

DRAFT

**RAJASTHAN STATE FOREST POLICY
2009**

**FOREST DEPARTMENT RAJASTHAN
JAIPUR**

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1. PREAMBLE :

- 1.1 The National Forest Policy, 1988 lays down the guiding principles for forest management in all the states of the country including Rajasthan. Peculiar geo-climatic conditions of Rajasthan with vast areas of the State being part of the "Thar Desert", not only made it a forest deficit state but also forestry has turned to be a very challenging task. Besides, the conservation of forest and biodiversity of the State as well as meeting the livelihood needs of the forest dependent communities can not be addressed without a comprehensive State specific Forest Policy.
- 1.2 The National Forestry Commission has also recommended that each State shall have its own Forest Policy for the sustainable management of its forest and wildlife resources. It should also have a mechanism to monitor implementation of forest policy provisions and suggest rectifications.
- 1.3 Understanding that forest being a concurrent subject in our Constitution, State Forest Policy will be drawn in the overall ambit and framework decided in the National Forest Policy by the Central Government.
- 1.4 The Government of Rajasthan, being aware of the important role performed by the forests and the symbiotic relationship between people and forests, accordingly adopts this State Forest Policy.

2. KEY CHALLENGES TO FORESTRY SECTOR:

- 2.1 Rajasthan is the largest state of the country in geographical area and occupies 10.4% of landmass of the country. The State is divided by one of the oldest mountain system in the world - the Aravalli hills ranges stretching from Delhi to Gujarat, in the north east to south west direction dividing the State into two unequal halves. Two third part of the State, in the western side of the Aravalli hills, is part of the Great Indian Desert known as the Thar Desert, 61% of the Thar Desert in Rajasthan. The eastern part of the State, being semi arid has relatively better climate. The Vindhayan intrusions, in the eastern and the south eastern part of the State, drained with rivers and streams are as significant to the ecology of the state, as the manmade canal system of IGNP in the Thar Desert. Human population of the State is 5.5%

while livestock population is 11% of the country. These livestock depend on pasture land which accounts only 1% of the country's grazing land. Besides the State has only 1% sweet water of the country making it a water scarcity area.

- 2.2 Forest area of the State is only 9.53% of its total geographical area of the State and usually confined in Aravallis and Vindhayan hill ranges of the state. These forests are either of Tropical Dry Deciduous nature in hilly terrains or of Thorn Forests in the arid and semiarid parts of the State. Dry Deciduous forests consist of some gregarious species characterized as edaphic climax of the area interspersed with Mixed Miscellaneous type. Forest of the state meet the demand of timber, small timber, firewood, fodder and other Non Timber Forest Produce for livelihood needs of local people living in and around forest areas. However, there is a very large gap between the actual demand and supply. Apart from these tangible goods, forests also provide a host of ecological services to the human society which are difficult to be quantified in monetary term. However, per capita forest area is only 0.06ha, which is one of the lowest in the country.
- 2.3 Forests of Rajasthan are also very rich in wildlife and contain a varied range of prey and predator animals. Some of the best manage National Parks and Sanctuaries are located in the State. The State has two world heritage wetland, the Keoleodev National Park, Bharatpur and Samber lake, beside the unique Desert National Park. This rich biodiversity attract large number of tourists to Protected Areas of the State and became popular tourist destinations along with large number of historical forts, palaces and religious temples with heritage buildings. In desert belt of the State also large number of wildlife are generally sighted outside forest areas.
- 2.4 Forestry has proof to be lifeline for the people, particular the tribal who live in and around the forest. Due to harsh climatic and edaphic conditions having green cover is a quite challenging task in the State. The State has embarked upon an ambitious programme of the People Oriented Forestry primarily for meeting the twin requirements of fuel and fodder.
- 2.5 The State has rich tradition of nature conservation. Vishnoi culture of our state has amply demonstrated this by religious protecting the flora and fauna of the desert. As a result of which one can see a black buck and a chinkara (Indian gazelle) free roaming in the back yards of the Vishnois. For development planning and management not only aggressive afforestation but also reviving the conservation efforts by harnessing the rich indigenous knowledge for biodiversity conservation is essential with cost effective technology packages through participatory approaches.

3. OBJECTIVES :

- 3.1 The basic objectives of State Forest Policy of Rajasthan are as follows:-

- 3.1.1. Protect, conserve and develop natural forests of Rajasthan with active participation of local communities for ecological security of human society.
- 3.1.2. Undertaking massive afforestation on Government and Community owned wasteland and privately owned agriculture and non farm lands for expanding the vegetal cover of the State both in rural and urban areas simultaneously meeting the timber, fuel wood & non-timber products demands of the society
- 3.1.3. Increase the productivity of forests through appropriate management interventions and use of modern technology to meet the needs of the present as well as future generations.
- 3.1.4. Combating desertification (through Shelterbelt plantations, Block plantations, Sand dune stabilization and Agro-forestry in desert areas) and to prevent all kinds of land degradation.
- 3.1.5. Meeting the livelihood needs of tribal and other forest dependent communities while reducing their dependency on the Natural resources by developing proper facilities for processing, grading, value addition and marketing particularly of non timber forest products.
- 3.1.6. Conserving floral and faunal diversity and gene pool reserve through a network of protected areas, such as National Parks, Sanctuaries, Conserve Reserves and Community Reserves.
- 3.1.7. Conservation of rare and endangered species of flora and fauna of the state by undertaking *in-situ* and *ex-situ* conservation majors, apart from conserving and managing biodiversity-rich ecosystems such as grasslands, orans, wetlands etc.
- 3.1.8. Empowerment of the village communities for sustainable management of forest under Joint Forest Management system.
- 3.1.9. Strengthening forestry research base for enhancing productivity of forest and promoting better utilization of forest products.
- 3.1.10. Extension and dissemination of research findings and proven technologies for adoption by the users and providing support services to the farmers for promotion of agro-forestry.
- 3.1.11. Instituting human resource development through a proper system of carrier planning and development for upgrading the technical and professional skills of forestry personnel, villagers and other important stake holders.
- 3.1.12. Shifting the onus of management of forest from the traditional management practices to people oriented approaches by internalizing intensive and extensive participatory strategies in the working system of the Forest Department so that forestry becomes a massive people's movement with the involvement of women.

- 3.2 The principal aim of forest policy is environmental stability and ecological security. Through increasing vegetal cover, the soil erosion will bound to be reduced and eventually dust particles in upper stratosphere will be reduced. With decrease in stratospheric temperature, possibility of rains will increase. Assured rains will be able to remove perennial water scarcity in the state to some extent while enhancing scope of agriculture production. Forest will ensure drought proofing. Desertification can be checked and productivity of crop will be increased. Increased sequestration of carbon from the atmosphere will reduce threats of Global Warming and Climate Change problems. Thus though value of these environmental services go often unaccounted, these benefits certainly outweighs tangible benefits derived from forests of the State.

4. PRINCIPLES OF FOREST MANAGEMENT :

The objectives of the State Forest Policy will be achieved by adopting the following essential principles:-

- 4.1. Existing forests are fully protected from all kinds of anthropogenic pressures and these forests will be managed on sustainable basis for perpetuity through Working/Management Plans.
- 4.2. Participation of local community shall be central to forest management. Participatory approach will be adopted to integrate the concerns, aspirations and needs of the forest dependent communities and the various other stake holders.
- 4.3. Protected Areas of good wildlife habitats will be declared by notification as National Park and Wildlife Sanctuaries on landscape basis for conservation of wildlife and bio-diversity again with a people centric approach. Good forest habitats of smaller areas or wildlife populated common lands can be declared as Conservation or Community Reserve. Management of these areas can be done as per prescriptions of approved Management Plan.
- 4.4. Drought proofing through afforestation and pasture development should be main focus of forestry in the State.
- 4.5. In order to translate the Policy in to action, a transparent, sensitive and answerable forest administration with sincere and committed manpower is needed with all basic infrastructures to face challenges.
- 4.6. State Forest Department is not the owner but the custodian of forest resources belonging to the people. But there is a general obligation to protect our forest ecosystem, threatened or endangered species and biodiversities that are important to sustaining life and providing livelihood. If for unavoidable reasons of overriding public interest such protection cannot be provided in certain cases, compensation must be demanded from the proponent the activity, to restore the cost of lost goods and services to the public of the area.

- 4.7. Co-ordination with other Govt. departments and democratic institutions of the State in the best interest of forests will be followed by integrating environmental consideration in sectoral policy and action plan.

5. STRATEGY :

5.1 Area under Forests

Although the National Forest Policy envisages at least one third of the land area of the country to be under forests, inhospitable climatic and edaphic conditions restrain the state to have vegetal cover not on more than 20% of the geographical area of the state. Since the forestland is only 9.5% and vegetal cover of the state is 7.1%, wasteland under the ownership of the Government, Communities and Private persons are to be brought under vegetal cover with special efforts. It will also include pasture lands and lands with scattered tree and shrub as characteristics of desert flora. Looking to the vast tract of the State, the gap can be covered by bringing additional 45,000 Sq. Km. of area under afforestation and pasture development in a reasonable time frame.

5.2 Treatment of Forest Areas

- 5.2.1 All notified forest areas in the State will be mutated and demarcated by erecting boundary pillars on the ground and boundary line digitized on the maps with proper geo-referencing. Records of Forest blocks will be superimposed on Revenue maps and will be kept on public domain with khasra details as per the latest Revenue Settlement.
- 5.2.2 All unnotified forest blocks shall be notified and settlement process may be initiated as early as possible.
- 5.2.3 All forest areas, notified or unnotified will be brought under the ambit of Working Plan and managed strictly as per prescriptions of the management plans.
- 5.2.4 All dense forests will be managed as per silvicultural principles, primarily for ecological security and environmental stability besides ensuring supply of unpolluted water air and conserve the bio-diversity.
- 5.2.5 There will be a ban on felling of green trees from the forests but the dead, dying and moribund trees can be removed as per silvicultural prescriptions. These materials can be disposed as prescribed in the Management Plan.
- 5.2.6 Degraded forests of the state will be rehabilitated through assisted natural regeneration with minimal planting of species which are found in nature. Soil and moisture conservation measures will be taken up extensively to facilitate natural regeneration. Contour trenches can be taken up in gentle to moderate slopes, where as contour dykes are to be taken in steeper slopes and V-ditches can be taken in 1-2% slopes. Pits can be dug on plain areas for planting.

- 5.2.7 Since rehabilitation of degraded forests are usually taken up with people's participation, diversified plant species can be chosen so as to get constant flow of forest produce to give sustained income to members of village community. Aloe vera, Jatropha curcus, Guggal plants, plants of medicinal values etc can be planted on ridges of contour trenches or V-ditches. Bamboo, Aonla, Lasoda, Sitaphal etc can be planted so as to ensure economic returns from plantations in short time. However, if grass seeds are sown with ploughing in the interspaces of trenches or pits, due to effective protection grasses can come up in large quantity and community members can be allowed to cut and carry grasses on head loads or cart loads.
- 5.2.8 Drainage line treatment can be taken up in intensive scale for in situ conservation of water and ultimately the excess run off of rain water can be harvested to recharge the wells in down stream as well as make available the water for life saving irrigation to planted saplings at the time of necessity.
- 5.2.9 Water harvesting around planted saplings by crescent shaped **thaonla** and constant weeding and hoeing help in retaining moisture in the root zone of planted saplings for ensuring better survival of plants.
- 5.2.10 In natural forests some flagship species be identified as ecological indicator of sound management.

5.3 **Forest Protection and Conservation**

- 5.3.1 In Rajasthan State more than 12 districts has forest areas more than 20% of their geographical area. Conservation and protection of these forests are a necessity rather than increasing forest areas in these districts. It will be appropriate to adopt eco-restoration model by erecting effective fencing in these areas to enhance the natural regeneration and productivity of the area. Protection of these forests shall be primary focus and it needs to be strengthened by mobilization of man and material resources.
- 5.3.2 There are also 13 districts are having 5% to 20% forest area. In these districts apart from increasing forest area, eco-restoration afforestation to be done in ambitious manner on wastelands under Govt., community and private ownership so as to bridge the gap between existing vegetal cover and required vegetal cover.
- 5.3.3 In remaining 8 districts particularly in desert areas, the forest area is less than 5% and the vegetal cover should be enhanced appreciably in these districts. Therefore, Combating desertification programme will be taken up in these districts with utmost priority.
- 5.3.4 Encroachment is a perennial problem in forest areas. Mostly near the proximity in the city areas, slums have been developed on vacant forest land. Eviction of these slum dwellers shall be taken on urgent priority with the help of urban development agencies. Forest areas vulnerable to encroachment are to be fortified by erecting pucca walls

to check their ingress further into the forest areas. Encroachment in vulnerable remote areas needs to be handled both by persuasive and coercive means. Exemplary punishment may be inflicted on these encroachers by the appropriate court of law. Generally, encroachment in the remote forest areas take place on the onset of monsoon so by strengthening patrolling and effective watch and ward in time can minimize the problem.

- 5.3.5 Moreover, persuasive means involving the local people through the constitution of Joint Forest Management Committees, may motivate encroachers dissuade to break the land. Being member of the joint forest management group's, the self esteem of the encroachers will be increased and they can share different benefits in term of goods and services from such forest areas. Empowerment of these committees is very crucial to make them effective in dealing with forest offence cases.
- 5.3.6 Mining in the forest areas should be discouraged by all means. Mining cause innumerable damage to forests apart from actual mining. Mining labour often destroy forest by illegal felling of trees. In Rajasthan, illegal mining can be controlled by increasing surveillance in forest areas through joint inspection by mining, forest and police officials. The intelligence system can be developed to curb the illegal mining and informers of illegal mining activity in the forests should be suitably rewarded. Further the identity of the informer should remain undisclosed. The mining association of sand stone query may be motivated to take up compensatory plantation on degraded forest land set apart for them. Reclamation of the mined areas at the cost of miner should be enforced by mining department.
- 5.3.7 In Rajasthan, during summer occurrence of forest fire is very common. Past experiences show that often there is occurrence of ground fire by burning of grasses and shrubs. In order to curb the forest fire, fire lines need to be prepared and maintained in forest areas at regular intervals. Subordinate staff will be given modern gazettes for beating and controlling forest fire. The member of the Joint Forest Management Committee and the local people should be duty bound to extinguish the forest fire on demand of Forest Officers.
- 5.3.8 Illegal grazing in forest areas particularly in drought years is quite damaging. Not only juvenile plants are grazed and browsed, seedlings also get trampled. Apart from local cattle, migratory sheep cause a huge damage to forests during monsoon. Enhancement of grazing fees, breed improvement of cattle, regulatory grazing, encouragement for stall feeding by permitting cut and carry of grasses on nominal costs and development of improved pasture besides JFM can curb this menace in our natural forests.
- 5.3.9 Illegal felling of trees in natural forests and transportation of these produce do often occur to meet the needs of local population as well as market demand in neighboring states. Such incidences increase during drought periods as in the crisis the people fall back upon as a

livelihood means. Since Rajasthan is fuel wood deficit state, illegal transportation need to be curbed outside of state boundary by erecting check posts and barriers followed by heavy penalty.

- 5.3.10 Poaching of wild animals from natural forests outside PAN areas are reported for growth of illegal trade of wildlife products both in domestic as well as international market. Adequate infrastructural support to curb poaching is also lacking. Intensification of patrolling and surveillance along with developing crime intelligence is essential to reduce the threat of poaching.
- 5.3.11 Interdepartmental co-ordination with Revenue, Police, Mines, Animal husbandry, Transport, research institutes and laboratories is need of the hour to reduce forest offences.
- 5.3.12 Protection staff in the Forest Department is grossly inadequate. In spite of manifold increase in anthropogenic pressure over the years, staff norm has hardly been revised. The beat guard is looking after 10 to 15 Sq Km where as 5 to 7 Sq Km is ideal. Due to want of regular recruitment in grass root level staff over more than two decades, not only nearly one third posts are lying vacant at the same time protection of forests has become critical with ageing staff. Staff is also not equipped with modern gadgets to counter forest offenders who are better equipped with fast moving vehicles, arms and ammunitions, modern tools of committing offence besides they are far more organized which eventually affected morale of the staff. In absence of a proper mechanism of rewards and incentives exist in police department, Forest Department fill handicapped. Status of Flying Squads is also far from satisfactory for lack of vehicles and enough budget for POL. Increasing of protection staff and strengthening of infrastructural support is urgent necessity.
- 5.3.13 Though damage of forest due to pest and diseases are rarely seen in forest areas of the state but these can be controlled by taking collaborative support from research institutions, as and when needed.

5.4 **Afforestation on Government land, Community land and Private land**

- 5.4.1 In order to expand the vegetal cover, afforestation and pasture development activities will be taken up on massive scale with active participation of local people.
- 5.4.2 The Revenue waste lands, wherever available in different districts will be identified for taking up plantations with appropriate multipurpose trees species such as Neem, Shisham, Siras, Anwala, Karanj, Churel, Bad, Pipal, etc.
- 5.4.3 The multipurpose tree species selected for plantation on these lands as far as possible should be less water demanding and drought resistant. Use of biofertilizers, QPM and better soil preparation will enhance the productivity of these wastelands.

- 5.4.4 Vacant institutional land under the possession of various government departments need to be taken up for planting with the active cooperation of concerned departments. Wherever, lands are available in educational institution, these lands can also be planted up with active involvement of the students and teachers.
- 5.4.5 Available linear patches along various types of roads can be planted with single / multiple rows as per the availability of space with shady / ornamental tree species. Roadside plantations can be kept as an integral part of any new road construction projects and concerned agency of construction and maintenances will be fully responsible to maintain these trees along with the maintenance of the roads. However, in already constructed roads where further expansion is not proposed shortly, with the help of Forest Department, committed NGOs and LSG bodies, road side plantations can be taken up at the earliest. Non resident Rajasthanis are eager to develop roadsides even by financial contribution which can be encouraged.
- 5.4.6 Urban Development Authorities will be responsible to plant trees along the road side in urban areas. Further, Urban Development Authorities will be bound to have green belts around cities. Housing Boards and other institutions should set aside some part of the land proposed to be developed as a housing colony for tree plantation. Inner roads and lanes in such colonies shall be planted with suitable shady and ornamental tree species.
- 5.4.7 Canal side plantations will be the responsibility of Irrigation Department and can be taken up as an integral part of canal construction and maintenance work. However, existing plantations along IGNP, Gang-Bhakra system raised by Forest Department is being harvested and simultaneously be replanted as per provision of approved Working Plan.
- 5.4.8 Vacant lands available along railway tracks can be planted up with suitable tree species as per the norms of railways by the concerned railway engineering division and maintained thereafter along with the maintenance of railway track.
- 5.4.9 There are nearly 10,000 Panchayats in the State and each Panchayat has their own gauchar (grazing land) of various extents. These patches of lands will be taken up for planting under silvipastoral model with active participation of community. The management of such plantations can be entrusted to the institution as per provision of Panchayat Act. Wherever the Panchayats feel necessary, with unanimous resolution of the Gram Sabha, the land can be given to forest department for development of plantations for a fixed period and thereafter it can be transferred to the concerned Panchayat again for further maintenance and management till harvesting through an approved management plan. Panchayat land plantations, if developed with the funding of the state government, after final felling the net revenue would be shared between the Panchayat and Government as per the decision of the Government.

- 5.4.10 Private individuals will be motivated to plant tree species of their choice in vacant spaces of their back yard / front yard of their dwelling units. The required plants of their choice will be made available through the existing network of nurseries of forest department.
- 5.4.11 Large chunk of marginal waste lands are available in private ownership which can be put to productive use by planting suitable trees of economic importance. Such trees species can be obtained from the nearest forest nursery on nominal costs. When demanded, technical know how for such plantations will be provided by the Forest personnel / Agriculture Extension Officer located in the vicinity. Individual farmers will be encouraged to undertake agro-forestry plantations on their farm lands.
- 5.4.12 Other vacant lands in cities / villages under community possession can be developed as commemoration plantation / Tree Park where people will be encouraged to plant sapling and maintain them.
- 5.4.13 Since Rajasthan is water scarcity state and for better survival of plants often supplemental irrigation is essential. Hence, all planting sites will have appropriate rain water harvesting structures to store adequate water for use in these plantations. Similarly, to protect these plantations from biotic interferences proper safeguards will be put in place.

5.5 **Demand and supply of Forest Produce**

Forestry Sector alone out of its resources can not meet needs of various forest produce and therefore a sizeable gap exists in all major wood products like timber, small timber, fuel wood, bamboo and Non Timber Forest Produce like grass and fodder, tree borne oil seeds, gums and oleoresins, wild flowers and fruits, Tendu Leaves, Medicinal Plants etc. This problem can be addressed through a two prong approach like reducing the demand and increasing the supply by maximizing benefits to the local communities in following manners:

- 5.5.1. Since forest areas alone can not provide all the Wood Produce, large scale plantations can be raised outside the forest to meet ever increasing needs. Leaving Culturable Command Areas (CCA) from Gross Command Areas (GCA), irrigated plantations can be raised to provide wood products to certain extent.
- 5.5.2. Even in present condition, a large part of timber, small timber and fuel wood demand is met from harvesting of matured crops standing on farmlands. Enabling provisions will be made to increase the area under Agro Forestry for increasing forest produce.
- 5.5.3. Since it is a fuel wood deficit State, efforts will be made to curb transportation of wood out of State will be discouraged. Prosopis juliflora has extensively spread on all kinds of wastelands and a growing tendency is seen among people to cut them and converting them as charcoal to export it out of State. Since the growth of Prosopis juliflora used to meet demands of fuel wood, illicit felling in natural forests was reduced. There is a possibility of adverse effect

on natural forests due to its commercial exploitation and conversion as charcoal which needs careful watch and review of enabling provision granted to the people. Similarly, woody roots of Phog, an excellent soil binder occur extensively in Thar desert area, are mercilessly cleared by farmers for meeting fuel wood demand in neighbouring states. This practice needs to be discouraged or else it will destabilize desert and increase desertification process.

- 5.5.4. In order to reduce demand, fuel efficient stoves and smokeless Chullaha need to be popularized with proper extension mechanism. Solar Cookers need to be promoted besides promotion of Pressure Cookers in rural areas of Rajasthan. Cooking Gas cylinders can be provided in subsidized rate around PAs to reduce illicit felling of trees.
- 5.5.5. Extensive Silvi Pastoral Plantations with community participation, development of irrigated pastures along IGNP areas, Resuscitation of Grass Birs under control of Forest Department will enhance grass and fodder production. Encouraging local people to create Fodder Banks and providing incentive to farmers for raising green fodder will be given top priority. Besides, breed improvement of cattle and encouraging stall feeding by enhancing grazing fees will reduce demand.
- 5.5.6. Farmers treat bamboo as poor man's timber. Special efforts need to be undertaken for promoting bamboo as an important agro forestry crop under program of National Bamboo Mission.
- 5.5.7. Since most tree species in natural forests exudes gum and oleoresins in the past large scale depletion noticed in Salar, Dhak, Karaya, Dhawra, Guggal etc in forest areas. Over tapping of gums by creating injury with blaze resulted mortality of these species and many of them are threatened to extinction. Moratorium on gum tapping can be clamped time to time after periodic review.
- 5.5.8. For increasing production of Tendu leaves, cultural operations in forests are to be practiced as this industry alone provide large scale employment opportunities to tribal pluckers in lean seasons as well as large number of people engaged in its processing, transport and actual biri making as cottage industry.
- 5.5.9. Large number of people in forest fringe villages is dependent on extraction, collection, processing, value addition and trading of array of NTFP. But due to ignorance in handling of these products, number of the tribal people barter these valuable products in exchange of their daily need items. Exploitation by money lenders does not allow them to get reasonable price. There is no organized market for NTFP. Facilitating mechanisms can be developed to make these NTFP as livelihood means.
- 5.5.10. Large number of medicinal plants are available in forests which are being used in local health traditions for cure of many diseases. This indigenous knowledge of the community needs to be documented

and if its efficacy is established through research, need to be patented in favour of the community. The wild gene pool of medicinal plants needs to be conserved by establishing Medicinal Plant Conservation Areas (MPCA). For commercial extraction, agronomic practices can be developed to be adopted by enterprising farmers. In natural forests and plantations, medicinal plants need to be planted wherever feasible silviculturally. Collection, processing, value addition can be done by local people through imparting skill to them. A chain of herbal garden is to be raised in various eco climatic conditions to sensitize people about these plants and to explore their therapeutic values. Facilitation in marketing of these products with proper networking with herbal industries will benefit local communities in the long run. Efforts shall be made to collect database for actual demand and supply of each of these medicinal plants to chalk out proper strategy of conservation and development.

5.6 **Enhancement of Productivity**

The existing average growing stock of the state forests is around 10 Cu Mt per ha as against 74 Cu Mt per ha of the country. There is enormous potential to enhance the growing stock by providing proper material inputs as well as by using site specific technologies coupled with intensive management practices.

- 5.6.1. Tree Improvement shall be given top most priority by selection of isolated candidate plus trees with superior phenotypic behaviors and Seed Stands from plantations or natural forests by selected removal of inferior phenotypic trees and it should be ensured to collect seeds, vegetative cuttings and propagules for macro or micro propagation in the state in future.
- 5.6.2. Seedling Seed Orchard or Clonal Seed Orchard shall be set up in different regions as far as possible. State Silvicultural Wing shall ensure to provide certified seeds of various species. Genotypically superior trees will be identified after multi-locational provenance trials followed by progeny trials.
- 5.6.3. Modern hi tech nurseries with temperature and humidity controlled Mist Chambers and Net Houses will be used to produce planting stock by using root trainers using manipulated medium.
- 5.6.4. Quality Planting Materials (QPM) shall only be used in raising plantations everywhere irrespective of initial cost increase. Bio fertilizers like Rhizobium and Mycorrhiza shall be used for boosting up the growth.
- 5.6.5. In situ soil moisture conservation practices shall be used extensively for increasing soil moisture. In pit digging wherever possible mechanical Auger with tractor can be used for getting worked up soil up to 5 feet depth for root development. For better productivity, intensive soil working involving land leveling, site clearing etc should not be compromised for minimizing costs.

- 5.6.6. Subsidiary Silvicultural Operations like pruning, singling and tending will be taken up besides protecting seedlings from loo, frost and drought besides protection from stray domestic and wild animals, termites and other fungal and insect pests during juvenile stage of plants.

5.7 **Checking Land Degradation**

- 5.7.1. The catchments of river systems in the state will be managed on integrated watershed approach for increasing sustainable water supply in downstream areas by appropriate interventions including forestry activities.
- 5.7.2. Treatment of catchments of major, medium and minor irrigation dams for reducing silt loads and enhancing life of these costly projects will be the prime responsibility of Irrigation Department and shall be integral part of the project cost in future. In case of existing dams if funds will be provided from the maintenance costs of these dams, Forest Department can take up treatment of catchments areas. However, the forest department will undertake the watershed development activities in and around the forest areas.
- 5.7.3. Reclamation of ravines in northern and eastern part of the state is a major challenge. These ravines will be treated with appropriate technology adopting planting of local resilient species and intensive soil-moisture conservation structures in the forest areas with the active participation of people.
- 5.7.4. There is large chunk of problem land in the state which is saline and alkaline. These lands can be developed by planting local tolerant species and soil improvement techniques such as chemical and physical treatment.
- 5.7.5. Water logged areas along Indira Gandhi Canal, Mahi and Chambal canals can be reclaimed by adopting proper soil working technique with tolerant species like Arjun, Jamun, Eucalyptus besides providing appropriate drainage of excess water.
- 5.7.6. Reclamation of mined areas is primary responsibility of miners on the principle of polluter will pay. Due to deep mining not only the dug up areas are devoid of top soil but the overburden is dumped over extensive area with rocky boulders and inert soils. These areas can not be restored to green cover without providing nutrient rich soils for planting. Reclamation of mines should be in-built conditions for lease holders while granting of lease in future so that lessee will set apart top soil in the beginning in planned way.

5.8 **Combating desertification**

Two third of the state of Rajasthan is under Thar desert spread over in 12 districts in western part of the aravalli hills with very inhospitable climatic conditions like low and skewed rainfall, wide fluctuation of diurnal and seasonal temperatures, high wind velocity and low humidity etc. coupled with

adverse edaphic conditions there is sparse vegetation all along the desert tract. However, due to uncertainty in agriculture the people of the desert are highly depended on livestock rearing with pastoral economy. Firewood and fodder are twin necessity of the people living in this area. The following measures will be undertaken for combating desertification.

- 5.8.1. Shelter belt plantation can be raised with tree species in the perpendicular direction of the prevailing wind velocity. Since, the crop production increases in the leeward side of the shelterbelt up to 20 times of the top height of the tree species in the shelterbelt; these shelterbelts should be raised in repetitive manner to increase agricultural production in the fields. The design of the shelterbelt can be taken in a pyramidal fashion with the tallest tree raised in the center. People will be encouraged to undertake shelterbelt plantations in continuous manner without a break else gushing winds through the breaks will have tunneling effect for further destruction. These shelterbelt plantations apart from checking the desertification and increasing crop productivity can supply fuel wood and fodder to the local farmers.
- 5.8.2. Block plantations can be raised in silvipastoral model on all vacant lands irrespective of their ownership for arresting the desertification process and meeting the needs of the local people besides ameliorating the local harsh climate.
- 5.8.3. 58 percent of the desert tract of Rajasthan is under sand dunes. Some of these dunes are stabilized and semi-stabilized, whereas considerable numbers of sand dunes are in an active form threatening roads, canal, railway tracts, agricultural fields and habitations. However, 5 percent of these sand dunes are either in government or community ownership where as the rest 95 percent are in private ownership. The people of the area should be encouraged to treat the dunes in their agricultural fields by adopting suitable technology under silvipastoral / hortipastoral models. Sand dune stabilization particularly the active dunes are of paramount importance and needs to be immediately addressed through massive afforestation by adopting the suitable technology.
- 5.8.4. Plantations in the desert areas should be taken up with indigenous xerophytic micro phyllus species like Khejri, Kumtha, Rhonj, Rohida and Ber etc. Exotic species can be used in lesser quantity depending upon the locality factors. Adequate rainwater harvesting structures like tanka in all the plantation areas would be constructed to store rain water for irrigation of the planted species.

5.9 **Wild life and biodiversity conservation**

Rajasthan has two biographic zones of arid and semi arid plains distinctly divided by Aravali hill region having rich biodiversity of flora and fauna. There are 2500 species of plants, 450 species of birds, 50 species of mammals, 20 species of reptiles and 14 species of amphibians besides numerous species of insects, butterflies, micro flora and fauna. Currently there are two National

Parks, 25 Wildlife Sanctuaries and 2 Conservation Reserves declared in the State under Wildlife Act which is covering almost all diverse ecosystems of the State and all species of flora and fauna which are part of these bio-diversity rich ecosystems. Outside these Protected Areas, some bio-diversity rich forest areas are set apart as Medicinal Plant Conservation Area(MPCA). Orans and Gauchars, outside forest areas are also repositories of bio-diversity. For protection, development and conservation of these areas following strategies can be adopted as follows:

- 5.9.1. For the conservation of biodiversity, a minimum of 5% geographical area of the state should be set apart and declared as protected/conservation areas.
- 5.9.2. Inventorisation of biodiversity of each of these areas shall be carried out meticulously with particular emphasis on critically endangered, endangered, threatened and rare species as per IUCN criteria. Such flora and fauna, if needed, can be included in the VIth Schedule of Wildlife Act.
- 5.9.3. Both ex-situ and in-situ conservation can be planned. As an in-situ conservation measure, under provision of the Wildlife Act a chain of National Parks and Wildlife Sanctuaries will be constituted possibly be interconnected by suitable corridors for transmission of genes, known as Protected Areas Network (PAN)
- 5.9.4. Boundaries of Protected Areas will be rationalized to minimize conflicts with people living around, wherever required.
- 5.9.5. Further fragmentation of existing habitats will be discouraged.
- 5.9.6. Each Protected area will be managed scientifically by a Management Plan highlighting Habitat Improvement, Control Measures, Tourism restrictions and Food chain etc. which can be monitored and modified as and when needed with the approval of the competent authority.
- 5.9.7. Eco-development Committee (EDC) will be constituted for the protection and conservation of protected areas. EDCs will be responsible to develop adjoining non forest land for meeting the needs of fodder and fuel without depending on these protected habitats and also skill development may be undertaken among community members to provide them income generation through alternate livelihood means.
- 5.9.8. Identification of wetlands outside forest will be undertaken. Efforts will be made to develop them and protect the migratory birds from poaching.
- 5.9.9. The veterinary services in the department will be strengthened to tackle contagious diseases and to attend other immediate health needs of wildlife.
- 5.9.10. For mitigating man-animal conflict, long-term and short-term measures will be undertaken.

- 5.9.11. Protocols for the rescue and rehabilitation of animals straying outside forest areas will be developed.
- 5.9.12. A regular system of monitoring of habitat and species will be developed.
- 5.9.13. Every National Park and Sanctuaries will have eco-sensitive zones as prescribed under EPA, 1986 for buffering negative impacts of polluting industries on natural habitats.
- 5.9.14. Effective Vaccination of the domestic animals around the protected areas will be undertaken with the help of animal husbandry department to check spread of various animal diseases from domesticated animals to wild animals.
- 5.9.15. Breed improvement of the domestic cattle around protected areas can be done for reducing poor quality stock of cattle.
- 5.9.16. In protected areas of south Rajasthan although rich in florist diversity these areas has inadequate prey base to support carnivore population. Efforts are to be made to increase ungulate population and wild boars keeping them in the enclosure and releasing them in the wild.
- 5.9.17. Degraded Tiger habitats such as Ramgarh (Bundi), Bhainsrorgarh (Chittorgarh), Darrha (Kota) and Jamua Ramgarh (Jaipur) will be improved by required protection and habitat improvement including enhancement of depleted prey base. Sloth bear population in South Western part of the aravalli need to be protected by declaring the area as a sanctuary especially Jaswantpura Hills in Jalore district.
- 5.9.18. Special effort will be made for grass land development in Desert National Park (DNP) to increase the population of Great Indian Bustard and other pastoral fauna.
- 5.9.19. In order to tackle wild life related crimes, a State Wild life Crime Bureau need to be established for intelligence gathering and speedy investigation of the wild life related crime.
- 5.9.20. Education and awareness raising has been the weakest link in the chain of biodiversity conservation. A massive programme of nature interpretation, education and extension is to be launched with the help of specially trained personnel and NGOs. Each Protected Area shall have one Interpretation and Education centre with adequate facility of extension. Special focus needs to be given to school children in this awareness generation effort.

5.10 **Orans / Dev Van**

- 5.10.1. Orans / Dev vans are islands of good forests and repositories of rich biodiversity. These orans / dev van are an excellent examples of people's religious faith linked with conservation. Efforts will be made to provide necessary financial and legal support in consonance with local religious ethos of the local community.

5.10.2. District wise inventory and database will be prepared for all such areas with the support of local NGOs and religious trusts. These areas declared as deemed forest as per the provision of Forest Conservation Act (1980). However, demarcation of such orans / dev vans on the ground as well as on cadastral maps is an urgent necessity.

5.10.3. For management of these orans / dev vans a committee of local people and trustees of the temple can be constituted and fully empowered to protect these areas.

5.11 **Pasture Development**

Animal husbandry practises and dairying being one of the major source of livelihood, people of the state are largely dependent on pastures and grazing lands. For development and management of the pastureland emphasis on the following will be given:-

5.11.1. The traditional grass-birs under the control of the department will be improved by removing alien invasive weeds through mechanized means and then developed with sowing of perennial local grass species. Top feed tree species will be also planted at regular intervals so that during drought when the grasses will not be available leaf fodder can be used as animal feed.

5.11.2. Since large number of cattle graze on grass birs beyond its carrying capacity, such pasturelands deteriorate very fast by trampling and soil compaction hence grazing of cattle can be discouraged whereas the local people will be encouraged to cut and carry grass for stall feeding. The grazing fee in the forest areas will be enhanced to promote stall feeding as well as replacement of small ruminants by more productive bovine population.

5.11.3. The traditional gauchars (grasslands) of community ownership will be developed by involving local Panchayats.

5.11.4. Efforts will be made to improve and develop pastures on private lands especially in Western Rajasthan.

5.11.5. Agri-silvipastoral practices will be promoted to augment the availability of green fodder in the state.

5.11.6. Fodder banks will be established by encouraging the local people to collect and store grass in modern silos during good rainfall year from government grass birs to augment the availability of dry fodder during famine and drought.

5.11.7. Management of Grass-birs should be entrusted to local people through Joint forest Management

5.11.8. Large number of sheep from Western Rajasthan migrates in rainy season to good forest belts of Eastern and Southern Rajasthan causing damage and destruction to the forest apart from causing serious law and order problem enroute during migration. Some of the

migrating herds even enter into neighbouring states like Madhya Pradesh, Maharashtra, Uttar Pradesh and Gujarat causing inter-state disputes. Even few herds of sheep from Western Rajasthan perennially reside in that area causing destruction to the forest and grazing lands. These nomadic sheep graziers need to be settled by developing pasture along the I.G.N.P areas.

5.12 **People's Participation**

Participatory approach will be the central to forest management in forest as well as non-forest areas. Following strategies will be made to make it more effective:

- 5.12.1. No forestry development works in forest or non forest areas will be undertaken without people's participation, by creation of Joint Forest Management (JFM) Committee comprising of local people in the State.
- 5.12.2. The State Government shall bring out resolution on JFM time to time based on its evolution and experienced gained by highlighting salient features in consultation with all the stake holders and the Department will bring out working guidelines to facilitate uniformity of practices in subordinate offices. Possibility of framing of rules under provision of Act can be explored.
- 5.12.3. Joint Forest Management Committee constituted so far can be classified as active, moderately active and less active on the basis of certain pre-determined criteria through periodic monitoring. Those committees are moderately active or less active need to be supported so that they come in the category of active committees.
- 5.12.4. Alternative livelihood options of forest dependent communities will be given prime importance through formation of Self-help Groups. Skill development of these groups is needed through constant efforts of capacity building and to encourage them to start micro enterprises for income generation by providing them seed money.
- 5.12.5. Joint Forest Management Committee are to be encouraged to develop a corpus fund from the outside in order to maintain physical assets created in their areas including plantations.
- 5.12.6. Forest Department should empower women members as well as economic disadvantaged groups of the committee to enable their capacity in decision making process.
- 5.12.7. Members of the committee will be specially trained in accounts keeping, conflict resolution and silvicultural operations.
- 5.12.8. For sustainability of JFM, technical, social, economic, managerial and institutional sustainability shall be crucial.
- 5.12.9. Public Private Partnership in forest areas will be encouraged within the framework approved by GOI through tri-partite agreement

between the industry, forest department and JFM committees for undertaking plantations with specific purposes.

5.12.10. Three tiers monitoring at Division level, District level and State level will strengthen JFM in the state. Participation of NGOs is very essential to link Department and community members on common platform.

5.13 **Research**

The State will promote forestry and allied research that is responsive to the requirements of the stakeholders for quality, productivity and cost effectiveness in the implementation of the Forest Policy:

5.13.1. Identification of problems for research and their prioritization through periodic dialogue between all stakeholders like managers, NGOs, industries and even villagers before getting them approved by Research Advisory Groups constituted with forest officials, scientists from Research Organizations and representatives of Stakeholders.

5.13.2. Applied and adaptive nature of Research will be given priority by the department. The technologies and management practices developed by other national and international research organizations and found relevant to Rajasthan will be tested and adopted.

5.13.3. The department will make use of the expertise available in various research institutions and departments to undertake forestry research projects. Collaborative research with reputed forestry research institutions shall be encouraged.

5.14 **Extension and Communication**

Forest department is engaged in the onerous task of managing natural resources against heavy odds. It is necessary that the public and the decision-makers are informed of the initiatives, challenges and achievements of the department. In this regard the following steps will be taken:-

5.14.1. Suitable mechanism will be developed to disseminate information related to departmental actions and programmes to all sections of societies.

5.14.2. Publicity & Extension wing of the Department will be suitably strengthened with modern means of communication and extension.

5.14.3. Looking to the absence of Forestry Extension cadres, Agriculture Extension Officers can be properly trained to educate and inform villagers about trees and forests, agro forestry, economic benefits of tree crop etc.

5.14.4. The department will also post maximum possible information on the web-site of the department for keeping the public aware of the activities and achievements of the department.

5.14.5. Press and Electronic Media can be sensitized about forests, wildlife and other biodiversity conservation initiatives taken by the

communities for disseminating the success stories to citizens by conducting periodic Media Visits in different parts of the State.

5.15 **Human Resource Development**

Due to paradigm shift in Forest Management from regulatory and control by the Forest Administration to anthropocentric approach, a fundamental change in the 'mindset' is required at all levels of personnel, who are custodian of this natural resource. Besides, the personnel shall have to keep them abreast with ever expanding frontier of knowledge for updating their professional competences. Keeping in view these objectives, following strategies can be adopted:

- 5.15.1. The professional skills of the forest personnel will be improved by imparting periodic in-service training. For specialized training they will be deputed to Institution of repute within and outside the country.
- 5.15.2. Induction training shall be mandatory for all levels of newly recruited field staff for inculcating necessary professional skills.
- 5.15.3. The department will undertake exercise on Training Need Analysis for different cadres of forestry personnel as well as villagers, NGOs and all other stakeholders and on the basis of which design a curriculum to implement training and thereafter to have a follow up for monitoring.
- 5.15.4. Existing forestry training institutions in the state will be modernized and strengthened and training curriculum will be restructured to meet the current challenges.
- 5.15.5. A system of incentives and rewards will be put in place to motivate the staff for improved performance.

5.16 **Forest Administration & Staff Welfare**

The protection, development and management is dependent on effective forest administration. The lack of trained man power in the department has been a matter of concern for some time. Besides delegation of power to the level of Assistant Conservator of Forest and Range Officer is imperative for the effective and quick disposal of matters pertaining to execution of works and other related matters. Emphasis will be given to the following for effective forest administration:

- 5.16.1. All vacant post at all the level will be filled up in a time bound manner.
- 5.16.2. Recruitment of staff at all the level will be undertaken to fill the gap of shortage of manpower in the department.
- 5.16.3. A system will be put in the place so that the field level functionaries and ministerial staff should get at least three promotions in their entire carrier.
- 5.16.4. A system of incentives and rewards will be introduced to motivate staff in checking forest offences.

- 5.16.5. Generally grass root level frontline staff lives in remote areas where enough infrastructures for education and medical facilities are not available. In district headquarter housing facilities may be provided to keep their families.
- 5.16.6. A transparent policy for transfer/posting in consultation with all cadres of staff in the Department can be chalked out to avoid staff grievances.
- 5.16.7. Staff welfare fund can be created in Forest Department to give immediate relief to staff at the event of death or physical handicap while discharging duties in the forest.
- 5.16.8. A MIS may be developed and institutionalized in the Department for flow of information with facility of web updating periodically.

5.17 **Modernization**

Modernization is an integral part of any dynamic organization. Change of technologies is essential for sound and effective management systems. Modernization in the following areas will be undertaken by the department:

- 5.17.1. An effective means of communication systems will be made available to all the field level functionaries so that day to day information with regard to forest offences and other important matters reach to the concern division, regional offices and at the headquarters.
- 5.17.2. Office automation will be given priority. Computers with internet facilities, printer, etc. will be provided up to the level of Range headquarters.
- 5.17.3. Provisions will be made to provide vehicles up to the level of range officers for effective protection of forest and wildlife.
- 5.17.4. Modern survey equipments like GPS, Total Station, EDMs; PDA, Digitizers, Scanners, Data Recorders and other required scientific equipments will be provided at all levels.
- 5.17.5. The offices at the headquarters will be provided with all essential modern technologies for effective monitoring and dissemination of information to the State Government and Central Government.

5.18 **Financial Provisions**

Due to inadequate budgetary support, forestry sector of the State face perennial shortage of financial crunches. In order to increase investments in forestry, following steps may be taken

- 5.18.1. The sectoral allocation in the annual plan budget of the State Government should be enhanced for effective forest protection, development and management.
- 5.18.2. Efforts will be made to obtain soft loans from Overseas Development Assistances for implementing various forestry and wild life projects from bilateral/multi-lateral donor agencies.

- 5.18.3. Efforts will be made to draw more central assistance under centrally sponsored scheme for the implementation of specific forestry, soil conservation and wildlife projects from the Ministry of Environment & Forests, Ministry of Rural Development, Ministry of Agriculture, Ministry of Tourism, Ministry of Non Conventional Energy Sources, Ministry of Biotechnology etc.
- 5.18.4. Institutional financing can be availed from NABARD, NOVOD etc to implement projects in RIDF and allied schemes.
- 5.18.5. NREGA funds will be utilized in a big way for eco-restoration of degraded forest and for the development of large scale soil and moisture conservation structures in forest and wild life areas.
- 5.18.6. State CAMPA Funds will enable the Department to take up innovative projects in forestry and wildlife out of the money realized out of NPV during diversion of forests under FCA 1980.
- 5.18.7. Special funds may be sought from Finance Commission for conservation and protection of forests and wildlife.
- 5.18.8. Corporate investment can be attracted within the framework of guidelines to develop plantations for supplying raw materials to corporate sector through involvement of JFM committees to provide them employment opportunities and also getting sustained income. Funding welfare projects for alternate livelihood promotions in and around forest fringe villages can be sponsored also by Corporate Sector under the obligation of Corporate Social Responsibility.
- 5.18.9. Donations can be raised from Wildlife tourists, Trusts and Private individuals by forming Societies/ Foundations to develop biodiversity in forests and even eco surcharge charged over and above entry fees in PAs can be ploughed back for development of PAs and welfare of the Protection Staff.
- 5.18.10. Sponsorships and patronization by Industrial houses, Corporate Offices, Religious Trusts, NGOs of repute like Rotary/Lions, Banks and financial Institutions, Mining Associations, NRIs and nonresidents of Rajasthan can be permitted for forestry and wildlife development.

5.19 **Monitoring and Evaluation**

- 5.19.1. Generally the nature of forestry programme is such that due to long gestation period of the crop, management has to wait for a long time to arrive at conclusion. Hence, Monitoring & Evaluation of all activities of the department periodically for getting necessary feedback which needs to be analyzed for taking corrective steps by mobilization of men and materials simultaneously. Ecological, social and financial indicators both qualitative and quantitative can be preset for value judgment of each activity.
- 5.19.2. Evaluation of activity at the end of the program will help to take corrective action in future program. Therefore, at the conceptual stage only indicators can be decided thoughtfully, so that evaluator

can understand correct perspective. In recent years, Logical Framework Approach is widely followed in project design.

- 5.19.3. For carrying out of M&E, both internal and external agencies can be deployed. Forest Department will institutionalize the M&E process and think for a proper organizational set up. However, participatory evaluation is suggested to get proper feedback from beneficiaries by following PRA technique which is usually followed while preparing village level micro planning.

5.20 Review of Implementation of State Forest Policy

A State Forestry Advisory Council will be established at the level of Hon'ble Chief Minister of Rajasthan with Cabinet Ministers in charge of Finance, Forest, Tribal Development, Urban Development, Mining and Tourism besides members from top beurocracy as its members. It will render its guidance from time to time, while reviewing the implementation of state forest policy and its implementation. Corrective steps in the policy can be taken as and when required.

***For any suggestions & comments please send email to
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