Chapter 3
Critical Analysis of the Forest Policy of Bangladesh: Highlights on Conservation and People's Participation

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Abstract With the history and experiences of more than 100 years in formulation and revisions, since the British colonial period, the forest policy of Bangladesh has turned away from traditional production premises towards protection. Establishing protected areas for biodiversity conservation dates back to the 1960s. The strategy gained impetus with the passage of national legislation in 1973 that included provision of declaring forests as national parks, wildlife sanctuaries and game reserves for the protection of the natural forest resources. Due to the absence of clear demarcation between core areas and buffer zones and the absence of concern for the sustention of local communities' usufruct rights, degradation continued in the protected areas. Therefore, an alternative strategy of co-management involving local stakeholders and provision of incentives in terms of Alternative Income Generation (AIG) supports; has been introduced by the government under a donor assisted project. This new policy is being implemented in five pilot sites. This co-management strategy has demonstrated positive impacts and, increasingly, is gaining recognition as appropriate for other protected areas. This paper reviews the evolutionary history of and periodical changes in the forest policy of Bangladesh—highlighting the conservation aspects, the development of protected areas and the gradual adoption of their collaborative management.

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3.1 Introduction

The people of Bangladesh, with a total land area of 147,570 km^2 and 140 million populations (FAO 2007) have been exerting tremendous pressure on its limited resources. Of the total area, agricultural land makes up 65 %, urban areas account for 8 %, water and other land uses for 10 %, while forestlands account for almost 17 % that includes classified and unclassified state forests and village forests. Of the total 2.52 million ha forestlands, the Forest Department (the legal controlling authority under the Ministry of Environment and Forest; henceforth FD) manages 1.52 million ha of reserved and protected forests. 0.73 million ha, most of which are bare, lack forest cover, and losing topsoil—designated as Unclassed State Forest (USF)—are under the control of Ministry of Land, and the remaining 0.27 million ha are privately owned village forests and are the most productive tree-based resource in the country (BFD 2008). However, according to the Forest Resources Assessment 2005 (FAO 2007), Bangladesh has 871,000 ha of forest area (6.7 % of the total land area) and 279,000 ha plantations. This estimate is much lower than the government estimate and the reason of such discrepancy is explored by Muhammed et al. (2005); part of the discrepancy is due to the FAO estimate including only the designated government reserves, protected forests and the USF—without taking into consideration the privately owned village forests.

Iftekhar (2006) characterized the history of forestry in Bangladesh as deforestation and degradation, occurring for many reasons such as encroachment for agriculture, illegal wood cutting, leaf-litter and fuel wood collection, grazing and browsing, intentional forest burning, uncontrolled and wasteful commercial logging, internal armed conflict, shifting cultivation, and over exploitation. Figure 3.1 depicts the factors responsible for the shrinkage of forest and forest resources in Bangladesh. Muhammed et al. (2005) ascribed the use of land between and within forested areas for housing and agriculture to the tremendous demographic pressure—1,079 people/km^2 (FAO 2007)—and identified this as the preeminent cause accelerating the rate of deforestation with loss of biological diversity—contributing and leading to overall environmental deterioration. Several factors arising from population pressures have led to drastic loss of forest cover in hill forest (Salam et al. 1999) and Sal forest (Alam et al. 2008). Encroachment on to forest land (3.3 % of hill forests, 31.9 % of deciduous Sal forests) is responsible for much of the observed loss (Muhammed et al. 2008a). FAO (2007) assessed the annual rate of negative change of forests as 2,000 ha, or 0.3 % in the period of 2000–2005 over the whole country. Under such pressure, many of the plants and animals either have been extinct or are endangered. IUCN (2000) in its Red Data Book listed a total of 40 inland mammal species, 41 bird species, 58 reptiles and 8 amphibians under various degrees of risk in Bangladesh. Bangladesh National Herbarium also identified 106 vascular plant species under risk of various degrees of extinction in the country (Khan et al. 2001).

Rana et al. (2007) argued that protection of the environment that is crucial for sustainable development in Bangladesh cannot be ensured without proper

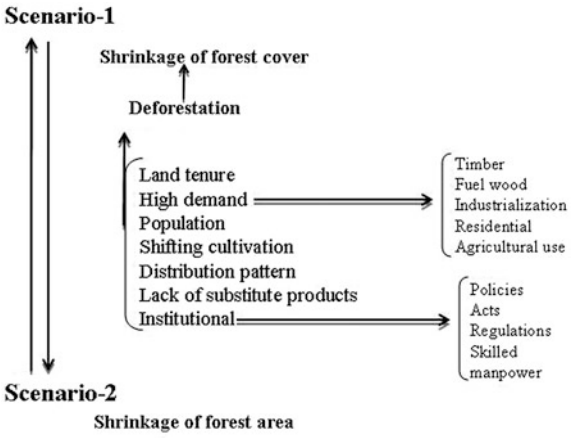

Fig. 3.1 Factors affecting forests and forest resources in Bangladesh (adapted from Muhammed et al. 2008a, b)

management, maintenance and expansion of forest resources. The World Bank (1992) reported the failure of traditional forest management systems in many developing countries to preserve, manage and develop their natural resources; Bangladesh is of no exception. Against such malfunction the creation of large protected areas can be viewed as a fundamental strategy in biodiversity and watershed conservation (Kramer et al. 1997), whilst Schelhas et al. (2002) urged on the effective maintenance of relationships between those areas and the local communities. Recognizing the weakness of conventional forest management and the continued degradation and depletion of forest resources, the Bangladesh government has been exploring different options (Rana et al. 2007): of these, 'the establishment of protected areas' and 'the gradual adoption of community involvement in resource management' are the two important elements as, today, it is believed that, to conserve forest resources effectively and establish protected areas, management systems need to build partnerships with the communities living within or near such protected areas and to address their needs for forest resources in their livelihoods (Lai 2003). Because high degree of dependency that many people have on the forests for their livelihoods has resulted in depletion of forest resources countrywide (Muhammed et al. 2008a).

Although declaration of forests or part of forests as protected area in Bangladesh, under the provision of the Forest Act 1927, has been initiated since 1960—some 10 years before the country's independence, the Bangladesh Wildlife (Preservation) Order 1973 must be viewed as the first comprehensive legislation for the control and management of wild animals including its habitat (Rahman 2004). With the passage of this legislation, the Bangladesh government defined the national responsibility for the conservation of wildlife species. Article 23 of the Order provides for the declaration of protected areas and regulations controlling activities in protected areas. The Order allowed for the designation of three categories of protected areas: national parks, wildlife sanctuaries and game reserves. Now there are 19 protected areas in Bangladesh and one more has been proposed.

Among those, 10 are national parks, 9 are wildlife sanctuaries and only 1 is a game reserve. Covering almost 2 % of the country's total area, the protected areas of Bangladesh cover 11 % of the total forest area, on an average, 5 % of the hill forests, 11 % of the Sal forests and 23 % of the mangrove forests being protected (Mukul 2007; BFD 2008).

In addition, there are 5 eco-parks and 1 safari park, which have been established and managed as development projects of the government's Ministry of Environment and Forest, but not declared under any legal instrument. These are extremely small by comparison to the scheduled protected areas, and are designed to serve "nature recreation" needs rather than large scale conservation needs (USAID 2005).

People's participation in forestry activities started formally in Bangladesh in the 1980s with the initiation of a FD forestry extension program on national forestlands (Rana et al. 2007). As an alternative to traditional forest management, people-oriented forestry has been introduced there in order to increase the country's forest cover (Muhammed et al. 2008a). With the disappearance of more than 50 % of the country's forests in the last 30 years and the protected areas' being critically threatened (Nishorgo 2008), co-management with the collaboration of local communities has emerged. Because protected areas in Bangladesh have been in an intimate interspersion of human habitations; and cultivation through them with traditional dependency on forests is a long timed episode. As international policies concerning protected areas have changed from classic, scientific and exclusionary approaches to more human-centered models, often based on neoliberal economic precepts (Berkes 2004), the Bangladesh government has responded with realism and formulated policies and implemented strategies for conservation recognizing the necessity for the active involvement of local communities in all management decisions and activities.

3.2 The Evolution of Forest Policy

Bangladesh, itself, evolved through a long process of political and administrative change over several centuries (Fig. 3.2). As part of greater India, Bangladesh was colonized by Britain from 1760 until 1947. Following independence from colonial rule, Bangladesh became a part of Pakistan and remained so until its emergence as an independent nation in 1971 (Rasul 2005). This section is based on the authors' review of the published works and government and project documents highlighting the trends of changes in forest policies and legislations towards a collaborative management approaches for protected areas. The review has been carried out under the following broad periods starting with the British colonial period followed by the Pakistan period and finally the post-independence period.

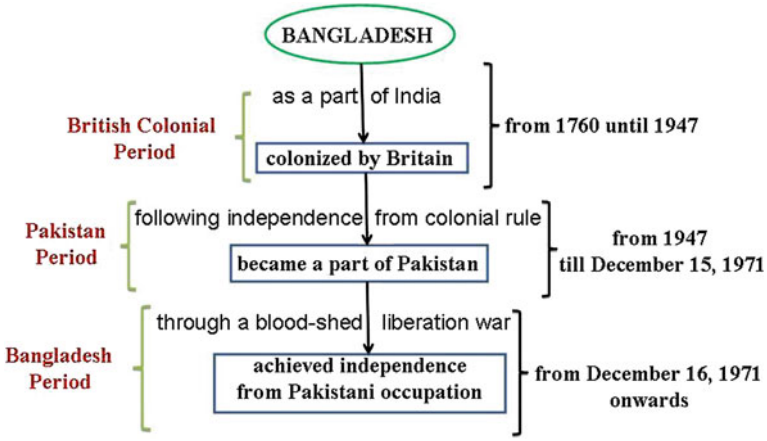

Fig. 3.2 The evolutionary history of Bangladesh as a sovereign state (at a glance)

3.2.1 The British Colonial Period (1760–1947)

The historical development and evolution of the public forest policies and practices in the Indian subcontinent (including Bangladesh) manifest two interrelated trends: (i) state-sponsored, organized commercialization of forestry; and (ii) progressive alienation of forest-based communities from forest use and management (Khan 2001). Simultaneously, agriculture was prioritized above forestry leading to forest clearance which was initiated from the very early times in the continent's history. SAWTEE (2002) reported the evidence of clearing forestlands for agriculture during the *Mughal*[1] period (1526–1700). The end of the *Mughal* period was followed by the ushering of a series of independent Bengal *Nawabs*[2] and the arrival of the British with the subsequent establishment of the East India Company. Under colonial rule and up until the middle of the nineteenth century, forests of the sub-continent were subject to exploitation on a gigantic scale for ship building and railway sleepers without concern for forest preservation and development (Mustafa 2002). The first instrument guiding the policy issues, the Charter of Indian Forests was promulgated as early as 1855 recognizing the importance of reserve forests (CPD 2002). However, Mustafa (2002) reported the actual beginning of forest conservation in Bengal with the appointment of M. T. Anderson as Conservator of Forests for the Lower Province, i.e., Bihar, Orissa, Bengal and Assam, and the creation of the first Forest Department in 1864 (Rangarajan 2003). The first Indian Forest Act 1865 classified the forests and legalized and constituted reserved and protected forests. In 1869, an Assistant Conservator of Forests was

[1] The Muslim dynasty founded by Emperor Baber that ruled India.

[2] The provincial governor of a province or region of the *Mughal* Empire.

appointed to select forests suitable for reservation in the Chittagong hills and subsequently, in 1871, some 5,670 miles^2 out of a total of 6,882 miles^2 within the district, had been gazetted as government forests. This has been viewed as the first attempt by the State towards the conservation of forests in the territory of Bangladesh. The Elephant Preservation Act in 1879 demonstrated the wish of the rulers for wildlife conservation (USAID 2005). This conflicted with the policy of establishing state control over the forests by declaring almost all of them in the Chittagong Hill Tracts to be government property and opening them to commercial exploitation (Rasul 2005). Rasul also reported on an increase in annual average revenue from forest products after 1871 as a result of these aggressive forest exploitation policies.

One of the key elements of a policy process is its ability to link directly experiments and new ways of making things work on the ground (Mayers and Bass 1999). In Bangladesh itself—as distinct from all India—the development of the National Forest Policy is the oldest. The first policy was formulated in 1894 and the most recent modification was approved in 1994 (Chowdhury 2003). British India's first forest policy was enacted in 1894 (Circulation No. 22-F dated October 19, 1894) and established the preference to agriculture over forestry, proposing that "demand for cultivable land can be, to some extent, met by clearing forest areas" (Hussain 1992; Khan 2001). It focused on earning revenue as the key objective for the management of public forests by restricting the rights and privileges of their users (CPD 2002; Mustafa 2002), and framing rules to that end, based on that policy; the Forest Act 1927 came into being (CPD 2002). The legal classification of major forest-related rules (forest manual, transit rules, stumpage appraisal, etc.) was framed after this policy. Muhammed et al. (2008b) conceded while these rules helped bring forest management under official control, their main purpose was to maximize forest revenue by introducing feudal lords to oversee various forest regions. However, an important element in the forest policy of 1894 regarding the preservation of forests was the directive to maintain forests in hilly areas for the preservation of climatic and physical conditions, and for the protection of cultivated land in the plains below from siltation, soil erosion, floods etc., as well as the devastating effects of torrents (Mustafa 2002). In the meantime, two other legislative instruments directed at wildlife conservation were the Wild Bird and Animals Protection Act in 1912 and the Bengal Rhinoceros Preservation Act in 1932 (USAID 2005; BFD 2008).

3.2.2 The Pakistan Period (1947–1971)

In 1947, the start of the dissolution of the British Indian Empire led to the creation of the sovereign states of the Dominion of Pakistan and the Union of India. Bangladesh was included in the Dominion of Pakistan with the name East Pakistan, although there was a physical separation of a thousand miles between the two wings, and the Bangladesh part being surrounded by Indian Territory to its three

sides. Since the forest policy of 1894 had been framed for the 19th century forest resources—in rich pre-partitioned British India—a reassessment of policy was required to address the needs of the contemporary situation. While the forest policies in the Pakistan period were seen as a continuation and outcome of the colonial rule exhibiting similar characteristics (Khan 2001; Rasul 2005), the forest policy of 1955 depicted some important issues—especially those emphasizing the conservation of forest resources. The significant statements of this policy include

- forests should be classified on the basis of their utility and forestry should be given a high priority in national development plans,
- provision should be made to manage all forests under working plans,
- the beneficial aspects of forestry should be given precedence over commercial motives,
- habitat protection and improvement should be given priority to protect and conserve wildlife,
- necessary powers should be given to control land-use under a coordinated programme of soil conservation and land utilization in areas subject to or threatened with soil erosion,
- a properly constituted forest service of fully trained staff should be made responsible for the implementation of forest policy.

The primacy given to the non-quantifiable benefits of forestry over commercial motives, and the priority given to habitat protection and improvement in the protection and conservation of wildlife reflected trends that had been strengthening for some time in the country's forestry sector. The provision to manage all forests under prescribed working plans was maintained for the first time here (Hussain 1992) and was considered to be a significant achievement under this policy (Muhammed et al. 2008b). Nevertheless, in the Pakistan period, forest policies vacillated with the forest policy of 1962 again stressing commercial motives for forest management rather than conserving nature was a theme seen throughout the region (Fig. 3.3).

The most noteworthy features of this policy were:

- managing forests intensively and as a commercial concern,
- improving utilization of forest products, reducing rotation, and promoting regeneration so as to keep pace with increased harvesting,
- conducting research on fast growing commercial species for each ecological zone to encourage farm forestry,
- conserving soil on a priority basis in forests and private lands.

In the forest policy of 1962, the statement of managing forests intensively for commercial concern expressed the firm intension of the state to use forests as the source of revenue that has been conveyed by the other assertions also. It seems the initiation of an emphasis on conservation in the forest policy of 1955 had been nipped in the bud in the policy of 1962. However, a conservation effort restarted in 1966 when the government invited World Wildlife Fund (WWF) to assess its wildlife resources and recommend measures to arrest their depletion (SDNP 2008).

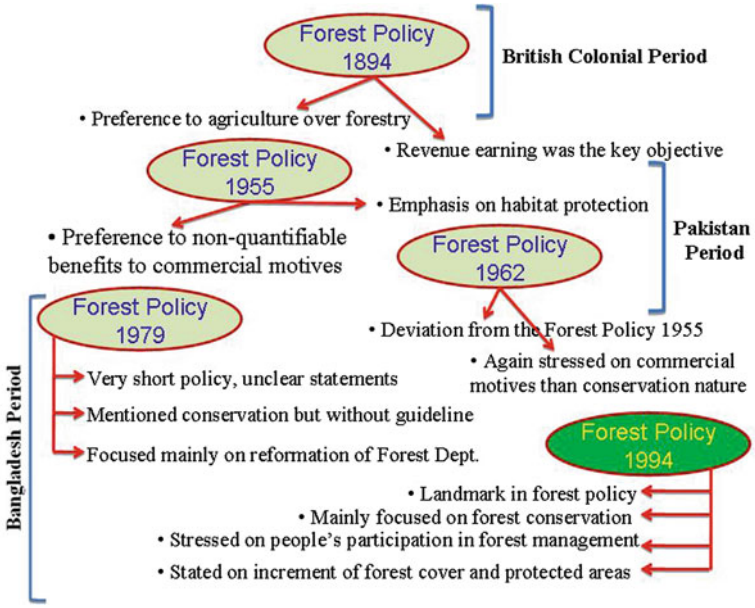

Fig. 3.3 The changes (from production to protection principles) in the forest policies of Bangladesh over time

Two missions were carried out (Mountfort and Poore 1967, 1968) and the severity of the situation was confirmed; the government then established its own Wildlife Enquiry Committee in 1968 and by 1970 the committee had prepared a report (SDNP 2008). The part relating to the then East Pakistan (presently Bangladesh) was published as a separate report (GoEP 1971). Considerable progress was made with the establishment of several protected areas (Mountfort 1969); research was undertaken on the Sundarbans tiger population of the then East Pakistan (Hendrichs 1975) and technical inputs were received from UNDP/FAO (Grimwood 1969).

3.2.3 The Post-independence Period (1971 Onwards)

In 1971, after the liberation of Bangladesh from Pakistani occupation, it was challenging for the new government to receive multi-lateral donor funding, including funds to address long term wildlife projects and conservation issues throughout the country. In that circumstance, viewing that all the previous legislations were ineffective in preserving wildlife, his government promulgated the Bangladesh Wildlife (Preservation) Order 1973. With the enactment of the Order, all the previous acts regarding preservation of wildlife such as the Elephant

Preservation Act 1879, the Wild Birds and Animals Protection Act 1912 and the Bengal Rhinoceros Preservation Act 1932 have been repealed (BFD 2008). While assurance of the existence of adequate legal strategies and institutional arrangements is considered necessary for a sound and lasting protected area program (Mackinnon et al. 1986), the Bangladesh Wildlife (Preservation) Order 1973 provided broad legislation for the protection of areas and species in Bangladesh but included the following:

- National Park: means comparatively large area of outstanding scenic and natural beauty with the primary object of protection and preservation of scenery, flora and fauna in natural state to which access for public recreation and education and research may be allowed (Article 2(h)).
- Wildlife Sanctuary: means an area closed to hunting, shooting or trapping of wild animals and declared as such under Article 23 by the government as undisturbed breeding ground primarily for the protection of wildlife inclusive of all natural resources, such as vegetation, soil and water (Article 2(p)).
- Game Reserve: means an area declared by the government as such for the protection of wildlife and increase in the population of important species wherein capturing of wild animals shall be unlawful (Article 2(c)).
- Private Game Reserve: means an area or private land set aside by the owner thereof for the same purpose as a game reserve and declared as such under Article 24 (Article 2(i)).

Among these four categories, the first three correspond to the IUCN categories II, IV and VI, respectively (IUCN 1994). 'Private game reserve', as mentioned above, is not recognized by IUCN; however, under Article 24 of the Order, provision is made for its establishment upon application by the land owner where the owner of a private game reserve may exercise all the powers of an officer provided under the Order. In Bangladesh invariably all the protected areas declared under the Bangladesh Wildlife (Preservation) Order 1973 are 'reserved forest' designated under the Forest Act 1927 and are defined as 'the forests where everything is prohibited unless permitted' (Rahman 2004).

According to the Article 23 of the Order hunting, killing or capturing any wild animal within a national park or one mile (1.6 km) of its boundaries, causing any disturbance (including firing of any gun) to any wild animal or its breeding place; felling, tapping, burning or in any other way damaging any plant or tree; cultivating, mining or breaking up any land; and polluting water flowing through a national park are not allowed. Similarly entry or residence, cultivation, damage to vegetation, killing or capturing wild animals within one mile (1.6 km) of the boundaries, introduction of exotic or domestic species of animals, lighting of fires, and pollution of water are not allowed in wildlife sanctuary. Under Article 23, wildlife sanctuaries enjoy a greater degree of protection than national parks. For example, entry or residence, introduction of exotic or domestic species of animals and lighting of fires is prohibited in wildlife sanctuaries, but not in national parks; no specific rules are detailed for game reserves (SDNP 2008).

The Order was amended, elaborated and re-enacted in 1974 with the title Bangladesh Wildlife (Preservation) (Amendment) Act 1974 (Islam 2004). The three schedules attached to the 1974 enactment contain lists of different animals with varying degree of protection (GoB 1973; Islam 2004; SDNP 2008). Part I of the First Schedule includes 3 species of amphibians, 3 reptiles, 27 birds and 3 mammals. It also includes the crabs. Animals that are listed under this part are open to shooting and may be hunted on an ordinary hunting permit [but from 1998, issuing of hunting permit has been closed by the order of government (BFD 2008)]. Part II of the First Schedule specifies a number of reptiles, birds and mammals the hunting of which requires a special permit, e.g. permits may be issued when an increase in these animals threatens the balance of nature of a particular locality or becomes a threat to public life (as in cases of man-eating tiger, rogue elephants, etc.). The Second Schedule gives a list of wild animals whose trophies, meat or skin cannot be possessed without a lawful certificate. The Third Schedule includes 18 reptiles, 461 birds, and 67 mammals which are protected and cannot be hunted, killed or captured. Under this schedule the killing of all game animals—when they are pregnant, or when in a condition that indicates they are suckling or feeding the young, or when accompanied by their immature offspring—is prohibited. This schedule also restricts the killing of all females listed in Part II of the First Schedule, except when a special permit has been issued—as in case of a man-eating tigress, rogue elephant, etc. Punishments have been prescribed under Article 26 of this Act. According to the nature of the crime punishments range from a minimum fine Tk.500, with or without 6 months imprisonment to a maximum fine of Tk.2000 with or without 2 years imprisonment. Islam (2004) did not consider the Act as all-encompassing; he commented that, worse still, the provisions included in the Act have not been properly implemented in the absence of adequate staff, facilities, funds etc. and emphasized the need for its immediate revision.

The Bangladesh Wildlife (Preservation) (Amendment) Act 1974 provides for the establishment of a Wildlife Advisory Board, which was set up in 1976 under the chairmanship of the Minister of Agriculture, and was supposed to approve important wildlife management decisions and directives. In the same year, a Wildlife Circle was established within the FD with specific responsibility for wildlife matters under the charge of a Conservator of Forests (CF) responsible directly to the Chief Conservator of Forests (CCF). A $13.3 million scheme, entitled ‘Development of Wildlife Management and Game Reserves’ was incorporated within the country’s first Five-Year Plan, but reduced to $92 000 in the subsequent Two-Year Approach Plan (Olivier 1979) and subsequently the Circle was abolished in June 1983, allegedly in the interest of economy.

After the independence, the first Bangladesh Forestry Conference was held in 1977 in Dhaka, signifying an awakening for national forestry and a growing concern for forests and various aspects of their management (Mustafa 2002). The first forest policy in the independent Bangladesh was announced in 1979 (Gazette Notification No. 1/For-1/77/345 dated July 8 1979). Even though this policy received considerable input from the discussions recorded at the first national

forestry conference (Pant 1990), it has been described as a two-page manifesto-type statement with obscure and generalized directions—mostly focusing on the reformation of forest department. Khan (2001) transcribed the policy's suggestions for a better understanding of its traditional colonial-industrial approach as "horizontal expansion of the forest area" under government control that was to be "carefully preserved and scientifically managed" by a (centralized) "cadre of forest officers", "setting up of new forest-based industries", "optimum extraction of forest produce", and protection of forests from the (so-called) "encroachers". On conservation, the policy only stated that "effective measures shall be taken to ensure conservation of the natural environment and wildlife and for utilizing the recreation potential of forests". Another significant statement was 'forests should be carefully preserved and scientifically managed for qualitative improvement', seemingly superficial without depicting any guidelines or mechanism for such management. This policy also uttered about mass participation in country-wide large scale plantation programs with a view to improve the tree wealth of the country. Although initially the target places for plantations were the public marginal lands like roadsides, sides of railway lines and institutional premises; the degraded forest lands were included finally.

In 1993, the 20-year Forestry Master Plan (GoB 1995) was prepared by the government with the assistance of ADB and UNDP. It was implemented in 1995 (Muhammed et al. 2005), emphasizing forest conservation and aimed to increase the country's land area under tree cover (Ali and Khan 2004). The Plan provides a framework for optimizing the forestry sector's ability to stabilize environmental conditions and assist economic and social development (Mustafa 2002). Three imperatives were identified:- sustainability, efficiency and people's participation (GoB 1994a); these accord with Agenda 21s forest principles adopted at the United Nations Conference on Environment and Development, held in Brazil in 1992 (Khan 2001).

3.2.3.1 The Forest Policy of 1994: Landmark in Conservation Policy

During the formulation process of the Forestry Master Plan, the experts felt the necessity of revising the existing 1979 forest policy in order to facilitate the effective execution of the proposed Master Plan (Chowdhury 2003). Accordingly, an amended forest policy was enacted in 1994 (Bangladesh Gazette, July 6 1995, pp. 241–244). This policy marks a major departure from the manifestly commercial considerations of the earlier policies (Khan 2001). In it, there is the provision for declaring the country's natural forests of hilly areas and catchments of the rivers as protected areas in order to preserve soil, water and biodiversity. An aim of the government in the policy is to keep 10 % of the national forests as protected area by the year 2015 (GoB 1994b); this expressed the Government's firm commitment to biodiversity conservation and ecosystem protection—with the provision for designating critical areas like steep hill slopes, vulnerable watersheds and wetlands as forests and managing them as protected areas. The policy seeks participation of

local people in forest protection, especially in curbing illegal occupation of forest lands, illicit felling of trees and hunting of wild animals; this contrasts with the historic dependence on a state coercive forces (Khan 2001) and explored a new strategy for the management of protected areas. An overall enunciation of the people's participation was given in the first statement to achieve the government's target to bring 20 % of land under forest cover; at the same time, had been iterated theme-wise (e.g., afforestation and restoration programs) in some other subsequent statements of the policy. Although a very little about community involvement, in case of plantation program only, was mentioned in the forest policy 1979, people's participation for forest protection was emphasized for the first ever time in the forest policy 1994. The issue of participation in overall forest management was a novel and important element in this policy and corresponds with the belief expressed by Janes (2008) recognizing a paradigm shift within forest policy as a requirement of the modern society. This policy also depicted taking up mass media campaigning to create massive awareness about forest protection that ultimately mean the people's involvement. This forest policy 1994 visualizes

- equitable distribution of benefits among the people, especially those whose livelihood depend on trees and forests;
- people's participation in forest management, and
- the incorporation of people's opinions and suggestions in the planning and decision-making process (Ali and Khan 2004).

The Brundtland Commission's Report recognized the necessity of such participation as "sustainable development requires a political system that secures effective citizen participation in decision making" (World Commission on Sustainable Development 1987, p. 65). It is, in fact, the strategy that the have-nots join in determining how information is shared, goals and policies are set, tax resources are allocated, programs are operated, and benefits like contracts and patronage, are parceled out (Arnstein 1969).

3.3 Co-management Approach in Protected Areas: Paradigm Shift Towards Social Conservation

Community participation is broadly considered as an important factor in nature conservation (Mannigel 2008), which becomes effective only if effective incentives are offered to and roles are clearly defined of the participants (Sawhney et al. 2007). Collaborative management, abbreviated as co-management is "a situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources" (Borrini-Feyerbund 1996). This approach to management has been a fundamental recommendation of the past two World Parks Congresses, and is actively advocated by the IUCN (Roy 2004). In Bangladesh, the co-management actors are the FD as the legal custodian of protected

areas and the local and national stakeholders. Of them, local stakeholders are basically the poor who depend on those forested areas for subsistence livelihoods. But the activities of other socially and economically powerful forest destroyers stand against the poor communities. As a result, to counter these divisive forces, an institutional structure with broad-based support and participation of people from various strata of the society is needed in order to contribute towards generating constructive activities of various social groups, lower inter-class tension and remove hostility (Nishorgo 2008). Such institutional structures were formed officially in the name of Co-management Council and Co-management Committee (CMC) for the five pilot sites, according to the proposition of NSP in 2006 (Bangladesh Gazette No. pabama/parisha-4/nishorgo-64/(part-4)/112 dated August 10 2006), with representation from civil society, local government, local residents and resource user groups, and other government agencies (Box 3.1). The Co-management Committee is primarily responsible for overall management of the protected area and its surrounding buffer zone extending 5 km from the boundary of the National Park/Game Reserve/Wildlife Sanctuary. The Committee can recruit some members of the community to patrol the forest on a regular basis and pay for the services rendered from its own funds. For the financial sustainability of the CMC, there is a provision of turning a portion of the income generated from eco-tourism and other revenue raising activities in the protected areas over to the committee. The responsibilities of both the Council and Committee, defined through the official gazette notification by the government are given in Box 3.2.

3.3.1 Nishorgo Support Project (NSP): Step Towards Co-management Initiatives

People living in and around the conservation areas of Bangladesh rely extensively on natural resources to meet their subsistence requirements like food, fuel wood, fodder, medicine, weaving and building materials, bush meat etc. (Mukul et al. 2007). Because the declaration of those forests as protected areas reduced their access to many of these uses, the FD thought of offering Alternative Income Generation (AIG) activities for the local communities forming Forest User Groups (FUG) with a view to supporting their livelihoods and thus reducing pressures on forests. In Bangladesh, people's participation in forest management actually started in 1979 as *Betagi-Pomora* Community Forestry Project on government owned denuded hilly forest land. Subsequently, a number of projects of participatory forestry had been executed under initiatives of the FD, viz., Community Forestry Project 1981–1988, Upazilla Afforestation and Nursery Development Project 1989–1996, Coastal Greenbelt Project 1995–2002, The Forestry Sector Project 1988–2004, Sundarbans Biodiversity Conservation Project 1999–2006 etc. (Huda 2008). In 2004, realizing the success of people-oriented programs as in social forestry in Bangladesh (Rana et al. 2007; Muhammed et al. 2005, 2008a, b), the FD launched a co-management program as Nishorgo Support Project (NSP) in

the country's protected areas with the financial assistance of USAID (Sharma et al. 2008). The project was already working at five initial pilot sites, viz., Lawachara National Park, Satchari National Park, Rema-Kalenga Wildlife Sanctuary, Chunati Wildlife Sanctuary and Teknaf Game Reserve. Taking into consideration the weakness of present forest management system and encouraging success of social forestry, NSP aims to develop collaboratively co-management agreements leading to measurable improvements in forest and resource conservation in pilot protected areas and their buffer zones with the six specific objectives (Nishorgo 2008) as stated in the section of conceptual framework.

Box 3.1 Structure of Co-management Council and Co-management Committee (GoB 2006)

Co-management Council:

- Member of the Parliament as advisor
- Upazila Nirbahi (Executive) Officer (UNO) as Chairperson
- Assistant Conservator of Forest (ACF) as Member Secretary—1
- Representative from the Forest Department (FD)—1
- Representative from local government—13 (1 being woman)
- Representative from resource user groups (poor stakeholders)—9
- Representative from local elites (teacher, physician, social worker, newsman, religious leader, freedom fighter)—68
- Representative from resource owning groups (owners of brickfields, sawmills, wood and furniture businessmen)—6
- Representative from ethnic minority group—3
- Representative from law enforcing agencies (police, BDR, Ansar and VDP)—1
- Representative from local youth groups—2
- Representative local NGOs—2–4
- Representative from major stakeholder groups (e.g., tea estate where ever applicable)—1
- Representative from other government institutions—4–6

The total number of members in the council shall be not more than 55, and at least 10 of the members shall be women. The members will be elected for 4 years and new council will be formed every 4 years through Annual General Meeting.

Co-management Committee:

- Upazila Nirbahi (Executive) Officer (UNO) as advisor
- Assistant Conservator of Forest (ACF) as Member Secretary—1
- Representative from the FD—1
- Representative from local Government (one being woman)—3–4
- Representative from civil society—2–3

- Representative from resource user groups—2
- Representative from local youth groups—1
- Representative from resource owning groups—2
- Representative from ethnic minority groups—2
- Representative from law enforcing agencies—1
- Representative from other government institutions—2
- Representative from NGOs—1

The total number of members in the committee shall be between 15 and 19. The committee will be formed amongst the members of Co-management Council and will be elected by the respective groups of the Council for 2 years.

The co-management approach is mainly centered on its local partners viewing them as the key stakeholders. Total population within the five pilot site landscapes of NSP is estimated just to over quarter of a million, of which, roughly 90 % are considered to be poor or ultra-poor (DeCosse 2006). Apart from the recognition of their resource use from forests for everyday utility, NSP developed a range of options and incentives in the name of AIG activities for those people aiming at regulating forest use. Different strategies have been used for the interior and exterior villages of the protected areas, since their needs and limitations are dissimilar (Mukul and Quazi 2007). The AIG activities are, in some cases, ethnicity-specific and vary region to region (DeCosse 2006).

Box 3.2 Job Responsibilities of Co-management Council and Committee (GoB 2006)

Co-management Council:

1. Convening an annual general meeting and at least one additional meeting
2. Providing pertinent suggestions to the Divisional Forest Officer (DFO) on any modification, addition or correction after reviewing the annual work-plan of the PA
3. Taking collective decisions on activities that have adverse effect on areas in and around PA
4. Providing required guidance to the Co-management Committee (CMC) on PA management
5. Developing policies for distribution of goods and services gained from PA among the stakeholders and also oversee such distribution among them by the CMC
6. Providing required approval to the PA Annual Work Plan developed by the CMC
7. Playing effective role in quelling any conflict that arises among the members of the CMC.

Co-management Committee:

1. CMC will act as executive body of the Council and will be accountable to the Council for all their activities
2. Liaising with FD officials responsible for management of the PA on local stakeholders' participation;
3. Distributing the proceeds from goods and services from the PA among the groups or teams linked with management activities according to the guideline developed by the Council
4. Supporting FD in employing labor from groups/teams linked with PA management in development activities undertaken by NSP
5. Developing and submitting project proposals requesting funds for development of the PA and landscape zone
6. Developing work plan for expenditure of fund collected locally through PA management and ensuring spending upon approval from respective DFO
7. Maintaining proper accounts of all local collection and expenditure from PA management.
8. Taking required steps, upon approval from the DFO, to initiate patrols for maintenance of PA resources
9. Playing supportive role in containing any conflict arising between local stakeholders and FD or any other government/non-government organizations.

3.3.2 Preliminary Results of NSP

The protected area system in Bangladesh has been proceeding gradually towards success for biodiversity conservation through the involvement of local communities in management activities. In general, the principal cause of forest loss in protected areas of Bangladesh is human-induced removal of woody biomass, in the form of timber and fuel wood. Against the interventions within the stipulated project period, the FD foresee a reduction in fuel wood removal and illegal logging, that will lead to a gradual re-establishment of forest habitats—especially natural generation of trees, shrubs and herb, and consequently support the biodiversity within the protected areas (Aziz et al. 2004). The authority's prediction is becoming true being manifested by the findings of a study conducted in Lawachara National Park. In 2004, the park was losing over 100 mature teak (*Tectona grandis*) trees every month by illegal felling, which has nearly been stopped presently, securing a safe dreamland for the hoolock gibbon (*Hoolock hoolock*) that needs closed canopy forest for the survival (Fig. 3.4) (Nishorgo 2007). Mukul

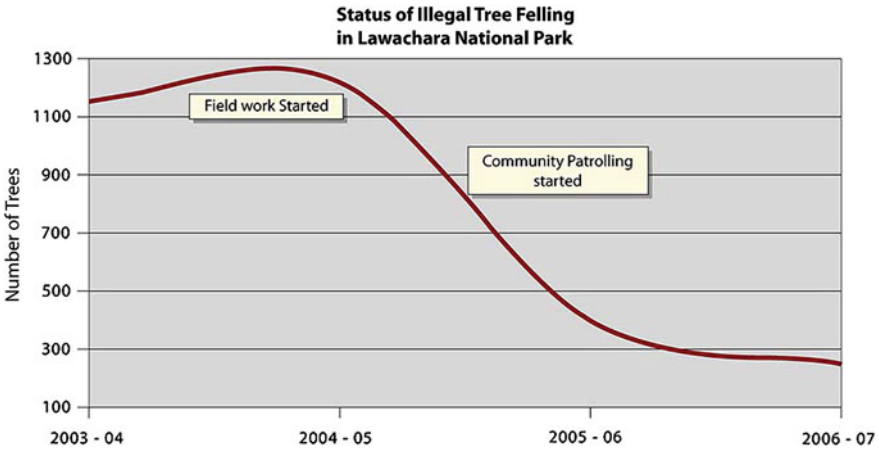

Fig. 3.4 Status of illegal tree felling in Lawachara National Park after implementing co-management (Nishorgo 2007)

and Quazi (2007) also found small but definite positive changes in the management of Satchari National Park with local people's participation and introduction of AIG activities for them. A majority of female members of the FUG left the profession of fuel wood collection after involvement in co-management activities in this protected area who feel that their participation in FUG helps increase their skills, decision-making power and respect in the eyes of the members of family and society (Subhani 2008). Nearly half of the women earn income independently in Lawachara National Park since their participation in co-management, who categorized 'saving money' and 'preserving biodiversity' as the top two reasons for joining FUG (Shewly 2008). Hoque (2008) revealed the improvement in socio-economic conditions of the FUG members after participation in co-management which made them socially empowered and more apt to interact with community members. Regarding the impact on biodiversity status, density (number/sq km) of both the red jungle fowl (*Gallus gallus*) and puff-throated babbler (*Pellorneum ruficeps*), two common bird species considered as the key biodiversity indicators in Bangladesh forests (Aziz et al. 2004), has been increased in 2006 with compared to that of 2005 in the entire five pilot PAs (Nishorgo 2007). All these findings reflect the worth of adopting co-management approach in protected area management. In general, the conflicts between local people and conservation arise from the former's dire necessity to satisfy basic needs and ignorance about the values of conservation of natural resources (Feeroz and Islam 1996). By the efforts of NSP, a greater understanding of the necessity for forest conservation to their own survival and to secure their future generations, combined with a viable means to earn a living, has motivated some people to change their mind and occupations from forest destroyers to tree growers and forest protectors (Mukul and Quazi 2007).

3.4 Discussion and Synthesis

Forest policy has been shifted from its traditional production approach for revenue collection to a participatory approach aiming for more effective forest management as envisaged in the latest 1994 forest policy. In accordance with the changing mandates of the forest policy from 'production forestry' to 'people- oriented forestry' over the last three decades, the activities of the FD have been expanded from the reserved forests to the village level.

Conservation of biodiversity through protected area management emerged only recently as a major concern of the FD. For the effective implementation of conservation, the Government of Bangladesh took several initiatives; the important one is instituting a reform in the organization of the FD in 2001 (Notification No. PaBaMa/Sha-2/Ban (Pra: Sa:)-22/98(6)/296, dated June 24 2001). A new Circle—the Wildlife and Nature Conservation Circle (WNCC) was established with sufficient staff to be responsible for the management of protected areas included in different Wildlife and Nature Conservation Divisions countrywide.

Bangladesh is high in biodiversity but, of course, this biodiversity is increasingly threatened with local extinctions likely to have occurred in the recent past (IRG 2004). The causes of biodiversity loss are many; almost all of which are linked to the immense biotic pressure which leads to the conversion of forest lands into agriculture, industries and settlement (Sharma et al. 2008). The protected area system, if well designed and managed, is intended to protect the majority of the country's biodiversity. Although such systems have already been implemented in pilot protected areas, still there remain drawbacks. Administrative boundaries between protected areas and other land uses create abrupt ecological transitions affecting both conservation priorities within protected areas and other priorities adjacent to them (e.g., Knight and Landres 1998), so buffer zones have been proposed as one way to ameliorate these effects (Heinen and Mehta 2000). Unlike Nepal (Mehta and Heinen 2001) and India (Shrivastava and Heinen 2007), neither the Bangladesh Wildlife (Preservation) (Amendment) Act 1974 nor the gazette notifications for the notified protected areas specify core areas and buffer zones (Sharma et al. 2008).

With the growing emphasis on the devolution of responsibility for management of forest resources to local communities, there is increasing realization of the importance of an appropriate policy and legal framework (Lindsay 1999). Many countries have put forward and adopted appropriate changes—India (Shrivastava and Heinen 2007), Nepal (Heinen and Mehta 2000), Brazil (Mannigel 2008), Cameroon (Tieguhong and Betti 2008), etc. The Forest Act 1927 and the Bangladesh Wildlife (Preservation) Order 1973 need to be updated immediately. In 1989 an amendment has been made in the Forest Act 1927 only with minor changes to the penalty provisions; despite the changes in the Act, Muhammed et al. (2008b) blamed the failure of enforcement and assessment of penalties as one of the most serious roadblocks to successful forest policy. On the other hand, already the FD has developed a proposed amended version of the Bangladesh

Wildlife (Preservation) Order to take into account a number of significant changes in the area of biodiversity management since the original Order was approved (Nishorgo 2008). The remarkable changes include the appointment of Chief Wildlife Warden, detail constitution of the Wildlife Advisory Board with a significant number of members including the relevant ministries, provision for the determination of threatened species of wild animals and plants, granting permit to collect and utilize wild animals and plants for special purposes such as education, scientific research, scientific management etc. Chapter 4 of the draft amended Order deals with the matters of protected areas where a number of new important sections have been added—emphasis on co-management for protection, improved management and sustainable use of wildlife resources and habitats with sharing of cash and in-kind income from the protected areas; provision of declaring community conservation area, landscape zone, safari park, eco-park and botanical gardens after having consultation with the local community; granting permit to enter or reside in protected areas for the purposes of study, photography, scientific research, eco-tourism etc.; stipulation of the government's responsibility to issue an annual report on the state of the protected areas with the updates of the status and conservation trends, making which available to the general public; and to maintain dialogue with other countries along international boundaries on collaborative conservation. All these changes in the draft amendment gave a picture of the authority's positive attitudes towards and rigid responsibility of biodiversity conservation.

MacKinnon et al. (1986) commented that if protected areas are to be effective in conserving biodiversity, the protected area system must be representative of all ecosystem types. Although Bangladesh's protected areas represent three major forest types: hill forests, Sal forests and mangrove forests; there is little representation of the Chittagong Hill Tracts (CHT) despite it constituting 76 % of the country's total hilly area (Khisa 1997), supports 1.32 million ha forests covering 9.1 % of the country's total area (Ahmed 1999) and is prone to depletion and degradation in volume, area and quantity (Salam et al. 1999). This may, in part, be due to the unrest situation arising from the insurgency movement of its tribal inhabitants. During British colonial rule and in united Pakistan, the CHT tribe people remained silent, despite their exploitation; the insurgency movement really began after the independence of Bangladesh. Although the government of Bangladesh signed a peace accord with the insurgents in 1997, the CHT still remains in turmoil (Islam 2003). However, after resolving the existing conflicts, it seems coherent making attempts to declare more parts from the CHT as protected areas for ensuring its proper representation from the viewpoints of its uniqueness in topography and biodiversity, and also the forest type. It has already been mentioned before only a little (5 %) of the hill forests is protected in comparison to sal forests (11 %) and mangrove forests (23 %) while the total area of the former (0.67 million ha) is more than that of the latter two (0.12 million ha and 0.60 million ha, respectively) (BFD 2008). Another key ecosystem of the country, the freshwater wetland ecosystem, most of which is belonged to the fresh water swamp forest, remains left out from protected areas, and therefore, needed to be included.

Choudhury (2002) reported that the effectiveness of Bangladesh's protected areas is also limited because they are portions of reserved forests which have, in most cases, only been declared as such after being degraded heavily by illegal logging, land clearing, burning, and poaching. Moreover, corruption in forestry sector also hampers the implementation of conservation strategies properly. TIB (2000) reported the cutting and selling of trees by timber traders and smugglers, and killing of animals by poachers with the direct cooperation of forest officials through bribery and other illegal means such as embezzlement and misuse of power. The uneven distribution of AIG support among the co-management partners—focusing heavily on a small number of high-interest groups—as was reported by Mukul and Quazi (2007), depicts another dimension of corruption which may hamper achieving goals of co-management initiatives. The respective authority should address this issue acutely to ensure the real representation of the key stakeholders of the local communities. Thus, a better coordination between the FD and intended beneficiaries is to be insisted and an activity of uninterrupted monitoring should be promoted.

Bangladesh expressed its commitment towards international treaties and conventions by signing and ratifying 27 international conventions and protocols related to biodiversity, environment, and development. Bangladesh is one of the signatories of the United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol, Convention on Biological Diversity (CBD), Global Tiger Forum (GTF), International Convention to Combat Desertification, Convention on International Trade in Endangered Species of Wild Fauna and Flora-CITES; ratified the Ramsar Convention, World Heritage Convention and other important treaties. Since signing the CBD in 1992, biodiversity issues have received some attention in a variety of sector policy and strategy documents. In a related development in the ratification of the World Heritage Convention, parts of the Sundarbans mangrove forest have been declared as a World Heritage Site. Furthermore, to implement the recommendations of Agenda 21 and address its environmental problems, the country developed the National Environmental Management Action Plan-NEMAP in 1996—a product of the participatory process led by NGOs with involvement of grassroots people. To comply with the requirement of CBD, in 2004 Bangladesh has prepared the National Biodiversity Strategy and Action Plan (NBSAP). The NGO involvement in biodiversity conservation in Bangladesh is emphasized by the FD with its Nishorgo Support Project implemented by International Resources Groups (IRG) of USA in association with the national NGO partners—Community Development Center Chittagong (CODEC), Nature Conservation and Management (NACOM) and Rangpur Dinajpur Rural Services (RDRS) (Nishorgo 2008), although the NGO involvement in biodiversity conservation was initiated previously in several other projects of the FD. However, in spite of all these attempts, there are still some issues that the protected area system of Bangladesh must consider and implement to achieve its overall goals of biodiversity conservation:

- creation, demarcation and management of buffer zones as an alternative resource exploitation zone to protected areas;
- fixation of allowable resource extraction limits from protected areas;
- gradual adoption of co-management approach in all the protected areas;
- strengthening public-private partnership for integrated management;
- setting up a separate protected areas and biodiversity management wing in the FD;
- formulation of separate wildlife and protected area policy as in Sri Lanka;
- approval of the proposed amendments in Bangladesh Wildlife (Preservation) Order 1973; and
- taking trans-boundary initiatives with India for the protected areas in the Sundarbans mangrove forest as in Nepal with India and China.

3.5 Conclusion

There is a dilatory change in the forest policy of Bangladesh and a paradigm shift from traditional production doctrines towards participatory protection principles over the last three decades. In the state of continuous degradation of the country's forest resources due to multi-dimensional pressures, biodiversity conservation became a major concern to the policy makers. Therefore, parts of forestlands in all the four forest types have been declared as protected areas in correspondence with the IUCN category. The protected area system has been strengthened with the adoption of co-management approach involving the local communities by the recognition of their usufruct rights over forest resources. The government's contemporary, cautious initiative of AIG support motivated the local users to cooperate with the Forest Department in carrying out management activities and, at the same time, reducing the pressures on protected areas. With the reduction of corruption and the exercise of the officials' egalitarian view to every participant, the co-management approach needs to be replicated from the pilot sites to other protected areas of the country. A clear demarcation of core area and buffer zone should avoid the uncontrolled resource exploitation by the co-management beneficiaries.

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