

## **FIFTY YEARS OF FORESTRY IN TRIPURA - ACHIEVEMENTS IN RETROSPECT, MACRO FUTURISTIC PERSPECTIVES AND IMPERATIVES**

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### **Introduction**

Since her Independence 50 years ago India witnessed phenomenal changes in socio-political complexion, economic dimension, global characterisation and environmental scenario. Though it is said that "march ahead, don't look back", realisation suggests that looking back at times helps; implicitly it is with a view to energise the motive force. With enhanced sense of accomplishment, the pace becomes faster and introspection and reflection learning inbuilt in the exercise adds to self adjustment and further achievements. It is on this rationale, a documentation and critique of achievements in forestry, a sector of growing concern of the society is called for in the memorable occasion of Golden Jubilee of our Independence. Also a "vision beyond 50" is a must to formulate the strategies to meet the societal expectations under emerging challenges.

The commemorative reporting aims to highlight the salient aspects of forest management, its development endeavours and achievements thereof in the State of Tripura with a critical appreciation and perspective treatise of the future potential. The focused issues and modalities are not unique to Tripura, most of them pertain to the sector at large in the country. Generous documentation of achievements is beyond

the scope of this paper. For the sake of brevity and ease of comprehension, the presentation will be broad-based and focus on expedient issues prioritised. Awareness promotion, experience sharing, opinion building and co-ordinated efforts for sectoral development are the implicit objectives.

Unlike most other parts of the country, scientific forestry is relatively recent in this erstwhile princely State. In fact, the initiative more or less coincides with the country's Independence. Tripura merged with Indian Union on 9th September, 1949 and the administration was taken over by the Government of India on 15.10.49 assigning the status of Union Territory. Tripura attained statehood in 1972 during reorganisation of North-Eastern Area. No continuous history of forests and forestry in the area is available but during the post independence era a set pattern of transitions along with other parts of the country, particularly the princely States, is discernible.

### **Present status**

Forest conservation, management and development on scientific lines actually started in the State in 1951 with the beginning of implementation of first Five Year Plan (FYP). But during the political upheaval in the period from 1947-1972, in

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the whole subcontinent, Tripura was severely affected by phenomenal increase in population due to large influx of migrants from erstwhile East Pakistan and subsequently from Bangladesh. Within the period from 1951-1961 population increased by 78.7%. Consequent upon such population growth, a severe onslaught on remaining good forests of the State followed. Massive deforestation, settlement, opening of infrastructure and generous allotment of forest land for non-forestry purposes led to the shrinkage of forest area and environmental degradation. In a small State (10,491 km<sup>2</sup>) predominantly (60%) hilly with population of 27.581 lakhs (31% tribal) and decennial growth of 34%, forests are under tremendous stress to meet the insatiable demand. Decimation of forests coupled with shifting cultivation (jhuming) in the hill ranges of recent sedimentary origin in conjunction with intensive rainfall is triggering massive soil impoverishment and deteriorating the biophysical environment thereby degrading the otherwise unique ecosystem with enviable repositories of biodiversity.

### The Resource Base

The recorded forest area of the State (6292.7 km<sup>2</sup>) comprises 39.05% of geographical area as Reserved Forests (RF) and 20.93% as Unclassed Govt. Forest (UGF). The latter resulted from rescinding the notification of erstwhile Protected Forest (PF) in 1982. Forest cover as assessed by Forest Survey of India (Anon., 1995) is 5,538 km<sup>2</sup> (52.79% of geographical area) which was categorised into two major canopy density classes (a measure of area occupation) as : 17.34% dense forest (>40%) and 35.45% open forest (<40%). The forests can be grouped into following classes on the basis of composition: (i) Hardwood

(miscellaneous) forests (1829 km<sup>2</sup>), (ii) Hardwood (miscellaneous) mixed with bamboo (484 km<sup>2</sup>), (iii) Bamboo forest (988 km<sup>2</sup>), (iv) Plantations (2,066 km<sup>2</sup>) and (v) Shifting cultivation (open scrub) (875 km<sup>2</sup>). Though the State is located in the zone of high potential productivity based on CVP index, the productivity of natural forest is low (3.61 m<sup>3</sup>/ha/year) while that for plantation as estimated from sample plot data is as high as 10-17 m<sup>3</sup>/ha /year. The generally poor actual productivity due to biotic stress is of great concern because this inadequacy leads to vicious cycle of lower productivity - resource degradation of more area - lower productivity. Protected Area (PA) comprises 4 sanctuaries (603 km<sup>2</sup>) which are habitat of seven species of non-human primates, 14 species of mammals, reptiles, more than 300 species of birds, natural orchids, tree ferns and other primitive and rare plants listed as endangered. Wetlands extend over 1,058 ha, supporting rare fauna and migratory birds. Silviculturally excellent conducive factors favouring forest production exist but, tremendous biotic interference even in RF poses serious problems in harnessing the potential productivity. RFs are interspersed with habitation, and encroachment in forest is a regular feature (total area encroached before 1980 is 5,305 ha and 3,315 ha thereafter). Forests are not uniformly distributed, over-dependence of people on forests, rampant illicit felling, smuggling of forest produce all along 839 km of porous border with Bangladesh and consequent vanishing of forests specially in western and southern part, intensive grazing by 8.81 lakh nondescript cattle over 25% of forest area (56 heads/ha) - much above the carrying capacity resulted in near absence of natural regeneration and virtual elimination of plantations of miscellaneous species. Forests are also heavily burdened

with rights of collection of forest produce by jhumias and fringe dwellers. Though such rights and concessions are based on equity criteria, providing adequate safeguards for sustainability of the system was not possible and they were exercised beyond the carrying capacity. Frequent forest fire in the plains (20% of the total forest area) and wild jhum fire in the hills cause immense harm to the catchment area. Also another serious constraint of land use in the forestry sector is jhuming, practised by 55,000 tribal families (1990 survey) extending over about 35,000-40,000 ha, annually. The jhuming cycle is short and the precarious practise brings recurrent disturbances to the ecosystem beyond its zone of resilience.

#### **Achievement since 1947 - Consolidation**

Forest conservation and improvement were first attempted around 1940 but only with varying success. Tripura Forest Rules were framed under the provisions of Indian Forest Act, 1927 (IFA) and the Rules become operative on 29.04.1952. Also the first Working Plan of Tripura covering 3,359 km<sup>2</sup> came in operation in 1958 and by that time only 354 km<sup>2</sup> were demarcated. RFs declared by royal proclamation had to be renotified under IFA. Notification under section 4 of IFA had been issued for most of the Proposed Reserved Forests (PRFs) in 1961 and by 1986, 41 RFs (3,588.18 km<sup>2</sup>) were finally constituted and notified. Four PRFs (258.92 km<sup>2</sup>) remained. Approximately 2,445.58 km<sup>2</sup> of additional area was notified as RF under section 29 of IFA. As these were not notified under section 29 (1) or 30 of IFA, the said notification was rescinded in 1982 reverting them to UGF. Out of this area 46 new PRFs extending over 250.106 km<sup>2</sup> were notified in 1992. Thus balance 2,195.47 km<sup>2</sup> (34.9% of forest area) remains as UGF (erstwhile PF).

*Development Works* : By the middle of the century forest management in the State gradually became organised. Advantages were taken of National FYPs. Schemes were formulated and implemented for rehabilitating and developing depleted forest resources. Implementation of need based development schemes under FYPs and Annual Plans gradually influenced the management of forests. Apart from State-sector Forestry and Soil Conservation plan schemes, various Centrally Sponsored Schemes (CSS), North Eastern Council (NEC) schemes were increasingly operated with the passage of time. First National Forest Policy (NFP) of independent India was enunciated in 1952 and it was followed in the State; emphasis shifted to national needs, checking denudation in hills, environmental conservation, classification of forests on functional basis, weaning tribals from jhuming, balanced and complementary land use, creation of protection forests, awareness promotion, extensive forestry, strengthening of legal measures, prevention of diversion of forest land for non-forestry purpose, bringing all forests under scientific management by Working Plans and conservation of biodiversity. Development strategy of the sector was also greatly influenced by the new directives; schemes included afforestation by Aided Natural Regeneration (ANR) in understocked forests, large scale plantation of commercial species, infrastructural development, opening up of forest areas, ensuring faster communication, bringing up of all forest area under Working Plans, demarcation of resources area, bringing the Department closer to people through intensification of management by opening large number of centres/beats and strengthening of forest administration, creating wildlife sanctuaries and research wing, strengthening of legal measures, promoting

training at all levels, bringing degraded forests and catchment area under protective cover of trees, rehabilitating jhumias through various schemes and later through organisations like Tribal Rehabilitation Plantation & Primitive Group Programme (TRP & PGP), Tripura Rehabilitation Plantation Corporation Ltd. and Tripura Forest Development and Plantation Corporation Ltd. (TFDPC) and raising social forestry and farm forestry plantations outside forest areas on Government and private land.

Meanwhile at the National level several important developments continued. Notable ones are : creation of Central Board of Wildlife (later, Indian Board) in 1952 for initiating systematic conservation efforts, reconstitution of Indian Forest Service, promulgation of Wildlife (Protection) Act, 1972, taking up of Project Tiger in 1973, ushering in ecosystem concept in wildlife management, recommendations of National Commission on Agriculture (NCA) on geographical area to be under forest cover, creation of forest corporations and launching of social forestry, transfer of forestry to the concurrent list, Forest (Conservation) Act, 1980 (FCA), formulation of National Wildlife Action Plan in 1983, creation of Ministry of Environment and Forests (MoEF) in Government of India, enunciation of National Forestry Policy 1988, June declaration on Joint Forest Management (JFM) in 1990, and follow up actions of Rio Conference in 1992. All these hallmark changes had prompt and simultaneous impact in the management of State forests.

**Afforestation :** A spurt in plantation activity could be noticed in the last part of 3rd FYP. Prior to 6th FYP, afforestation activities mainly aimed at rehabilitation of depleted forests, augmentation of forest resources,

creation of resource base of industrial, commercial and quick growing species to check soil erosion and to diversify resource base by cultivation of rubber, coffee, cashew and MFP etc. But during 6th Plan and afterwards a new dimension for meeting people's need and eco-restoration received valued attention. Spectacular changes in afforestation approach followed. Priority shifted from reforestation of abandoned jhum land to conversion of open mixed miscellaneous forests and the later received gradually increasing thrust. Teak performed exceedingly well; with its excellent growth, sterling qualities, enormous resistance to biotic interference, high value and relative ease in raising prompted its wide scale acceptance in the State. Since late 1980s speed of reforestation received priority and no clear-felling is done in raising plantation. Also later, ANR received a great deal of attention. Large scale forestry plantations under social forestry were raised in vacant Govt. land, private holdings, institutional areas (upto 1997, total 721 km<sup>2</sup>). However no special emphasis on area allocation for raising fuelwood and fodder was made; traditionally it was assumed that byproduct of timber species could meet these utilities. In Tripura, the consumption rates of timber to firewood is 1:37, compared to all India ratio of 1:10 as per FSI data (Anon., 1993, 1987).

**Roads :** With a view to development of hill forests and extending social benefits to tribal people, *infrastructural opening through* creation of network of roads received a great deal of interest specially during 5th FYP. During last forty years, 1431 km of forest roads were constructed by the Department. But since 7th FYP a policy shift stopped opening of forests further. In view of conservation of ecosystem with least perturbation, such constructions have

been discontinued from 1989.

*Control of Shifting Cultivation and Settlement of Jhumias* : Landless tribal jhumias were settled in groups in the form of villages who were provided with employment in development programmes. Also rehabilitation of jhumias through multidisciplinary programme within RF or outside it, continued with the objective of creating permanent assets, sustained income generation and growth of self-supporting economy to wean them away from the harmful practice of jhuming. Initially two Divisions were created in the Forest Department for expediting resettlement works. Later, in 1984 a separate directorate, TRP & PGP was created. Up to 1983 Forest Department rehabilitated 1,041 jhumia families.

*Wildlife Conservation and Management* : Hunting, shooting and fishing etc. were first regulated by Rules framed in 1952. But with the promulgation of Wildlife (Protection) Act, enforced in Tripura since 2.10.73, Tripura Wildlife Protection Rules, 1976 were framed under the provision of the said Act replacing the old Rules. Wildlife Advisory Board was notified and no rights and concessions on wildlife are recognised here. Due to various constraints much could not be done till the end of 5th FYP. But 1980s witnessed rapid development; Chief Wildlife Warden (CWLW) was appointed, CFs were declared as Deputy CWLW, DFOs as WLW and Range Officers as Asstt. WLWs. Creation of four sanctuaries covering 5.75% of geographical area, their development and preparation of management plans, boundary demarcation, creation of WLW Office, ranges beats, developments of biological complex in natural surrounding, posting of staff with communication facilities in the sanctuaries, training of officials in

wildlife, procurement of rare animals and captive breeding etc. are the notable achievements under liberal funding from Government of India.

*Capacity Building - Forest Research & Training* : Prior to 1970, the Department was in the formative stage and maximum physical and financial results along with work organisation were of utmost priority; research did not receive any focused attention. During 1971 Forest Research Division was created but till date there has been no significant achievement; due to paucity of funds the Division could not be even moderately equipped. Biotic interference largely wiped out the experimental sites and sample plots - jeopardising the possibility of collection of data. Forest Training School was set up in 1961 initially for training FGs but upgraded in 1969 for foresters also. All foresters have been trained. Research & Training Divisions are guided by Advisory Committees.

*Institutional Strengthening - Forest Administration* : The first forest officer joined the Department only in 1936 and subsequently he became the first Conservator of Forests. In 1956 forests had been divided into 3 subdivisions, 10 ranges and 70 beats. With the passage of time departmental strategy changed from simple afforestation, revenue collection and protection to creation of massive plantation, stringent protection measures, multifarious developmental activities and forestry for the people. TFDPC was commissioned in March 1976 and initially the main thrust of the corporation was on creation of rubber plantation and logging. Later, the organisation concentrated on rubber cultivation only. To meet the exigencies of work and functional diversities, currently the Department has two posts of PCCFs, 2

CCFs, 5 CFs, 9 territorial and 7 functional DCFs (total 44 IFS posts), 34 ACFs, 114 Forest Rangers, 407 Foresters, 133 HFGs, 630 FGs, 213 Beats, 16 check posts/drop gates etc. Beats have been reorganised with jurisdictions coterminous with mouja boundary. With a view to strengthen protection measures, Divisional Forest Protection Parties (DFPP), Sectoral Forest Protection Parties (SFPP) and Special Protection Parties (SPP) have been formed. Currently sanctioned staff strength (ministerial and field) of the Department is 2,393.

*Enabling Mechanism - Enactment and Legislation* : Indian Forest Act (Tripura Amendment) Act 1984 amended section 2 of IFA with the inclusion of several forest produces, a new section (51 A) was inserted enabling the State to regulate manufacture and preparation of articles based on forest produce, and section 52 and 53 were amended. Tripura Forest (Establishment and Regulation of Saw mills and other wood based Industries) Rule, 1985 was framed. In the Second Amendment Act 1986, a new section (52 A) empowering confiscation of saw mills etc. was incorporated. The Third Amendment Act, 1990 enhanced the limit of compensation to Rs. 5,000/- amending section 68 (3). Export of forest produce outside the State was regulated by framing rules in 1991. Resolution encompassing the policy guidelines of June declaration on JFM and enabling provisions had been adopted in the State on 20.12.91.

### Critique

An objective analysis of sectoral activities in the State leads to a mixed feeling; gains accrued but disappointments were also substantial. However, barring the advancement due to early start, the

chequered scenario is largely the same as that in other parts of the country. Though forestry initially remained as State subject and National Forest Policy, 1952 was an enunciation of general principles, the States were expected to observe them while framing their policies and legislation. But no Forest Policy for the State was separately formulated. Also many aspects of the policy could not be followed namely, functional classification of forests, balanced and complementary land use through survey. Impoverishment and loss of soil in the hill ranges could not be effectively reduced because, jhuming - a way of life of the tribals - continued unabated. Progressive replacement of ecologically more desirable natural regeneration by artificial regeneration resulted in disturbances of natural ecosystem. Carefully planned afforestation schemes to replace mixed miscellaneous forests economically enriched the resource base but the approach resulted in loss of biodiversity.

*Management Planning* : Analysis of sectoral performance is necessary to set the perspective of forest management. During the period, management planning process remained traditionally formatted to the Code; Working Plans could not be integrated to the working of the Department and they continued delinked from the budgeting and administrative planning process (FYP and Annual plans). Preparation of such plans was often perceived as isolated activities. Control forms and deviation statements could not be maintained. Too much adjustment and reconciliation of prescriptions with prevailing local conditions had to be made. With the increasing realisation of environmental role, multiple functions and values of diverse forest products, the concept and principle of sustained timber yield stood invalidated

through time. During the past several decades Working Plans had very little relevance to forest working. The main bottleneck in proper implementation of prescriptions was availability of land for activities as planned. Compartments could not be demarcated and annual coupes could not be taken in many places due to objections raised by local people who have the apprehension of losing the land for ever. Due to the spatial honeycombing of forests and other land uses and many extraneous factors, protection and scientific management experienced extreme difficulties. In addition, too large (10 years) planning horizon, old traditional formatted approach lacking in flexibility suiting to local needs, inadequate baseline information, poor quality statistics on site, growth and yield, obsolete technology of resource mapping, inventory and audit, lack of objective evaluation of management options and timber primacy with very little concern for biodiversity, non-timber forest produce (NTFP) and wildlife rendered the document anachronistic. Growing complexity of goals and objectives - many in conflict with one another, inadequate attention to social dimension, often complicated by many objectives, and overlapping of conflicting strategies rendered the plans less realistic and meaningful documents which became marginal to foresters works. However, such inadequacies of the professional document identified through ages all over the country are now of national concern.

The most striking realization which surfaces first is the fact that while the forestry sector had undergone sea change, Forest Department has been slow to change. Over the years the existing organisational set up got besieged with environmental complexities and pressure. The Department

remained traditionally busy in greening the State, concentrating on large number of afforestation projects and with limited staff conservation and protection works suffered. Even the new NFP 1988 with several fundamental changes and shifts in priorities could make very little impact at frontline personnel level. In view of the new NFP, technical capabilities of the Department needed evaluation, structural reassessment, strategies elucidated and responsibilities redefined. But due to shortage of personnel this could not be done. However, several system shortcomings of the functional milieu, external constraints and internal problems are pertinent in this context.

In a top down approach, the target fixation has always been unrealistic and as a result quantity met whatsoever was at the cost of quality. Planning has also been budget driven rather than governed by needs and goals. Complex financial procedure, lack of timely allocation and availability of funds, very little delegation at different levels, centralisation of authorities confounded the problem. Due to resource constraint in the State, financial allocation had neither been commensurate with the target specified in the management plan nor in consonance with the sizable subsidy to the society administered by the Department in the form of free drawal of forest produce worth Rs. 129 crores per annum. Financial planning remained divorced from physical area planning or technical planning. This paradox of management imperatives and gradually dwindling sectoral investment has been a serious impediment in forestry development. Monitoring of schemes primarily remained centered around fiscal accountability (financial and physical achievements), rather than on results in a periodic perspective such as, survival of

plantations five years hence. No serious periodic evaluation or impact analysis of schemes could be done. Multiple schemes with similar objectives continued for a long period as routine activities without any objective analysis of their utility. However, departmental/sectoral schemes focused on resource creation policy rather than beneficiary and (or) poverty alleviation orientation.

In addition, scientific management had been fettered by many constraints imposed by external factors like lack of infrastructural facilities, long prevailing uneasy situation due to insurgency in the State, retracting of field staff from outlying administrative units under security compulsions and a general apathy and indifference for forests and environment. Also reported/identified specificities (organisational weaknesses pointed out in literature, many ingrained due to its past history) of Forest Department such as, (i) conservative organisation with too many functions but without adequate planning and control resources, (ii) weak technological capacity, (iii) uneven workload in administrative units, (iv) officials with meagre financial powers, (v) resources not matching with responsibilities, (vi) use of obsolete technology, (vii) very little research support and total lack of innovation, (viii) vertical communication ("not to reason why"), (ix) hierarchical and authoritarian internal culture, (x) working in isolation and very little interdepartmental cooperation and coordination, (xi) negative image with public, (xii) weak social management, negligible support role, lack of publicity and lateral communication, and (xiii) low negotiating power with executives deserve special mention.

With such hindrance at strategic and

institutional level, it is not quite unusual that the achievements are beset with numerous inadequacies. With its strength of (i) long established, trained and traditionally disciplined set up and work culture, (ii) organised forest policy, (iii) evenly spread statewide network, (iv) strong legislative support and strict regulations, (v) well defined resource base (60% of the State area managed by FD), (vi) several funding agencies, and (vii) excellent edapho-climatic factors favouring forest production, the departmental performance in various roles and associated mechanisms should have been better in effectively confronting the challenges. But due to prevailing circumstances, sectoral development endeavour by and large had to remain centered around afforestation measures and infrastructural development at the cost of sound ecological management, stringent protection, and vigilance against anthropogenic destructive forces. Even for plantation and natural regeneration, massive target thrust upon, lack of project approach, inappropriate species-site matching/models, with very little scope of concern for survival rate, low investment per ha, low-tech input, poor and unknown parental stock and lack of focus in quality, posed serious obstacles in sustainable resource creation. Research backing in the Department remained virtually absent. Infrastructure for research and lab-to-land transfer are poor due to lack of financial resources and trained personnel. Techno-legal function like protection, conservation, legal enforcement and regulation continued with territorial divisions. Due to resource constraint protection machinery could not be adequately strengthened. Ill equipped, mobile squads (DFPP, SFPP, SPP) with negligible striking performance, and total inability to combat organised felling/smuggling of forest produce across the



border and encroachment are of real concern. Nevertheless, despite such odds the Department could protect the forests by dint of sheer spirit, ceaseless efforts, indomitable courage and bravery. No special mechanism exists regarding conservation. Watershed approach was adopted in Gumti River Valley Project for soil and water conservation, lately. However, performance in environmental conservation i.e., control of shifting cultivation has been worth emulating. Due to paucity of personnel and adequate legal resources, prompt adjudication of offence cases could not be ensured; huge backlog of court cases as stood on 31.3.98 (989 out 1,372 filed in the court during last five years) emphasizes on the need of improvement in the legal enforcement front.

Achievements under wildlife conservation in the past decade have been encouraging. However, special attention focused by Government of India and PIL petitions in recent times prompted the initiatives. Except the two sanctuaries, territorial divisions performed the wildlife conservation functions. The plight of PAs is no better than that prevailing in other parts of the country. Consolidation, demarcation, preparation of management plan, resolution of interface conflict, and promotion of eco-development are in progress. All forests of 9 Divisions except erstwhile PF (4,595.6 km<sup>2</sup>) are covered under Working Plans and they were brought under scientific management. Working Plan Division manages the forest boundary and till date the progress (3,760 km<sup>2</sup>) is appreciable. All the RFs, erstwhile PFs are mapped, total 36 RFs have been fully demarcated and boundary pillars were fixed. Maintenance of forest land records, watching on revision survey and land settlement operation in the State, filing objections against wrong

recording/diversion are prompt and their reconciliation with revenue records are complete. Achievements in halting diversion of forest land for non-forestry purposes have been significant. FCA was strictly enforced, special fund was created and compensatory afforestation (410 ha) has been up-to-date. As on 31.3.97 only 335 ha was diverted in 102 cases.

Functional role of the Department in social dimensions has been insignificant. Though extensive social forestry plantations have been created (721 km<sup>2</sup>) the drive had very little social impact (Anon., 1991). Rural community earned wages only; no community involvement/participation *per se* came by. Tripura was the first State in the North-East in issuing resolution on JFM in 1991 and the strategy was launched in 1993. But the progress has not been encouraging. However, tree planting on private land has become quite popular. In view of administrative convenience, territorial divisions were assigned the job of social forestry and thereby also forest extension work, in addition. Recently one post of CF and three posts of DCF, Social Forestry were created, but due to paucity of staff the Circle and Divisions could not be commissioned. Block social forestry ranges and social forestry centres continued under territorial changes. Due to inadequate infrastructure and funds, lack of community stake, doubt about JFM, reluctance to associate NGOs and VAs, proper orientation training, attitudinal change and motivation of staff, success in social management and publicity worth the name could not be achieved. But with well developed Panchayati Raj Institutions in the State and with fairly long established association with them, the Department has to some extent, come closer to people during the last two decades; Block Development Committee

meetings are excellent fora for interaction.

Commercial role of the Department in harvesting, extraction and marketing of forest produce had been by and large effective and efficient. Abolishing of permit systems of sale of trees and implementation of departmental extraction and sale of timber since 7.10.85 in pursuance of nationalisation of timber trade with transparent and objective mechanism, meticulously formulated rate schedule, enforcement of sale regulations were welcome changes. By necessity, stringent rules and procedure were formulated to regulate extraction and transport of timber and firewood from private land supporting sizable number of trees of natural origin and those planted later. Collection and marketing of Arjun flower (*Thysonoleana maxima*), and important NTFP was organised through LAMPS and PACs since 1985. The procedure ensured social equity and justice.

Sectoral planning and policy making continued in PCCF's Office and Working Plan Divisions. The long established system of annual plan preparation incorporating several identified schemes and allocating budget to them within the general framework of FYP guidelines of the State is pretty organised and has been useful in meeting the general developmental objectives. Since the guidelines and strategy of NFPs have been adopted in the State and forestry later came to the concurrent list, the need for State forest policy was not much felt. However, there has not been any involvement of other stake-holders like communities dependent on forests, industries and external donor agencies. The entry of foreigners to the area remained restricted for long. Neither there has been any dialogue and interaction with other

sectors. Critical support roles executed through information management and HRD have immense scope of development. The organisation changed very little; only some new positions were added, and units were carved out from existing ones on consideration of administrative convenience and expediency. Technology remained primitive. No training strategy could be developed and in-service refresher training specially, for frontline personnel has been rare.

Over the past five decades there have been spectacular changes in the sector both in opportunities, complexity, problem dimension and clientele expectations. Enormous stress to the system due to increasing population pressure and economic activity resulted. Soaring demands, unsustainable drawal of forest produce far in excess of sustained yield and carrying capacity of forests, conflicting interests and "hardening attitudes" of the stake-holders further aggravated the problem. Forest Department, the main public institution, is yet to adjust to the change, and had several assumptions now invalidated, took up multifarious roles, diverse and often contradictory functions. Overly simplistic strategies adopted did not work.

*Diagnosis of Sectoral Issues :* Strategic issues include the following : (i) yawning gap between demand and supply of forest produce, (ii) no means to ensure effectiveness of massive afforestation endeavour, (iii) dampened initiative of non-Government sector in tree growing, (iv) sustained onslaught on forests through predation by people and cattle (illicit felling, grazing and trans-border conservation problems), (v) disproportionate focus on afforestation at the cost of conservation and

protection, (vi) significant gap between the existing forest cover and norms prescribed in NFP - only 17% good forests, (vii) thirty five per cent forest lands treated as unclassified and are not subject to any legal provision of IFA.

Therefore, a recapitulation of the basic tenets of forestry, goal setting, mission characterization, redefinition of roles and resuscitation of associated mechanism are now essential to cope with the change in the Macro-environment. The fundamental ethos of forestry does not change; forest resources are to be managed "to provide a satisfactory amount and mix of social values for the clients living, while protecting these values and use options for future generations" (Kennedy, 1985). Conceptually, forests are for the people and conservation, protection and sustainable management of the resource remains the esteemed goal of forestry. Unlike other organic resources, forests are living/natural systems which need care in exploitation and should be constantly tended. The outlook in its management should be long term. But the problem is that till 1970s the economic perspective was dominant and forests were treated as an input to the larger economy which resulted in its deplorable depletion. Obviously in the process problems arose in goal setting, prioritisation, spelling out strategies on resources, operation and of organisation, consistency, and finally in their implementation through institutional mechanisms. The new mission statement of forestry organisation should be "to manage forests for the best socio-economic and ecological pay off".

### **Vision beyond 50**

Forest management in 21st century is going to be far more complex and will face

difficult choices; with the declining area of natural forests, timber and fuelwood supplies and dwindling financial resources, pressures for production from local and larger economy to bridge the yawning gap of demand and supply of produce and emphasis on conservation to protect the interests of future generations in long run on the other hand, are bound to increase. Already, the pressure is mounting "to do more with less resources". Also social dimension of resource sharing will assume high priority because natural resources and environmental conservation are implicitly linked with the economic plight of people. Denial of utilisation of natural resources to poor communities dependent upon them decrease the chance of conservation in the long run. In other words, benefits of forests should be distributed in a socially just and equitable manner. NFP 1988 and June declaration on JFM reflect the principle amply. Thus the task of production, maintenance of ecological stability and ensuring social equity under an exceedingly complex macro-environment is going to be a herculean task. Enormity of complications in many new functions like social forestry, JFM, eco-development will increase beyond comprehension. The forestry organisation must have a radical reorientation to cope with the emerging challenges. Future accomplishment of the mission will depend a great deal on the capability of tackling the environmental complexity i.e., the capacity to stimulate the positive forces thereby capitalising the opportunities and to neutralise the threats from the macro-environment.

State Forest Action Plan incorporating the future strategy of forest management has already been prepared. Resource strategy includes differentiation by classifying forest types and evolving

matching management techniques, e.g., resource and boundary mapping, inventory and audit, information management, integration of Working Plans, research and evaluation, efficient and effective means to develop, harness and regenerate forests and arresting forest degradation. The crucial operational strategy of augmenting production simultaneously reducing demand of various forest produces through several short and long term measures has been devised in the Plan, Institutional Strength, Weaknesses, Opportunities and Threats in the external environments identified through an implicit SWOT analysis in this paper provides a good theoretical foundation for the choices of imperatives in strategic planning. Measures to tackle the environmental and internal complexity can better be comprehended within a general framework of managerial cybernetics taking on the external threats, utilising latent strengths, mitigating the weaknesses and stimulating internal capabilities. Recently the approach has been applied in conceptualising institutional reform model (Anon., 1995; Anon., 1996). New perspectives of forest management and imperative institutional changes are discussed in the following sections.

### **Supply Management - Promotion of Sustainable Pattern of Production**

(a) *Increased forest production (improve productivity)* : Demand of forest produce remaining constant, the resource degradation is an inverse function of productivity. Larger area of low productivity forest is required to meet demand of people than that of higher productivity. Therefore, to decelerate the rate of degradation the productivity should be increased. With a sizable gap of supply and demand of timber and firewood to the tune of 0.2 lakh m<sup>3</sup> and

5.85 lakh m<sup>3</sup>, respectively in the State, productivity enhancement will basically depend on appropriate input of technology, management practices and materials fairly established in forestry which need no mention here. However in view of sustainability concern the enhancement should be restricted to the optimum level of productivity ascertained on the basis of local conditions prevailing in the ecosystems set apart for production.

(b) *Expansion of forest cover - creating new assets going beyond traditional cover* : The State has already 52.79% of area under forest cover which is adequate according to NFP but the cover can be increased to 65%. To achieve the goal, the strategy should be to plant up in (i) vacant public, and (ii) promotion of private plantation. An area of 40,600 ha revenue wasteland in the State should be utilised for planting fuelwood/fodder species (woodlots of coppicing spp.) and farm forestry should be promoted in about 10,000 ha of available private land. Tree farming on non-arable lands in private holdings in a scheme called "Angan Ban Prakalpa" has already been taken up.

### **Demand Management**

(a) *Reduce total demand* : The objective can be achieved through short term measures like, efficient utilisation and substitution of wood. Demand of industrial timber in the State can be reduced by identification of substitutes, reduction of industrial waste, promotion of inferior timber and instilling a change in the consumption pattern. Demand for fuelwood can be reduced by promotion of fuel efficient chullah and practices among households (improved chullah of 30 to 32% efficiency has been popularised), promoting non-conventional source of energy like biogas, and

discouraging use of fuelwood in the industrial sector. Also a specific strategy for production of fuelwood and fodder should be developed.

(b) Long term measures include population control, poverty alleviation and promotion of high yielding cattle.

### **Measures to Capitalise Latent Strengths and Untapped Opportunities in the External Environment**

The imperatives include the following: (i) utilising the emerging wider scope to work with public - increased public involvement through growth of private forestry and agroforestry in the State has become noteworthy. This positive force needs to be stimulated for the benefit of forestry. Fiscal incentive (e.g., seed capital, long payback period loans, support price etc.), liberalised harvesting, transport and marketing, simplifying procedure and linking industries to private producers, buy back guarantees and advances in planting materials production, dissemination of technological know-how and marketing information of decision-making by private tree growers, associating and training NGOs and VAs for attracting Government of India funds; (ii) availing of opportunity of access to modern technology for better management of the resource; (iii) harnessing the excellent opportunity of raising funding by national and international agencies by skillfully designed projects; (iv) wider scope to work with other agencies dissolving discipline boundaries exists now. This opportunity if harnessed will result in cross fertilisation of ideas. Some officers of Forest Department have already been sent on deputation to other departments and interdepartmental meetings are regularly attended. Finally, (v) visibly approaching

environmental/resource crisis has now prompted increasing political concern and this changed situation should be effectively utilised.

### **Measures to Neutralise Negative Pressures/Threats from External Environment**

(a) With a view to reduce the most agonising problem of increasing human and livestock pressure on forests the suggested strategies are : (i) to strengthen vigilance and protection measures, develop separate protection units-technically well equipped, improving their striking performance through effective action plan, identification of vulnerable areas, intelligence network, and allocation of earmarked budget; (ii) to improve boundary management through regular monitoring, checking and reconciliation of revenue and forest records; (iii) institution of special forest courts tackling offence cases promptly; (iv) opening of legal cell dealing with court cases, enactment, legislation for UGF land and immunity against firing; (v) organising special training in legal matters for all forest officials; (vi) rapport building with local communities; and (vii) special efforts to control trans-border conservation problems through effective cooperation of BSF, Customs and Police with intervention of Ministry of Home Affairs and MoEF, Government of India.

(b) Encroachment in forest land can only be effectively tackled through non-regularisation, prompt legal action and checking of influx of immigrants from neighbouring Bangladesh.

(c) Commonly perceived low priority to forestry can only be tackled through image building, social management, JFM, eco-

development, fringe area development programmes, recognition of intangibles, emphasis on national resource accounting, awareness promotion and quantification and reporting of social subsidies extended in the form of free grants, striving for success in people-oriented programmes to increase negotiating power with the Government.

(d) The problem of political interference can be reduced through strong professional ethics, rigid adherence to set rules and norms, departmental allegiance and sacrifice of individual gains intended at the cost of principles.

(e) Conflicting policies of other sectors and their un-coordinated growth can be minimised through enforcement of forest laws and rules, interdepartmental coordination and cooperation, dialogues and intervention by highest authority/apex body.

(f) General apathy, indifference and even "anti-forest mood" can be transformed into concern and cooperative support through frequent positive interaction, concerted efforts towards motivation and winning over, and raising sectoral priority by launching high profile campaign.

#### **Coping with micro-environmental complexity**

It is possible by (a) increasing internal capabilities and (b) reducing institutional complexities.

(a) *Increasing internal capabilities* : To achieve this, some functions need amplification and others require stimulation. These include development of specialised skills and competencies, introduction of advanced technology like remote sensing, MIS, GIS, information technology, tree improvement,

strengthening of HRD, rational manpower deployment and career advancement policy, formulation of flexible schemes with clear statement of goals and objectives avoiding too many schemes. Strengthening of policy and institutional framework needs introduction of strategic planning, integrated/grey planning from below with consensus at grass root level, implementation of JFM and village level/watershed level micro-plans, organising the newly created institutional structures for the emerging participatory systems ensuring development of self management capacity, revision of Working Plan format and linking of Working Plan with investment strategy through annual plan of operation.

In addition, capacity building through stimulation of research, training, present status of extension set-up, linkage with other Government Departments and involvement of NGOs should receive a great deal of emphasis. The critical areas of research should be identified and prioritised. A sharp focus on professional training in the Department and for the members of grassroots-level structures like village afforestation and protection committees is warranted. Lack of adequate training breeds inefficiency and resistance to change. Therefore, development of need driven training packages should be given top priority for strengthening institutional capacity and ushering in change. The extension set-up needs total rejuvenation through initiation of functioning of social forestry circle and three divisions; block social forestry ranges should be opened in all C.D. Blocks. Working of each SF centre should be toned up. The linkage with other Government Departments like Education, Tribal welfare, Agriculture, Rural Development, Industries, Animal Resources, Science & Technology, Tourism,

Research organisations and NGOs should be strengthened.

(b) *Institutional changes/reorientation - Reducing internal complexity* : Currently the Department performs multifarious role which must be first differentiated, rationalised and selectively adopted. Roles fundamentally different in nature, need separation and reassignment to functionaries with a view to improve accountability. Differentiation of function at grass root/executive level will increase efficiency and result orientation. It is too much to expect everything from one incumbent. Performance monitoring through objectively verifiable indicators will add to the efficiency of administrative units. In the process, the workload should be reviewed thoroughly and as far as practicable the load should be equitable. It is essential to identify the core functions of Forest Department. Though not uniform all over, a consensus seems to exist amongst forestry professional that the Department should not try to do everything-perform certain functions but do them right. The identified core functions are: (i) conservation, (ii) production, (iii) development, (iv) protection, (v) regulation and (vi) extension. The administrative units should preferably be of smaller geographic areas and multipurpose (except support role), not functional. The approach would ensure one window service and even out workload. Division boundaries should be rationalised and made coterminous with district, the basic planning unit. The forest division should perform the stated core functions and if necessary one division may have subdivisions each looking after protection, resource development, production and extension. For effective functioning it is essential that enhanced delegation of power should be associated to each functionary.

Departmental output should be evaluated both in quality as well as quantity and the target should be optimised with resource and capability. Long term success should receive precedence over fiscal accountability. Periodic monitoring and evaluation should be performed and the data must be used for corrective purposes rather than for reporting only.

Besides, organisational strengthening is also necessary in Forest Division of Tripura Tribal Areas Autonomous District Council which controls 2,070.6 km<sup>2</sup> of Unclassed Government Forest area (19.7% of geographical and 32.9% of State's forest area). Currently the organisation is not adequately equipped to manage the forest.

## Conclusion

We had a pretty 'long march' and it is right to a pause for a while with reflection which suggests that though the past achievement might have been commendable under prevailing circumstances, future strategies and their implementation need radical change and institutional reforms. Let not complacency settle upon us. Development being an ongoing process, professionals need to strive hard to meet their true characterisation, acquire needed skill, imbibe required attitudinal changes and surge ahead. Impulse of change should come from within the forestry organisation. It can be appreciated that myriad of external and internal factors with their complex interactions render the forestry development endeavour an exceedingly difficult task. The imperatives though optimistic are nevertheless, feasible. Indeed, several institutional impediments negatively impacting the sector are too real to overlook, and too lofty to surmount. But

several intra-organisational issues can be effectively tackled with concerted efforts. We shall overcome. Reputed as hard workers, forestry professionals can handle

many intricacies. With firm determination and genuine will of all concerned, coping the challenges may be a reality. Let us say Amen to it.

### SUMMARY

Achievements during last 50 years of forestry in Tripura have been documented, highlighting notable developments in forest resources base, afforestation, infrastructure, control of shifting cultivation, conservation efforts, enabling mechanisms, capacity building and institutional strengthening. A critical appreciation reveals that gains accrued but disappointments were also many. It evaluates the efficacies of implementation of National Forest Policies, management planning process, conservation, social forestry, commercial function, protection, regulation and enforcement works pointing out the issues where forestry organisation could not achieve certain cherished goals and why; several institutional shortcomings, external constraints and organisational weakness are identified. Within the general framework of managerial cybernetics, strategic planning of forestry in the State is devised on the basis of a SWOT analysis spelling out the ways and means of capitalising the latent strengths and neutralising the threats in the external environment, and coping up micro environmental complexity. The imperatives of a mission-driven forest management in the State facing the emerging challenges, have been suggested.

त्रिपुरा में वानिकी के पचास वर्ष - उपलब्धियों का पश्चावलोकन, बृहत भविष्य परिदृश्य और बाध्यताएँ

पी०एन० रे

### सारांश

वानिकी क्षेत्र में विगत पचास वर्षों में त्रिपुरा में मिली हुई उपलब्धियों को बताया गया है जिसमें वन संसाधन आधार, वनीकरण, अधोसंरचना, चल खेती पर नियन्त्रण और संरक्षण प्रयास में हुए मुख्य विकास पर प्रकाश डाला गया है जिनसे कार्य प्रणाली बनी, क्षमता सुधरी और संस्थाएँ मज़बूत बनी हैं। समालोचनात्मक विचार करने से पता चलता है कि लाभ तो हुए हैं किन्तु बहुत-सी निराशाएँ भी मिली हैं। इसमें राष्ट्रीय वन नीतियों, प्रबन्ध आयोजन प्रक्रियाओं, संरक्षण, सामाजिक वानिकी, व्यापारिक कार्यों, सुरक्षा, नियमन और संपादन निर्माण कार्यों के क्रियान्वयन का मूल्यांकन किया गया है तथा उन मदों की ओर संकेत किया गया है जहाँ वानिकी संगठन कतिपय अभीप्सित लक्ष्यों को प्राप्त नहीं कर पाया और क्यों? कतिपय संस्थागत कमियाँ, बाहरी बाधताएँ और संगठनात्मक कमजोरियाँ भी बताई गई हैं। प्रबन्धगत साइबरनेटिक्स के सामान्य चौखटे में रहते हुए राज्य में स्वोट विश्लेषण के आधार पर वानिकी की रणनीतिक आयोजना तैयार की गई है जिसमें छिपी हुई शक्तियों का पूरा-पूरा लाभ उठाने, बाहरी पर्यावरण के लिए उठने वाले खतरों को निष्क्रिय बनाने और सूक्ष्मपर्यावरणिक जटिलता से निबटने के उपयों को सुझाया गया है। राज्य के सम्मुख आने वाली चुनौतियों का सामना करने के लिए मिशनवत् सक्रिय बने वन प्रबंध की बाध्यता भी सुझाई गई है।

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