Chapter Five

FOREST RESOURCE MANAGEMENT AND ITS CONSERVATION IN COLONIAL SUNDARBANS

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“Farther south, nearer the sea, we find the primeval forest, impenetrable jungle, trees and brushwood intertwined, and dangerous-looking creeks running into the darkness in all directions”.

*Statistical Account of Sundarbans*

*W.W. Hunter*

5.1 Introduction: Forest Resources of Sundarbans

The British colonial government had realized from the outset that the Sundarbans if reclaimed, could be transformed into a revenue yielding area. Infact, the Sundarbans today, many believe, is the result of two different forces - the reclamation of forest to cropland and the preservation of the forests for yield of wood products. Reclamation of Sundarbans commenced from 1770 onwards and was greatly emphasized by the colonial administrators. But during the second half of the 19th century there was
stagnation in reclamation. Infact the government’s policy which was adopted ran opposite to the enthusiasm for reclamation among the landlords and revenue officers. Indeed there was a growing realization of Sundarban’s importance. Soon forestry came to be emphasized which led to management and conservation of wood resources.¹

The Sundarbans was a very important source for timber and fuel wood for people of south Bengal. WW Hunter writing his Statistical Account mentioned about the dense Sundarban jungles which formed a very important article of export. Hunter wrote “Firewood is the principle article of trade”. He even gives a list of 30 principle kinds of timber found in the Sundarbans with their average size and the uses to which each is put. This included Amur, Bain, Balai, Bhaila, Bhara, Bonjam, Chaila, Chala Babur, Dal Karamcha, Dimal, Garan, Geoa, Hental, Jhau, Jin, Kankra, Korai, Kenkti, Keora, Khalsi, Kirpa, Lohakoira, Pancholi, Paras, Pasur, Singra, Sinj, Sondal, Uriyam and the most important Sundari or Heritiera Littoralis.² It is the most valuable and common timber tree in the Sundarbans which derive their name from the extensive Sundri forests. The Sundri is “a gregarious evergreen tree with buttressed stem and grey longitudinally cracked bark common to the Sundarbans tidal forest.”³ The tree
yields a good hardwood and is used for making a variety of things like beams, posts, shafts, paddles, flooring planks and native furniture. But according to Hunter, it was used chiefly for boat building as it was the most durable wood in saltwater. Enormous quantity of this timber was brought to the market, generally cut into blocks from 10-12 feet in length. The Sundri wood was “elastic, strong and very durable”. In the late 19th century, stocks of Sundri were plentiful. Other minor forest produce collected included Golpatta palm leaves and Ullu grass for thatching, honey and wax, collected under seasonal permits, as were shells of Estuarine mollusks. Hunter gives in details about the wood trade and the prices of forest produce. He commented “the demand for wood, and especially for firewood, is so great that it offers ample inducement to cultivators, even when comparatively well off, to engage in the trade.” The woodcutters moved ahead of the reclamation frontier eluding as much as possible the tigers, crocodiles and other menaces of the tidal forest. Water transport reduced the cost of transporting timber and fuel wood from the delta forests to the urban markets. In 1872-73, canals and to a much smaller extent railways carried 300,000 tonnes of timber and fuel wood into Calcutta from the south east.
5.2 Colonial Forest Conservation: Brandis and W. Schlich

As early as the 1860’s, the nascent Forest department first proposed a plan to regulate and tax the flow of timber and other forest produce coming from the Sundarban tracts every year. In fact, no longer was it considered profitable to clear the forests for cultivation as much greater revenues could be collected from farming the forest itself. As early as 1860’s, forest administrators had realized the revenue value of the Sundarbans. In the forest department’s report of 1867 we read that “this woodland should be a permanent source of revenue of several lakhs to the state and unfailing supply of woods at a fair price to the public.” Thus there was an urgent need felt to place the forest under protection. Meanwhile in 1865, Dietrich Brandis became the First Inspector General of forests in India with the mentality of a pioneer. Under him steps were already taken to conserve the forest of Bengal in 1862. He was convinced that most Indian forest users were ignorant of how to manage, protect and utilise a forest efficiently. Since the early 19th century forest tracts had been completely cleared and rooted out in many districts, the land denuded or left as waste or put to the plough. He also blamed the
British government for the crisis facing Indian forests. There had been no large forests in Britain for centuries and so the British did not understand the climatic, agricultural and economic necessity of the forests. Brandis thus viewed his task as an uphill battle requiring energy, imagination and organization. “Forestry” would go against the grain both of established Indian custom on one hand and the British predisposition to limit government regulation as much as possible, on the other. Thus forestry was a single science, applicable anywhere and everywhere. Thus throughout his long Indian career Brandis would emphasize that Europe’s “scientific forestry” would provide the only sure basis for India’s forest over the long term. He was succeeded by Wilhelm Schlich whose six volume Manual of Forestry went through many editions and shaped the mind of generations of foresters well into the middle of the 20th c. Like Brandis, he too was concerned over the disappearance of the Sundarbans forests. Schlich understood the importance of the Sundarban’s supply of timber, thatching grasses and fuel wood. In 1875 he along with B. H. Badden Powell inaugurated with the Indian Forester, a journal which has been in continuous publication ever since. The
first article written by Schlich was entitled “Remarks on the Sundarbans” and gives a fair representation of the concerns over conservation which underlay much of the period’s scientific forestry. He observed that because of the peculiar ecology of the region, regeneration is uncertain, especially where the forest has been extensively cleared. He further wrote that, “it is our duty to see that the supply is not exhausted….the demand is certain to increase, and we must therefore make sure that the increase also is provided for. It has been said that the supply is inexhaustible, but such is not the case. It appears, on the contrary that the western part of the Sundarbans which is nearest Calcutta, is already exhausted to a large extent and that fuel cutters proceed more to the east, year after year.” His prescription was simple—the state should take control and restrict access. He recommended “Sundarbans should be taken under forest management without delay, instead of extending cultivation towards the south without considering to what extent the permanent yield of forest produce may be curtailed by it.” This prescription which Schlich had already placed before the government grew out of the framework of 19th century scientific forestry. Like most of his contemporaries, Schlich assumed at the outset “problem of the
commons” and he also assumed a general set of strategies to address the problem which enabled foresters at once to promote conservation and to meet society’s demands for forest use and forest products. This strategies drew on four principles; state competence, state ownership, forest economy and limited user access. These principles would inevitably be shaped by local ecologies, traditions of forest use, and regional economies as well as by the shifting and often conflicting currents of government policy.15

A Deputy Conservator of Forest was sent to the Sundarbans in 1873, following which a rudimentary structure of forest administration was setup in the area. Toll
stations and offices for issuing licenses were established.\textsuperscript{16} Meanwhile stagnation in land reclamation rules intensified in 1874, by a declaration of policy by Sir Richard Temple, the Lieutenant Governor of Bengal.\textsuperscript{17} Shortly after assuming office, Temple visited the Sundarbans on tour. He was struck by the value of the forest products of the wetlands. He decided that the tract should be preserved for the supply of wood, timber and fuel for southern Bengal.” Reclamation is not wanted there. In some places the substitution of rice fields for jungle may be desirable. But in this particular case the ground already bears produce which is more valuable to Bengal than rice.” 18 He therefore merely supported reclamation to the extent required to make the forest tract accessible for human use. Richard Temple’s policy resulted in the creation of the reserved and protected forest in Jessore and the 24 Parganas. Not unnaturally the Board of Revenue suspended its endeavour to formulate suitable reclamation rules.\textsuperscript{19} Temple’s view converged with Schlich who argued on the basis of a detailed survey of the Sundarban forests that sundri and other timber were rapidly being depleted and must therefore be protected.\textsuperscript{20} Schlich’s arguments found a
sympathetic audience under Temple’s vigorous direction. The 2292 sq km of tidal forest lying within Khulna district were demarcated in 1875 as the Sundarban forest division - one of the five in Bengal.²¹ The next year Schlich succeeded in adding an additional 1802sq km to the reserved area under the control of the Forest Department. However the Conservator was unable to persuade Temple to transfer the entire unleased area of the Sundarbans to reserved forest status.²² This colonial policy eventually created today’s Sundarban forest.
5.3 ‘Reserved’ and ‘Protected’ Forests

Considerable period of investigation and debate led to the passing of the Act VII of 1878 which constituted ‘Reserved’ and ‘Protected’ forest for every province in British India. The newly formed Forest Service busied itself in surveying and mapping government forest areas throughout the subcontinent. The Sundarbans came under this new regime. In Reserved Forests, all rights were recorded and settled. In Protected Forests, instead, user rights were sometimes retained. In the Sundarbans the local people were periodically allowed to use the Protected Forest under licenses issued by the colonial forest department.23 Thus Protected Forest were lands that could only be opened for reclamation by consent of the Forest Department. By 1890 there were 4095 sq km of Reserved Forest in Khulna district and protected Forest totaling 4480 sq km in 24 Parganas. Khulna also possessed 65 sq km of Protected Forest.24 By designating the 24 Parganas tidal forests as Protected rather than Reserved, the Forest Department left itself an option. It could
either lease these lands for clearing and conversion to rice, or it could transfer them to timber production and management as Reserved Forests.25

The area classified as Protected Forest stayed relatively constant from 1890 through the 1930’s between 4400 and 4500 sq km. Therefore approximately 60% of the Sundarban area in the district was administered by the Forest Department. The state preserved these mangrove forests for ensuring a continuous supply of timber and other forest products. The classification of Reserved or Protected forest was an intervention designed to protect the Sundarban forest against the market forces and reclamation pressure.26 Besides placing the forest under protection, the government gradually introduced user fees, licenses and tolls under the pretext of preserving the diminishing natural resources.27 The area of Sundarban reserve continued to increase. Initially the main thrust of the policy was to maintain an adequate fuel reserve under efficient management and thereby contribute to state revenues.
5.4 Principles of Scientific Forestry and their Application in the Sundarbans through the Working Plans - 1876 to 1951

By the 1880’s, most Indian foresters shared a common perspective. Though never stated explicitly, a basic framework, a theory had emerged, which has formed the context for all subsequent forest policy and administration. The four basic elements in this framework were - state competence, state ownership, forest economy and rights and privileges.  

- State action was essential for any meaningful progress towards forest protection. “It is a universal and fundamental principle of all forestry ……….that private owners can only, in the rarest and most exceptional circumstances, manage forests; such must be managed by Government or Communal bodies who never die and who are removed as far as possible from the temptation of abusive working.”  

Besides, State action was especially appropriate where speed was not a factor and where long term investment was necessary. Also
the state lacked handicaps inherent in individual persons: shortness of life, limited vision and selfishness.

- Regarding the second principle Presler has pointed out that to state the managerial competence of the state was relatively easy but to establish that the state actually possessed forests to manage was far more complicated and controversial. This principle was greatly emphasized by Baden-Powel in his work *Forest Law*, 1882. This became a basic text for forest trainees and was the handbook on which foresters in the field relied. 30 Baden-Powel in his book stated his basic perspective “…. the right of Government to all uncultivated, inappropriate land is the basis on which the Indian Forest Law proceeds.” 31 The government’s right, he continued, was founded on and inherited from the earlier claims of Indian rulers “to be absolute owners of every acre of their domains.” 32

- As to the third principle of scientific forestry, rights and privileges, the claims made by villagers that they were the
real forest owners or that they had rights to privileged use became the “chief difficulty” of Indian forestry. Moreover, these claims were usually undefined and vague, and that made the situation more difficult. It was thus incumbent on the government, foresters believed, to define clearly what rights and privileges the state were willing to maintain, and which it was necessary, in the interest of forest themselves, and of society, to abolish. Hence, the whole situation needed to be defined and settled.33

- A central concept in Indian scientific forestry was “forest economy,” with the associated principle that maximizing “forest revenue,” over the long term, was a central criterion of success. One must understand that scientific forestry in India was initiated both to preserve the forest estate and to utilize it for various public purposes. “Forest economy” was designed to ensure both goals. Thus conservation and revenue were not seen as contradictory, but as complementary. The framework for “forest economy” was laid out in two major works published in the 1880s. One was J.L.L. MacGreggor’s
The Organization and Valuation of Forests on the Continental System, in Theory and Practice. The other was a work by M. Puton. In the theory of “forest economy”, forests are analyzed in terms of “capital” and the “interest” returned on capital. Hence the object is to manage the forest in a way that maximizes the interest or revenue, while husbanding the resource on a continuing basis over the long term. Thus the forester’s task is to make the forest as “remunerative” as possible. The procedures for a forester are thus clear. He needs first to know the objects to which a given forest or species is to be put or protection against erosion or preservation for climate, this being an aspect of “forest utilization”. After the purposes of forest utilization are known and the forest has been measured, a “working plan” is drawn up to ensure each forest’s long-term management production. This is the highest accomplishment, the summit of forestry science. In summary, the original concept of “forest economy” was intended to convey the ongoing, extended process of forest regeneration, growth and utilization. A forestry which ignores preservation invites disaster over the long term.
Clearly, “forest economy” provided yet another rationale for placing forests in state hands.34

These principles of scientific forestry were straightforward, but their implementation, at least in the Sundarbans, could not be mechanical. Bengal foresters operated within a unique set of constraints deriving partly from the special ecology and geography of the Sundarbans, partly from the relations which historically had evolved between the forests and human society, and partly from the conditions imposed by changing government policy. Sundarban Forest “working plans” illustrate these aspects clearly. Ascoli in his Revenue History of Sundarbans 1870-1920, he observed that “the history of the Sundarbans development does not furnish an example of continuity of purpose”. Thus sharp turns in policy were more typical than regularity and agreement over the long term. Although Ascoli was referring primarily to rules for reclamation and settlement under the revenue department, his remarks applies equally to the Reserved and Protected forests of the Sundarbans. At least seven different working plans were
successively put into operation during the period from 1876 to 1952. Each one seems to have been reasonably and scientifically thought out: goals well-defined; ecological, silvicultural, market and other conditions all mentioned; forest produce “outturns” are closely measured and reported in complicated statistical tables, and the applications of the general principles of “scientific forestry” to local contexts reasonably put forward. But interestingly, Presler points out, that in almost each case earlier working plans were found by the authors of subsequent plans to have been wrong-headed and critically flawed. This necessitates an examination of the working plans for the Sundarban forest.
5.5 The Working Plans for the Forest Division of Sundarbans (1876-1951)

The Forest Department prepared the first management plan in 1871 with the prime objective of regulating the use of Hertiera Fomes based on diameter classes. The following management plans during the British period were guided by forest policy first declared in 1894. The Sundarbans was categorized as ‘production forest’. A total of six management plans operated consecutively under this policy purview. These management plans were formulated to exploit the resources to generate state revenue. The forest was divided into working circles based on site, quality and tree growth and selection cum improvement system was adopted as the silviculture system. Along with Hertiera fomes, commercially important species like Sonneratia apetala, Xylocarpus mekongensis, Brugviera gymnorrhiza, Cynometra ramiflora were also brought under systematic harvesting based on diameter classes. The Forest Act
was revised in 1878 and 1927 to strengthen the control.

- The first plan was drawn up by Schlich in 1876 (not officially designated as working plan). In reserving the Bagehot (500 sq. mi), Khulna (699 sq. mi.) and Satkhira(328 sq. mi.) block, the government stated that the object of forming the reserves - has not been so much the realization of profit as the preservation for the public benefit of a valuable property which was being recklessly destroyed and which ministered to needs which could not well be supplied from any other market.35 The system thus essentially amounted to restricting use through collecting a tax. Although the surplus rose from Rs 16644 in 1875-76 to Rs 346,480 in 1890-92, the system apparently did not achieve the main purpose of forest preservation. In 1891, the Bengal Conservator of Forest, Dansey, reported a good deal of “illicit traffic” in forest produce. Thus Dansey believed that Schlich’s royalty system had severe limitations and was unlikely to protect the valuable forest species. The readily accessible fringes of the forest were grievously
• Dansey’s findings led to the first formal “working plan”, prepared by Heinig, the Deputy Conservator. The goals of the **Heinig plan (1903)** was to conserve more strictly all valuable timber (passur, amur, keora) in addition to sundri. This would cover not only Bagherhat but also in major Khulna block. The primary method was a system of rotation. Thus Heinig’s working plan intended a reduction in the outturn of timber, which would drop immediately from existing average of 81,59,769 per year to 11,24,000 cubic feet. Firewood outturn would be marginally increased from 1,10,54,167 to 1,12,00,000 cubic feet. But Heinig’s working plan could not work better than Schlich’s approach. The sudden closing of ninth-tenths of the forest, together with the drastic reductions in available timber, was evidently too radical. Thousands of people involved in the timber and firewood trade were directly affected, and many more indirectly. Hence Heinig’s working plan clearly attacked a trade of great vitality. The results of the plan, later reported, were “deplorable”. The forest staff, already too small even to achieve Schlich’s minimalist objectives, was unable to enforce the prescriptions, and there
seems to have been an almost total breakdown of administration. ‘Theft’ was widespread and the sundri forest was reported to be even more depleted in 1903 than it had been ten years earlier.

- An effort was made to improve forest administration through an interim working plan drawn up for the five year period 1903-04 to 1907-08. This plan also known as the Lloyd’s Plan was subsequently revised and used until 1913. Under this plan felling of sundri, keora and passur was completely prohibited in the western forests of Satkhira and 24-Parganas. One major change introduced by this plan in the overall management was that permits were issued only at the coupe by a gazetted officer. The plan also introduced monopoly sales and tightened water transit rules by prohibiting the transportation of sundri. The cumulative effect of these changes was to reduce significantly the average yield of sundri timber and fuel.

- In 1911 Trafford’s working plan was drawn up and was in
effect for two decades 1912-13 to 1931-32. The whole of Sundarbans were now divided into two working circles, the sundri or eastern working circle, and the western working circle. The former consisted of the coupes in the Bagherhat and Khulna areas which were put under a more elaborate and differentiate Ted sylvicultural treatment. The two blocks were combined into a single felling series on a cycle of 40 years. The primary effort in the western circle was to bring some control, absent until now, over firewood cutting for the Calcutta market. But surveying the Sundarbans in 1931, Curtis, Deputy Conservator of Forests, saw little in the previous working plans that he liked. For the first quarter-century after reservation sundri and passur, the species to which most attention had been given, had been overcut through “wasteful”, unregulated fellings. Although this was “corrected” over the next 25 years by a near ban on fellings in some regions, the result was that age gradations of these species were not “normal”. Some strands were over-mature, while some ages and sizes were in deficit. Besides, distortions had been exacerbated by the Lloyd and Trafford
plans. More generally, Curtis reported, the system of permits from revenue stations had not effectively controlled fellings, which had remained essentially unregulated, with “maximum damage and depletion”. Hence, the overall state of the forest as Curtis saw it, remained extremely gloomy.

- Curtis’ solution was to draw up yet another working plan, to cover the period from 1931 to 1951. Curtis’ working plan called for an “absolute revolution” in the system of management. His plan began by repeating the goals of Sundarban forest administration. The main object was the production of timber, fuel, thatching material, and their perpetual supply at reasonable rates to south-eastern Bengal. It was also important to grow large-sized sundri and gengwa for boat-building and box planking. Curtis’ plan clearly noted that the Sundarban forests were ecologically important because of the protection they provided to the interior from devastating floods and revenue was also an object, insofar as it was consistent with these underlying purposes. To achieve these goals Curtis intended to use “intensive management”.
He proposed a set of silvicultural prescriptions finely tuned to the characteristics of each species in different locales. The felling of all important forest produce would be concentrated in coupes. Unregulated felling would stop, as would the revenue station and the permit system. Waste would be minimized and, it was hoped, output would be regulated “according to the possibility of the forest”. The major administrative change was to decentralize the Sundarban Division into six ranges, using major river systems as boundaries and conforming as much as possible to civil subdivisions. Under this plan the new ranges were superimposed by five “working circles” designated on the basis of the principal species to be managed and the ecological character of the zone. Presler has pointed out that subsequent decades did see marked changes, some in the direction and on the scale Curtis envisioned.

One can say that the forest department’s management appear to have focused consistently on long-term
preservation of the Sundarban forest. The basic goals throughout were left essentially unchallenged-

• to provide on a sustained basis for fuel, timber, thatching and building needs in the regional economy.
• to protect the upland cultivated regions from severe storms.
• To contribute to state revenue.

The forests were reserved formally in 1876, but administration for atleast the first half century was unsteady. Supervision initially was minimal and worked primarily through a price mechanism, to which later was added largely unsuccessful efforts to prescribe targets and to prohibit customary uses by local populations. Interestingly, the customary users of the Sundarban forest saw the designation of the forest as reserved and introduction of user fees, licenses and tolls, as detested intrusions of the state.
5.6  Conclusion: Forest Management and Common use Resources

Sundarbans is perhaps the only mangrove-deltaic eco-system in the world which witnessed for the first time the implementation of a scientific forestry management plan. No doubt the British initiated conservation of forest resources with the prime objective of preserving timber resource for state use in future. But initial clearing of the jungle for cultivation had already led to wide scale deforestation. Colonial administrators like Brandis, Schlich and Temple had already started to realize the need to preserve these valuable resources of Sundarbans. Besides, colonial forestry management imposed limitations on the traditional resource extractors to move freely within the forest. We soon have the imposition of various types of taxes and cesses for those who entered the forest to extract timber or other items. With growing demand of timber(railways, construction, tea industry and paper pulp production), traditional woodcutters or bawalis became contract labourers who worked for moneylenders and
zamindars and traders, who in turn financed the expeditions and who acquired the produce from the bawalis at a price much lower than the market price. Other people who depended on forest resources for livelihood, also came to be affected by the colonial regulations of Reserved and Protected forests. Traditional forest resource extractors had been led by community customs, rules and norms regarding the use of common pool resources. With colonial rule came commercial demand and exploitation and thus these norms and customs came to be weakened and irrelevant, so that we have a ‘tragedy of commons’ type situation. This meant a total breakdown of traditional customs of respecting nature and judiciously extracting its resources. Soon we have outsiders and those from other castes going into the Sundarbans forest for the extraction of timber, honey, fish solely with commercial interest. This had a repercussion on the belief system of Sundarbans, as along with a transformation in the nature of resource extractors, the the nature of their gods underwent a change. Thus, while before the gods were the protector of the forests and its flora and fauna, now they emerged as protector of those who went into the forest to extract
its resources. In other words, they came to support the exploitation of the forest.

Finally, one must remember that although colonial forestry to some extent tried to preserve the resources, great damage had already been done. Vast tracts of wetlands had been lost forever. Human intervention on these natural forests meant that the natural regeneration process of these very sensitive mangrove eco-system had been totally neglected. The British had at first failed to understand the value of Sundarbans’ bio-diversity. The fact that Sundarbans forest vegetation is a multi-faceted eco-region had been totally ignored by the colonial regime initially. Besides, the settlers depend on these resources for their survival, and the forests are also considered a natural buffer zone against severe storms and harmful tidal waves. Besides, they are the habitat of so many exotic species of plants and animals. Colonial rule in its forestry management plans was primarily led by profit motive. But Sundarbans deserved to be respected and its bio-diversity wealth protected. Hence present day forest management should take a judicious stand to preserve and protect this national treasure.
5.7 References

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