unproductive lands to increase forest cover of the country. Social forestry has become a major forest management approach to incorporate local people in the forest management activities. Denuded and encroached government forestland, in addition, has been identified and brought under the afforestation program with people's participation using the benefit-sharing approach. Hence, it can now be concluded that the required policy regime is already in place with many positive features, and all it needs is effective implementation. The laws need to be reviewed and amended, if policies are to be effectively implemented.

Given the existing situation of Bangladesh, the following can be regarded as future priorities:

- The policy should be formulated in bottom-up approach rather than traditional top-down approach. This will eventually ensure the participation of grassroot people in policy formulation process.

- Forest policy should be flexible enough to be adapted according to the local situation so that the forest management can be planned taking into consideration prevailing local realities.
- There should be provisions of a variety of direct incentives-- for instance free seedlings or cash payments-- to the seedling planters. Such steps will simultaneously make policy implementation more effective and ensure livelihood security of poor people through forestry.
- The future policy should adequately address the forestry implications of climate change in Bangladesh. Specific directives on adaptation of forests (especially mangroves) and forestry in changing climate should be formulated.

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Appendix

Appendix 1. Policy statements of 1994 National Forest Policy of Bangladesh (GOB 2008).

1. The government shall endeavour to bring 20 percent of the land area under forest by 2015 to maintain the ecological balance and attain self-sufficiency in forest produce. To achieve this objective the government shall work jointly with NGOs and ensure people's participation.
2. Since the area under government-managed forest is very limited, the afforestation activities shall be extended to village areas, newly built up

mudflat areas and in the denuded areas of USF of the Chittagong Hill Tracts.

3. People will be encouraged to plant trees on fallow and marginal lands, on the banks of rivers and in homesteads. Technical advice and assistance will be provided for agroforestry practices, appropriate attention will be given to producing fodder and maintaining herb and shrub cover.
4. The government will encourage people to plant trees on the premises of public institutions such as union council offices, schools, mosques, temples, orphanages and their surrounding areas. Both technical and other assistance will be provided.
5. On state-owned land such as roadsides, railway track sides and embankments, the government will undertake afforestation with people's participation and with the assistance of NGOs.
6. To ensure pollution control in the cities, the government shall promote special afforestation activities in municipal areas. To achieve this goal, the municipalities, town development authorities and other related autonomous bodies shall help the government in the implementation of the programs by setting aside specific sites for planting trees.
7. In the hill districts of Banderban, Rangamati and Khagrachari massive afforestation programs will be undertaken in the USF by public and private agencies. The local governments, keeping the land rights retained by the land ministry, will execute the program.
8. In order to preserve soil, water and biodiversity, the natural forests of the hilly areas and the catchments of the rivers within the country shall be declared as protected areas, game sanctuaries and national parks. The government will endeavour to keep 10 percent of the national forests as protected areas by 2015.
9. An integrated management plan will be prepared for the Sundarbans incorporating the management of forest, water and wildlife.
10. State-owned hill and sal forests will be managed as production forest except those declared as protected areas. The production forests will be managed on a commercial basis with due consideration for the environment.
11. Critical areas like steep hill slopes, vulnerable watersheds and wetlands will be designated as "forests" and will be managed as protected areas.
12. Denuded and encroached government forestland will be identified and brought under the afforestation program with people's participation using the benefit-sharing approach preferably adopting agroforestry with NGO association.
13. Modern and appropriate technologies will be introduced to minimize loss in the collection and processing of forest produce.

14. Steps will be taken to modernize the extraction methods of forest produce to minimize loss and increase efficiency.
15. Steps will be taken to introduce competitive and profit-oriented management of the state-owned forest-based industries and to increase wood-processing efficiencies.
16. Labour-intensive small and cottage forest-based industries will be encouraged in rural areas.
17. Forest transit rules will be simplified to meet present-day needs.
18. Since a wood deficit exists, the ban on export of logs will continue. Processed wood products can however be exported. Import of wood and wood products will be liberalized, but reasonable import duties will be levied on forest products that are abundant in the country.
19. Owing to the small forest area in the country, forestland will be used for afforestation only; any other use will require the permission of the head of the government.
20. In the absence of clearly defined land ownership, tribal people inhabit and cultivate forestland in some parts of the country. Clearly delineated forestland will be set aside for them through forest settlement operations. The rest will be brought under permanent forest management.
21. Training, technical assistance and financial support will be enhanced for private afforestation and tree-based rural development programs, from funds received as international grants and from donors.
22. Women will be encouraged to participate more in programs such as homestead afforestation, rural tree farming and participatory forestry.
23. Ecotourism will be encouraged, bearing in mind the carrying capacity of the forest and the environment.
24. To increase awareness on afforestation, protection and utilization of forests and forest products, mass media campaigns shall be promoted by the government and NGO channels.
25. Under forestry programs, fruit tree planting shall be encouraged in communities.
26. The Forest Department will be strengthened to achieve the objectives and goals of the policy and a new social forestry department will be established.
27. The research, education and training institutions related to forest management will be strengthened to achieve the policy targets and their roles will be enhanced and integrated.
28. In the light of the aims, objectives and targets set up in the policy statement, the acts and rules related to forestry shall be modified, amended and if necessary new acts and rules will be promulgated.