Annexure-II

Indian Forest Management Standard

1. Introduction

The National Working Plan Code 2023 (NWPC 2023) envisions achievement of Sustainable Forest Management (SFM) in the country. Sustainable Forest Management offers a holistic approach to ensure forest activities deliver social, environmental, and economic benefits, balance competing needs and maintain and enhance forest functions now and in the future. Thus, the NWPC 2023 visualizes that the state forest departments (SFDs) conduct the management effectiveness evaluation on the implementation of the working plan prescriptions based on the framework developed by Ministry of Environment, Forests & Climate Change for the purpose as Indian Forest Management Standard.

This standard for sustainable management of forests is primarily derived from the rich heritage of scientific forest management in India. It is also in sync with internationally evolving system of criteria and indicators for SFM. This Standard has been developed from the Bhopal-India process as National set of Criteria and Indicators for Sustainable Management of Natural Forests in India.

The Standard is a basis for monitoring which sets guidelines for sustainable forest management in terms of broad framework of Criteria, Indicators, and Verifiers that recognizes that forests have environmental, economic and social objectives. Criteria are categories of conditions or processes by which SFM can be assessed, and each criterion is characterized by a set of indicators that can be monitored to assess change over time. Each indicator is accompanied by verifiers which are the data or information for assessing its status or change over time. State Forest Department / Working Plan Officers can adapt these indicators and verifiers according to the specific situation and local needs ofthe Forest Division.

The SFDs may consider engaging specialized agency for supplementing data for evaluation ofprogress against set indicators.

1. Definitions

1.1 Defining Criteria

A criterion is defined as an aspect of forest management that is considered important and by which sustainable forest management may be assessed. A criterion is accompanied by a set of related indicators that describe a state or situation, which should be met to comply with sustainable forest management.

This standard includes eight criteria as specified in NWPC 2023

1. Maintenance/increase in the extent and condition of forest and tree cover.
2. Maintenance, conservation and enhancement of biodiversity including wildlife.
3. Maintenance and enhancement of forest health and vitality together with establishment ofregeneration.
4. Soil and water conservation.
5. Maintenance and enhancement of forest resource productivity.

6. Optimisation of forest resource utilisation.
7. Maintenance and enhancement of social, economic, cultural benefits, and
8. Adequacy of Policy, legal and institutional framework.

The order of presentation of the criteria does not indicate priority or relative importance.

1.2 Defining Indicators

An indicator is defined as a quantitative, qualitative or descriptive attribute that, when measured or monitored periodically, indicates the direction of change in a criterion. Indicators identify the information needed for assessing and monitoring change, both in the forest itself (outcome indicators) and as part of the environmental and forest management systems used (input and process indicators). A time series of the values of any measurable or clearly descriptive indicator can provide information on the direction of change, either towards or away from SFM. However, the indicators cannot by themselves establish the sustainability of forest; rather require an assessment through a set of verifiers.

1.3 Defining Verifiers

Verifiers are the data or information needed for assessing an Indicator. They define the specific details that would show whether an indicator is establishing sustainability of forest. The verifiers are checked against a baseline, average value, published standard value, or collective wisdom of stakeholders.

1.3.1 Baseline

Baseline or benchmark is the reference point from which the trend or change is projected. With respect to SFM, this baseline describes the status of the indicators at the time of data collection. The first set of data collection undertaken in a forest division at the time of working plan preparation will constitute the baseline for the subsequent data collection. Future direction of change and progress towards sustainability can be assessed against this reference year/data.

1.3.2 Average value

The indicators for which it's difficult to reach on the fixed norm due to lack of defined benchmark, the data of previous 3-5 years can be used to find out the average value.

1.3.3 Published Standard values

The published values and data available from authentic sources can be used as a norm/standard. Comparison of the yearly values of the indicators can be done with the national/world average to reach on the acceptable standard value.

1.3.4 Collective wisdom of stakeholders

In some case it’s difficult to reach on a concluding norm/standard value. In such cases the norm can be decided though discussion among different stakeholders.

1.4 Intended situation: The intended situation describes expected outcome with respect to the particular indicator in the context of the forest division.

1.5 Periodicity: Periodicity is a time interval between two successive data / information. It is suggested in manual as data collection interval at the indicator level and periodicity of verifiers changes as per prescription and situation.

2. Criteria, Indicators and Verifiers:

The following set of criteria, indicators, verifiers and periodicity of data collection may be used for assessing each of indicators within the eight criteria of this standard.

Criterion 1: Extent and Condition of Forest and tree cover

Forest boundaries in India are legally defined and activities to be done within the forests are regulated. The diversion of forests for non-forest use is governed by the Forest Conservation Act 1980. The increase in forest cover is primarily achieved in India through the trees outside the forests. The changes in the legal status and the extent of forest area reflect whether the cover is maintained or increased or reduced. The change in extent and the status of the forests are indicatedby the following:

Indicator 2.1.1: Area of forests under different legal status (Reserved Forests/Protected Forests/Un-classed Forests /Village Forests and any other forests)
Indicator 2.1.2: Area of different forest types
Indicator 2.1.3: Change in the category of forest cover
Indicator 2.1.4: Area of different working circles
Indicator 2.1.5: Area of the Trees Outside Forests (ToF)
Indicator 2.1.6: Details of area of forests diverted under FCA
Indicator 2.1.7: Details of forest land where rights are given under the FRA
Indicator 2.1.8: Details of forest land under encroachments
Indicator 2.1.9: Demarcation of boundaries
Indicator 2.1.10: Details of any other factors affecting the existence of forests such as illegalmining, dumping of mining waste etc.

Indicator 2.1.1: Area of forests under different legal status (Reserved Forests/Protected Forests/ Un-classed Forests / Village Forests and any other forests)

Forests in India are legally classified as reserved forest, protected forests, village forests and un- classed forests under IFA 1927 with State specific amendments and State Specific Forest Acts and the orders of Hon'ble SC dated 12-12-1996 in the case titled TN Godavarman Thirumalpad Vs Union of India and others. There are other categories of forests as well and a compilation of the legal categories of the forests and their change, if any, over a period of time reflects on the maintenance and extent of forests of a forest division.

Intended situation: Entire forest area of the forest division is notified or recognized under different legal categories such as reserve forest, protected forests, un-classed forests, village forests, community forests, deemed forests etc.

Verifiers:

1. Updated registries of area statistics, digitised maps as per legal status.
2. Compilation of Gazette notification with number and date issued for different legal status of theforest and their change under IFA-1927 or state acts.
3. Status of digitization of forest boundaries in Geo-Coordinates boundary
4. Recognition of area as forests under revenue records, community practices or under the orders of Honourable Supreme court of India.
5. Status of mutation of Forest area in Revenue Records.

6. Notification of Diverted land under FCA.
7. Extent of Area awaiting forest settlement or final notification under IFA, 1927 or State Acts.
8. Records of various forest settlements or leases.

Periodicity: Every year

Indicator 2.1.2: Area of different forest types

Forest type is a unit of vegetation which possess characteristics in physiognomy and structure sufficiently pronounced to permit the differentiation from other such units. Description of natural forests into distinct forest types and their extent provide scientific basis for their management. The assessment in the change in the extent overtime is a reflection of alteration in productivity, and status of the forest crop which will assist in the choice of silvicultural principles to be followed for the suitable management practices.

Intended situation: Maintenance of different forest types and species composition.

Verifiers:

1. The base year status of forest types along with *Digital /* GIS map and subsequent mappingis available in the division for any change or shift analysis.
2. Inventory of change in major species composition and attribution studies (anthropogenic,natural or climatic) for the changes.
3. Action Plan if any, for mitigating the change.

Periodicity: 10 years

Indicator 2.1.3: Change in the category of forest cover

The FSI categories the forest cover based on canopy density into very dense, moderately dense, open and scrub. Change in forest cover over a period of time reflects the actual changes of forest on ground. The positive changes could be, among other things, attributed to better forest protection and related conservation measures, including compensatory afforestation, whereas negative changes could be attributed to change of land use on account of developmental projects, excessive degradation due to anthropogenic pressures, harvesting of short rotation crop etc.

Intended situation: Improvement in forest cover as per the objective of management.

Verifiers:

1. Base year data on forest cover and map is available in the division.
2. Multi-dated satellite images from FSI or state agencies are used for change analysis andpreparing change matrix.
3. Assessment of change in upward movement and downward movement of forest canopy classes. Assessment of change in open forests to moderately dense; and moderately dense forests to very dense forests, scrubs to open forests show upward movement.
4. Assessment of forest degradation in each forest type (soil erosion, species regeneration,fire affected area, area affected by grazing).
5. Actions for reducing forest degradation and enhancement of forest cover.

Periodicity: 2 years

Indicator 2.1.4: Area of different working circles

The forest is divided into different management zones as working circles based on the object of management. The working circles indicate the application of different set of silvicultural prescriptions and management practices in that area. A change in the area of working circle is often a reflection of change in the object of management and/or change in the status of vegetation.

Intended situation: Range, beat, compartments/village wise, entire forest area shall be covered in different working circles with clearly defined objectives of and prescriptions for management.

Verifier:

1. Details of area under different working circles available in the working plan with clearly defined objectives and prescriptions along with digitised maps.
2. Documentation of the change in the extent of areas prescribed in different working circles as compared to previous working plan along with critical analysis and justifications.
3. Records of annual deviation from the prescriptions in the current plan.

Periodicity: 10 years

Indicator 2.1.5: Area of the Trees Outside Forests (ToF)

Trees Outside Forests (ToF) contributes significantly to increase in the forest and tree cover of a forest division. Periodic monitoring of the change in area of ToF reflects the overall change in the forest and tree cover of the forest division.

Intended situation: Trees outside the forest should be encouraged as alternate tree source. Periodic assessment of the growing stock may be undertaken and the potential area for extension of forestry outside forests explored for sustainable land use management and sustainable supply of raw material to the industries.

Verifiers:

1. Identification of target tree species & documentation of associated agro-forestry models/ practices for ToF in the division.
2. Estimation of growing stock of ToFs.
3. Strategies to enhance the ToFs.
4. Increase in the extent of ToFs and agriculture areas brought under agroforestry.
5. Assessment of demand on Agro-forestry for different industries.

Periodicity: 5 years

Indicator 2.1.6: Details of area of forests diverted under FCA

Approvals of diversion of forest lands allowed under the Forest (Conservation) Act envisage certain mandatory conditions for mitigating the impacts of such diversions. An analysis of the compliance of these conditions and progress in notification of the Compensatory Afforestation areas as RF/PF are, therefore, important.

Intended situation: Conditions envisaged in the diversion orders are complied with and CA areas are notified as RF/PF.

Verifiers:

1. Year-wise cumulative area diverted for different non-forestry purposes.
2. Progress in creating CA and success rate of CA is assessed.
3. Compliance to Environmental management plan; Catchment area treatment plan for hydro-electric projects; reclamation plan for mining projects etc.
4. Analysis of any other impacts related to diversions.
5. Progress in notification of all CA lands as RF/PF under IFA-1927 and all state acts.

Periodicity: Every year

Indicator 2.1.7: Details of forest land where rights are given under the FRA

The FRA recognises specified forest rights in favour of forest dwelling scheduled tribes and other traditional forest dwellers and their communities. The nature and extent of individual forest rights recognised under FRA, the nature and extent/quantum of forest resources on which the community forest rights and community forest resource rights have been recognised and the management practices prevalent to be indicated.

Intended situation: Updated knowledge on the status of registration of all the claims and settlement of the genuine claims along with list of individuals and communities to whom forest area is allotted, geo-referencing of rights on the forest map, status of forest management of areas given to right- holders and its impact on sustainability of eco-system services.

Verifiers:

1. Maintaining updated records of all FRA cases (Individual Forest rights, Community forestrights, Community forest resource rights) in the division.
2. Digitised maps of all rights recognised in the entire forest division.
3. Area given under FRA is clearly demarcated on ground.
4. Best practices on Sustainable Forest Management under FRA

Periodicity: Every year

Indicator 2.1.8 Details of forest land under encroachments

Forest encroachment often leads to change in land use and has an impact on the integrity and quality of the forest. Encroachments could also lead to honeycombing of the forest leading to intense habit at fragmentation adversely affecting wildlife.

Intended situation: The forest to be free from encroachments to maintain ecosystem integrity. If encroachment is detected, appropriate measures taken as per existing law.

Verifiers:

1. Survey, identification & mapping of extent of encroachments in forest areas in the division.
2. Efforts made for eviction of encroachment.

3. Area freed from encroachment.
4. Effectiveness of JFM/PFM and participation of local public representatives in prevention of encroachments or in eviction operations.

Periodicity: Every year

Indicator 2.1.9: Demarcation of boundaries

Area of forests with clear demarcation of boundary with boundary pillars, trenches and other measures enables protection of forest areas and analysis of all the measures taken up for protection of forest areas.

Intended situation: Demarcation of forest area shall be well defined and secured. The forest boundaries to be clearly marked in the field and geo-referenced.

Verifiers:

1. Locations of the boundary pillars are shown on the map with latitude/longitude on villagemap or such other map of convenient scale.
2. Extent of digitisation of forest boundaries and pillars.
3. Extent of perimeter is duly noted and updated during Working Plan (WP) revisions.
4. Percentage of forest area with secured boundaries including the number of boundary pillars constructed/maintained and recorded with unique registration/identification numbers, forwardand reverse bearings, GPS readings.
5. Allocation of budget for construction/maintenance of boundaries pillars.
6. Capacity building on survey and demarcation to the staff to independently demarcate boundary as per gazette record to avoid dependence on revenue surveyors for primary survey. Creating survey cell in each division.

Periodicity: Every year

Indicator 2.1.10 Details of any other factors affecting the existence of forests such as illegal mining, dumping of mining waste etc.

Illegal mining, dumping of mining waste and other such factors have adverse impact on the existence of the forest. All measures must be taken up to stop illegal mining and appropriate mitigation efforts to rehabilitate the area.

Intended situation: Illegal mining and dumping of mining waste is stopped and mitigation measures are in place.

Verifier

1. Area affected by illegal mining, dumping of mining waste and such other practices.
2. Identification of past mined out abandoned areas and reclamation measures.

Periodicity: Every year

Criteria 2: Maintenance, Conservation and Enhancement of Biodiversity

The forests offer diverse habitats for plants, animals and microorganisms. Forest biodiversity encompasses not only the trees but also the multitude of plants, animals and microorganisms that inhabits the forest ecosystem and their genetic diversity. Higher the diversity, higher is the climate resilience and it offers better livelihood opportunities to the local communities and tribals who are dependent on the forests. At the same time, loss of biodiversity makes it difficult for the ecosystem to recover from disturbances and adversely affecting the forest dependent communities. Analysis of the impact of climate change and other factors including existing forest management may provide insight to take suitable adaptive and corrective measure for conservation of biodiversity. Different approaches are adopted in India for biodiversity conservation such as area-based conservation measures by establishing protected areas, species recovery programmes of threatened species and *in-situ* and *ex-situ* conservation programmes etc. These are indicated by the following:

Indicator 2.2.1: Adjoining Protected Areas
Indicator 2.2.2: Species diversity
Indicator 2.2.3: Details of any species-specific conservation programmes
Indicator 2.2.4: Details of species prone to over exploitation
Indicator 2.2.5: Details of unique/special habitats and high conservation value areas
Indicator 2.2.6: Details of diverse ecosystems such as grasslands, meadows, wetlands, mangroves, marine, deserts etc.
Indicator 2.2.7: Details of threats and challenges to vulnerable flora and fauna

Indicator 2.2.1 Adjoining Protected Areas

Details of adjoining Protected Areas under Wildlife Protection Act, 1972 (National Parks /Wildlife Sanctuaries / Conservation Reserves and Community Reserves/Tiger Reserves), Biosphere Reserves, Environment Protection Act, 1986 (Eco-sensitive zones/areas, Coastal Zone Regulation, Wetlands (notified under Wetland Rules) Biological Diversity Act 2002. The management of these areas which adjoins the forests has an impact on the management of the forests and the role of the forest as corridors for wildlife.

Intended situation: Prescriptions of working plans shall be harmonized with the management plans of adjoining protected areas.

Verifier:

1. List of adjoining Protected Areas (National Parks/Wildlife Sanctuaries/Conservation Reserves and Community Reserves/Tiger Reserves), Biosphere Reserves, Environment Protection Act, 1986 (Eco-sensitive zones/areas, Coastal Zone Regulation, Wetlands notified under Wetland Rules), Biological Diversity Act 2002, wildlife corridors along with digitised maps.
2. Distribution of flora & fauna and abundance in the area of the forest division adjoining the PAs.
3. Prescriptions of working plan to be in consonance to the objective of management plans of the adjoining protected areas.

Periodicity: 5 years

Indicator 2.2.2 Species Diversity

Diversity indices indicate the abundance and richness of species in a locality. Evaluation of these indices considering the management prescriptions provides insight into management options. Biodiversity richness is a proxy for the health of forest ecosystem.

Intended situation: Base year documented species diversity is maintained or enhanced under sustainable management of forests. Effectiveness of actions implemented to conserve and/or restore the species diversity of the forest area as per natural undisturbed forests of the same type, to ensure sustained livelihood of communities as an incentive to communities to participate.

Verifiers:

1. Biodiversity assessment in terms of density, frequency, total basal cover, dominance, Importance Value Index, Shannon Weiner Diversity Index and Simpsons' Similarity index etc. is done at the level of compartments/villages, beats, ranges & division level. Efforts should be made to make a base year documentation of species, habitat and genetic diversity (Taking the help of experts – SFRI/ICFRE/Local university colleges or knowledgeable individuals/ forest officers) status for future reference using GIS tools for change detections.

2. Document on vegetation structure and species heterogeneity, unique species identified in accordance to different forest types.

3. Action plan or management prescriptions for maintaining and enhancing species, habitat and genetic diversity.

Periodicity: 5 years

Indicator 2.2.3: Details of any species-specific conservation programmes

The presence of endemic, endangered species and actions taken up for their conservation, the progress and their impact.

Intended situation: Suitable action plan for conservation of endemic, endangered species is drawnand implemented.

Verifiers:

1. Approved policy and biodiversity plan and its sustainable use
2. List of species categorised as per IUCN Red List/ CAMP workshop results with IUCN participation, if available on red listing, CITES, etc.
3. *In-situ* and *ex-situ* conservation strategies in place including performance review of on-going species recovery programs.
4. Budget allocated and utilised for biodiversity conservation.
5. Regular capacity building of BMCs for conservation, sustainable management of endemic,endangered species and use of bio-resources.
6. People's biodiversity register is prepared and updated.

Periodicity: 5 years

Indicator 2.2.4: Details of species prone for over exploitation

Some species are more vulnerable to over exploitation than others especially those who have a narrow ecological niche, and those which produce a smaller number of progeny. Identification of such species and their distribution and extent provide insight into need for management interventions.

Intended situation: Sustainable harvest protocols for overexploited species to be developed, standardized and implemented across the working plan area.

Verifiers:

1. List of species prone to over exploitation in the area.
2. Development of sustainable harvesting protocols for important NTFP / Medicinal plant species and awareness creation thereof.
3. Special focus on endangered species.

Periodicity: 5 years

Indicator 2.2.5: Details of unique/special habitats and high conservation value areas

Identification and mapping of the unique / special habitat and high conservation value ecosystem forms basis for special management interventions, if any, which may include inviolate areas.

Intended situation: All unique habitats and high conservation value areas identified along with their conservation plans approved and implemented.

Verifiers:

1. Documentation of high conservation values associated with unique/special habitats including in violate areas and their mapping.
2. Management strategies specifically in place for unique habitat.

Periodicity: 10 years

Indicator 2.2.6: Details of diverse ecosystems such as grasslands, meadows, wetlands, mangroves, marine, deserts etc.

Identification and mapping of the ecosystems such as grasslands, meadows, wetlands, mangroves, marine, deserts etc. and their change overtime forms basis for sustainable management interventions.

Intended situation: Appropriate strategies for management of diverse ecosystems such as grasslands, meadows, wetlands, mangroves, marine, deserts etc. are in place.

Verifiers:

1. Identification & mapping of diverse ecosystems such as grasslands, meadows, wetlands, mangroves, marine, deserts etc. with base year for detecting change therein over time.

2. Assessment of ecological conditions of these diverse ecosystems.
3. Formulation of strategies for the maintenance and improvement of their ecosystem functions.

Periodicity: 5 years

Indicator 2.2.7: Details of threats and challenges to vulnerable flora and fauna

Habitat fragmentation and unsustainable extraction and trade are serious threats that affect the population of flora and fauna. An analysis of various threats will help in formulating mitigation strategies.

Intended situation: Threat and challenges to vulnerable flora and fauna on account of anthropogenic disturbances such as habitat fragmentation, unsustainable extraction and trade together with impact of climate change if any, are assessed and mitigation strategies are in place.

Verifiers:

1. Listing of changes in direct and indirect drivers of disturbances.
2. Analysis of any fresh threats to vulnerable flora & fauna.
3. Formulation of adaptive mitigation strategies for the changes.
4. Implementation of mitigation strategies.

Periodicity: 5 years

Criteria 3: Maintenance and Enhancement of Forest Health and Vitality

Natural forests are affected by various anthropogenic factors such as grazing, encroachment, forest fire, invasive alien species etc. Forest area is also affected by natural phenomenon like flood, landslides, windstorms, pests and diseases etc. Presence or absence of regeneration is a better indicator on the health of a forest ecosystem. If the forest is poor or inadequate in regeneration, then it indicates that the health of the forest is poor and compels the manager to take immediate action to obtain the regeneration by appropriate silvicultural interventions and by removing the factors that inhibit the regeneration and their establishment. Forest vitality is the ability of the forest ecosystem to survive external disturbances and unfavorable conditions. A forest ecosystem that has low vitality has a limited capability to recover from any unfavorable condition or natural disturbance. Low vitality is normally caused due to repeated disturbances with little time to recuperate and it must draw the attention of the manager to take immediate steps to remove or mitigate the impacts of those disturbances.

There are various factors that influence the forest health and its vitality as indicated below:

Indicator 2.3.1: Status of regeneration of the principal species and its associates
Indicator 2.3.2: Details of areas affected by forest fire
Indicator 2.3.3: Area affected by natural factors such as flood, landslides and windstorms etc.
Indicator 2.3.4: Area affected by and protected from grazing
Indicator 2.3.5: Area infested with invasive alien species

Indicator 2.3.6: Details of incidence of pest and diseases
Indicator 2.3.7: Forest degradation due to pollution
Indicator 2.3.8: Other drivers of forest degradation

Indicator 2.3.1 Status of regeneration of the principal species and its associates

The status of forest regeneration is estimated during the field survey. The regeneration status could be adequate, moderate, or poor. In case the regeneration is inadequate or poor, then the factors that inhibit regeneration must be analysed and brought out clearly to enable suitable silvicultural/ management interventions.

Intended situation: Adequate measures are taken to assess and ensure the regeneration of principal species and associates.
Verifiers:

4. Assessment and categorisation of regeneration status in to adequate, moderate, and poor ofprincipal species and associates.
5. Factors that inhibit regeneration are documented and analysed.
6. Suitable silvicultural /management interventions are prescribed and implemented.
7. Assessment of the efforts made for successful assisted natural regeneration or artificial regeneration.

Periodicity: 5 years

Indicator 2.3.2 Details of areas affected by forest fire

Forest fire is one of the agents that has a direct impact on the regeneration and vitality of the forest ecosystem. Uncontrolled fire has a deleterious effect on the regeneration. Repeated fire impacts the capacity of the forest to recover from its impact on the ecosystem and thus reduces the vitality of the ecosystem. Fire frequency mapping and preparation of fire vulnerability maps help ineffective forest fire management. The use of real time monitoring tools is potential mechanism for effective fire management

Intended situation: Adequate measures are in place to prevent forest fire**.** In case of occurrence of Forest fire incidences, they are timely detected and controlled while adequately reported along with their identified causes and impacts.

Verifiers:

1. Field staff enabled for utilisation of real time fire alert system of FSI or any other informationsystem for timely reporting of forest fires.
2. Forest fire prevention plan is prepared and implemented.
3. Forest fire management plan is prepared and implemented.
4. Impact of forest fires on the ecosystem functionality needs to be monitored on regular basis.
5. Description of forest fire response teams and their achievements.
6. Budget allocations and their expenditure.

Periodicity: Every year.

Indicator 2.3.3: Area affected by natural factors such as flood, landslides and windstorms etc.

Documentation and assessment of all incidences of natural calamities and their impact on biodiversity and ecosystems will lead to the planning for disaster management. Potential negative impacts of natural hazards proportionate to scale, intensity and risk on infrastructure, forest resources and communities will lead to identification of proactive management activities to mitigate these impacts.

Intended situation: Role of forest division in case of natural calamities such as flood, landslides,and windstorms etc. are included in the Disaster Management Plan.

Verifiers:

1. Areas prone to natural hazards are mapped.
2. Documentation of disaster occurrences and their damage caused to ecosystems and biodiversity and planning of proactive management measures into a contingency plan including constitutionof disaster response teams.
3. Budget allocations and their expenditure.

Periodicity: Every year.

Indicator 2.3.4: Area affected by and protected from grazing

Uncontrolled livestock grazing in forest areas is detrimental to forest health and ecosystem vitality. It is known to be one of the most important factors degrading the forest ecosystem. The National Forest Policy (1988) and other documents recognise that uncontrolled grazing in the forest is incompatible with sustainable forest management. Unregulated grazing affects crop (vegetation) composition and adversely impacts natural regeneration, causes soil compaction and consequently diminishes the infiltration capacity of the soil. Working Plan Officers (WPOs) may ascertain livestock numbers from Animal Husbandry departments and take the assistance of Grazing Settlement Officers to determine carrying capacity for grazing in forest areas.

Intended situation: Grazing is within the limits set by the carrying capacity of forest areas.

Verifiers:

1. Assessment of carrying capacity &impacts of grazing.
2. Implementation of measures to discourage uncontrolled grazing in the forests.
3. Reduction in the number of livestock unit dependent on forest areas for grazing.
4. Awareness creation among communities about carrying capacity and sustainable grazing.
5. Regular patrolling for preventing overgrazing.

Periodicity: 5 years

Indicator 2.3.5: Area infested with invasive alien species

Invasive alien species is a major threat to the forest ecosystem vitality and its health in terms of biodiversity. They affect the regeneration and also impact the growth of the native species. Effective steps taken for the control of invasive species positively impacts the natural regeneration of native species in forest areas.

Intended situation: Extent of the area under invasive species should be less than the baseline year. Native species are preferred over alien or exotics in aided natural regeneration (ANR), eco- restoration, re-habitation, and reforestation activities.

Verifiers:

1. Extent of area infested with invasive alien species and mapping.
2. Action plan & strategy to control invasive weeds (e.g. Lantana, Eupatorium, Parthenium etc.).
3. Implementation of appropriate techniques/protocols for weed control including plantation/ regeneration activities and/or their replacement with native species (eg: Lantana replaced by bamboo) and/or bio-natural measures against invasive species.
4. Allocated budget and their utilisation for weed control.
5. List of species used in aided natural regeneration (ANR), eco-restoration, re-habitation, and reforestation activities.

Periodicity: 2 years

Indicator 2.3.6: Details of incidence of pest and diseases

Pest and diseases affect the health and vitality of a forest ecosystem. Mapping of the extent of area affected and the frequency of such events will be useful for effective management. Adaptations of suitable silvicultural practices, use of healthy planting material, reducing the injury to the forest crop are some means to prevent incidence of disease in a forest crop. An analysis of the incidences of pest and diseases and the adaptation of different preventive measures will lead to better understanding of drivers of degradation leading to effective management prescriptions.

Intended situation: Timely reporting of disease and pest outbreaks and impact assessment of treatment measures implemented.

Verifiers:

1. Documentation of disease and pest outbreaks, their physiological and morphological impacts on native species.
2. Mapping of the extent of area affected and the frequency of such events.
3. Enumeration of infected/affected species and reporting of severity of affected health.
4. An analysis of the incidences of pest and diseases and the adaptation of different preventive measures.
5. Treatment measures undertaken directly, or in consultations with research institutions.

Periodicity: 5 years

Indicator 2.3.7: Forest degradation due to pollution

Incidence and extent of forest degradation due to pollution (soil, water, and in some cases air), andthe mitigation measures taken and the impacts thereof**.**

Intended situation: Forest degradation due to pollution are prevented in the first place and sufficient mitigation measures are undertaken in case of degradation due to pollution.

Verifier:

1. Identification of probable points of pollution for taking preventive measures.
2. Incidence and extent of forest degradation due to pollution.
3. Seasonal records of Air / Water Quality Index.
4. Research based conclusions.
5. Appropriate treatment measures.

Periodicity: Every year

Indicator 2.3.8: Other drivers of forest degradation (REDD+ initiatives)
There are other drivers of forest degradation and deforestation and barriers to reforestation. Identification of these with inputs from stakeholders shall provide further insights for better management prescriptions.

Intended situation: Specific action plan on REDD+ shall be helpful in identification as well as addressing the drivers of degradation and barriers for enhancement of forest carbon stock specific to the forest division.

Verifiers:

1. Identification & mapping of direct drivers or barriers and underlying causes or indirect drivers through stake holder consultation exercises.
2. Selection of priority drivers and enhancement activities through stake holders and expert'sconsultation.
3. Action plan for addressing the impact of drivers.

Periodicity: 5 years

Criteria 4: Conservation and Maintenance of Soil and Water Resources

Comprises of indicators of water and soil quality under influence of forests. Criterion addresses an area treated under soil and water conservation measures; duration of water flow in seasonal streams; status of wetlands in forest areas and groundwater levels from nearby wells (up to 5 km of forest area).

Indicator 2.4.1: Inventory of water bodies and sources
Indicator 2.4.2: Area treated under soil and water conservation measures
Indicator 2.4.3: Monitoring of ground water
Indicator 2.4.4: Identification of areas vulnerable for erosion and prescription for suitable treatment
Indicator 2.4.5: Mapping of riparian zones for special management prescriptions
Indicator 2.4.6: Monitoring of streams, lakes, wetlands, ponds and other waterbodies in forested catchments

Indicator 2.4.1: Inventory of water bodies and sources

The water bodies inside the forests improve the water regime of a forested watershed. Over exploitation of the ground water resources results in declining ground water levels; there is an urgent need to augment the ground water resources through suitable management interventions. Mapping of all water resources in the forests including aquifers shall form the basis for conservation and management of soil and water resources.
Intended situation: Identification and digital mapping of all water bodies and sources in the

division are done as baseline for future monitoring. Suitable management interventions are taken to augment the water bodies and resources.

Verifiers:

1. List of all water bodies and sources in the division.
2. Extent and categorisation of waterbodies are documented and digitally mapped as baseline andfuture monitoring.
3. Efforts or management interventions to augment water bodies and resources.

Periodicity: 2 years

Indicator 2.4.2: Area treated under soil and water conservation measures

The soil and water conservation measures reduce the surface flow and aid in infiltration and reduce the soil erosion. However, soil and water conservation structures need to consider total rainfall in the catchment. The Soil and Water conservation structures are highly recommended in high rainfall areas, however the same must be very carefully and judiciously incorporated in low rainfall zones as it may adversely affect the water availability in downstream areas. Water conservation in dry areas is of paramount importance considering that the country has 76% dry forests.

Intended situation: Documentation & mapping of all areas treated under soil and water conservation measures are done. Biological and bioengineering methods included in WP on watershed management principles.

Verifiers:

1. Year wise area treated under minor soil and water conservation measures (Contour trenches,gully plugging, biological & bioengineering methods etc.).
2. List & mapping of major soil and water conservation structures created (Check dams, percolation tanks etc.)
3. Present status & maintenance of structures created.

Periodicity: 5 years

Indicator 2.4.3: Monitoring of ground water

Periodical recording of water level in open wells during dry and wet seasons to determine the ground water level. It will help in the assessment of the impact of interventions taken in the catchment on thegroundwater.

Intended situation: Monitoring protocol for groundwater level assessment is in place in the vicinity of forest area.

Verifiers:

1. Periodic (Pre-& post monsoon) monitoring mechanism of water level of open wells in the 5 km vicinity of forest area with respect to annual rainfall is in place.
2. Monitoring the status of select aquifers present in the forest landscape.
3. Annual quality check of water samples.

Periodicity: Every year

Indicator 2.4.4: Identification of areas vulnerable for erosion and prescription for treatment

Identifying areas vulnerable for erosion and planting of local grasses in such areas are very effective for immediate control of soil erosion. It may be followed by tree plantation which takes time to establish. Forest soils must be kept as healthy and fertile as possible while maintaining the hydrological services.

Intended situation: Soil erosion vulnerability assessment, mapping and interventions are done. Highly vulnerable areas should be prioritised for treatment. Ideally no erosion prone areas remain untreated.

Verifiers:

1. Soil erosion baseline data and improvements in tons/Ha to be recorded.
2. Soil erosion vulnerability assessment and mapping using any of the standard methods (e.g.: Revised universal soil loss equation (RUSLE) using the parameters of Rainfall, soil, topography, crop cover, conservation practices factor) along with map for the division is done.
3. Based on assessment suitable soil and water conservation measures are planned and implemented.
4. Budgetary support.

Periodicity: 5 years

Indicator 2.4.5: Mapping of riparian zones for special management prescriptions

Riparian zones act as discharge zones and with appropriate vegetation helps in lowering of water temperature, better dissolved oxygen, less turbidity and maintenance of channel shape. In areas with low rainfall, riverine plantations are likely to have a negative impact on the stream flow. Therefore, riverine plantation should be rainfall specific.

Intended situation: Riparian zones and their status must be maintained and improved w.r.t base year. Negative impacts of silvicultural interventions on the quality and quantity of water resources shall be reduced, soil and water erosion shall be controlled and severe damage to catchment within the forest shall be avoided.

Verifiers:

1. Identification, documentation and mapping of riparian zones within the buffer area of 5 kms onboth sides of major rivers, 2 kms for tributaries and up to 500 mts for streams and around otherwater bodies.
2. Conservation plan for such buffer areas is prepared and implemented by using silvicultural or other means.
3. Riparian zones result in clean and continuous E-flow (Environmental flow) in rivers and streams.

Periodicity: 5 years

Indicator 2.4.6: Monitoring of streams, lakes, wetlands, ponds, and other water bodies in forested catchments

Eco-restoration, natural regeneration, tree/shrub/grass planting, soil, and water conservation structures as per locally suitable designs protect streams, lakes, wetlands, ponds and other water bodies and sea shores. The important forested catchments need to be equipped with the monitoring stations over selected streams to assess the discharge and silt load. The data shall help in developing a long-term understanding on the impact of various vegetative parameters and the management practices on the stream discharge and silt load.

Intended situation: Monitoring protocol in place for surface water bodies such as streams, lakes, wetlands, ponds and other water bodies in forested catchments.
Verifier:

1. Periodic monitoring of waterbodies with parameters like water temperature, colour, odour, pH, Turbidity, TDS (Total Dissolved solids), DO (Dissolved oxygen), BOD (Biological Oxygen Demand), COD (Chemical Oxygen Demand), bank erosion etc.

Periodicity: Every year

Criteria 5: Maintenance and Enhancement of Forest Resource Productivity

Criterion deals with economic evaluation of forest functions in terms of wood and non-wood forestproducts. It aims to maintain/increase the productivity of forest resources.

Indicator 2.5.1: Estimation of growing stock of wood
Indicator 2.5.2: Estimation of current annual increment and mean annual increment of the forest crop
Indicator 2.5.3: Assessment of forest structure
Indicator 2.5.4: Estimation of Basal Area (BA) and the number of stems per unit area
Indicator 2.5.5: Estimation of Carbon stock of the forests
Indicator 2.5.6: Area taken up for eco-restoration, rehabilitation and reclamation
Indicator 2.5.7: Area taken up for improved productivity through forest plantation
Indicator 2.5.8: Area taken up for tending operation and other operations
Indicator 2.5.9: Analysis of Species composition

Indicator 2.5.1: Estimation of growing stock

Growing stock is the standing volume of a forest crop. Higher the growing stock more the standing volume i.e., usable timber and thus higher carbon stock as well. Estimation of growing stock thus forms the basis for the forest management.

Intended situation: Maintenance and enhancement of growing stock w.r.t to base year. Forest crops must be maintained as vigorous as possible to produce as rapidly as they can till the biomass production attains its most desirable level including contributing to intangible benefits.

Verifiers:

1. Regular monitoring of growing stocks in sample plots.
2. Strategies to improve and enhance growing stock included in WP.
3. Assessment of extraction of timber (recorded and unrecorded extraction).

Periodicity: 5 years

Indicator 2.5.2: Estimation of current annual increment and mean annual increment of the forest crop

Increment is the increase in volume of growing stock over a period. Higher increment of Growing Stock also means higher carbon sequestration. The rate of increment depends on many locality factors including the growth of the forest crop, which will form the basis for decision making in forest management.

Intended situation: MAI/CAI is either maintained or improved w.r.t base year.
Verifiers:

1. Sample plots that analyse MAI/CAI for important species.
2. Implementation of strategies to improve and enhance MAI as per the WP.
3. Trend analysis in production of timber and fuel wood in successive working plans in past 20years.

Periodicity: 5 Years

Indicator 2.5.3: Assessment of forest structure

The assessment of forest structure is generally done using age-class/diameter distribution. Maintenance of forest structure is essential for sustainable production of goods and services. The diameter is a proxy for age and the diameter distribution of the principal species, and their associates indicate the presence or absence of different age class in a forest crop. Presence of all age-classes in even-aged forest and presence of all diameter classes in selection forest indicate the sustainability ofa population and the benefits drawn from it.

Intended situation: Generally silvicultural and management practices in natural forests shouldsupport right distribution of age classes / diameter classes.

Verifiers:

1. Assessment of age classes / diameter distribution of identified species.

Periodicity: 5 years

Indicator 2.5.4: Estimation of Basal Area (BA) and the number of stems per unit area
Basal area is a function of crop diameter and number of trees per unit area. Basal area along with the number of stems per unit area is a better indicator of a forest crop to sustainably provide the goods and services it renders.

Intended situation: Maintenance of optimal basal area and number of stems per unit area as per themanagement objective.

Verifiers:

1. Assessment of basal area of identified species.

Periodicity: 5 years

Indicator 2.5.5: Estimation of Carbon stock of the forests

An estimate of the carbon stock of the forests over a period of time indicates the carbon sequestration potential of the forests thereby the mitigation potential of the forests against climate change.

Intended situation: Maintenance and enhancement of Carbon stock.

Verifiers:

1. Periodic estimation of total carbon sequestered against base year.

Indicator 2.5.6: Area taken up for eco-restoration, rehabilitation, and reclamation

The degradation of the forest leads to lower productivity. Analysis of measures taken up for mitigating the effects of the degradation, mining and shifting cultivation etc., especially through eco- restoration, rehabilitation and reclamation will be useful for effective management of forests.

Intended situation: Based on the identification and mapping of degraded forest areas, eco-restoration, rehabilitation and reclamation efforts are undertaken using native species of herbs, shrubs, and trees.

Verifiers:

1. Total area treated under different schemes for Eco-restoration of degraded forest area.
2. Total area treated under different schemes for rehabilitation for areas affected with shiftingcultivation or forest area freed from encroachment.
3. Total area treated under different schemes for reclamation of mined out areas.
4. Budgetary allocation for the Eco-restoration, rehabilitation, and reclamation.

Periodicity: Every year

Indicator 2.5.7: Area taken up for improved productivity through forest plantation

The productivity of a forest depends upon the genetic material of the trees also. It is difficult to manipulate the genetic makeup of a natural forests but can be done while raising plantation. The superior quality planting material is essential for increasing the productivity.

Intended situation: Production from forests is augmented through forest plantations of timber species having maximum demand in the market. Productivity of forest plantations is improved with high quality planting materials and suitable management practices.

Verifiers:

1. Percentage of area of the forest division under forest plantations and areas under differenttimber species.
2. Sources of quality seeds and clonal planting material for improved productivity of targetedspecies.
3. Production of high-quality planting materials in forest nurseries.
4. Details of plantations carried out year-wise.
5. Percentage of area under plantation with improved planting materials/clonal plantation and/orintensive management practices.
6. Details of production from the plantations.
7. Improvement in productivity from improved plantations.

Periodicity: Every year

Indicator 2.5.8: Area taken up for tending and other operations

The timber, bamboo and NTFP productivity can be enhanced with suitable silvicultural treatments like thinning, cleaning, and pruning. Assessment of other silviculture practices undertaken to protect water resources and soils, reduce disturbance and damage to habitats, ecosystems, landscape, and environmental values. Areas taken up for these operations indicate the efforts taken up for enhancingthe productivity of the forests.

Intended situation: Productivity of forest area is enhanced through tending and other operations.

Verifiers:

1. Plan of operation for enhancement of productivity of timber, bamboo and NTFP.
2. Area under different silvicultural treatments such as thinning, cleaning and pruning.
3. Area under other silviculture practices undertaken to protect water resources and soils.
4. Area under specific habitat management and enhancement of ecosystems, landscape and environmental values.

Periodicity: Every year

Indicator 2.5.9 Analysis of Species composition

A forest with mixed species composition provides multiple goods. The object of management determines the species composition and an analysis of the tree diversity of a forest crop indicates the multiple goods a forest could provide.

Intended situation: Forest composition should include optimum number of associates apart from main species. The species composition should include fruit bearing and other NTFP species to provide various ecosystem services including wildlife habitat. Species composition is assessed and mixed species composition is enhanced in the forest area of the division.

Verifiers:

1. Percentage of species composition in forest area with regard to main species, associates, fruitbearing and other NTFP species is calculated.
2. Improvement in the species composition.

Periodicity: Every year

Criteria 6: Optimisation of Forest Resource Utilisation

Forests provide multiple goods for the use of the society in the form of timber, fodder, grass, fruits, nuts, gums, resin, tendu leaves, medicinal plants etc. The knowledge of the communities on the conservation, harvesting/collection practices, grading and storage helps in sustainable management of forest resources. Identification of the important forest produce, their demand and sustainable supply and the harvesting pattern will form basis for making sound management prescriptions as indicated below:

Indicator 2.6.1: Agriculture customs and requirement of the local people
Indicator 2.6.2: Listing of important Non-Timber Forest Produce (NTFPs)
Indicator 2.6.3: Details of non-destructive/sustainable harvesting of resources
Indicator 2.6.4: Demand and supply of timber and NTFPs
Indicator 2.6.5: Low impact harvesting
Indicator 2.6.6: Recorded removal of timber, firewood, grasses, fodder, bamboos, NTFPs etc.
Indicator 2.6.7: Valuation of the forest resources
Indicator 2.6.8: Forest enterprises
Indicator 2.6.9: Access and Benefit sharing

Indicator 2.6.1: Agriculture customs and requirement of the local people

An estimation of the requirement of the local people for small timber for agricultural and other local community uses on the basis of the socio-economic survey will indicate the dependence of the population on forests.

Intended situation: Understanding of the gap between demand and supply of the small timber to meet the requirement of local people and artisans.

Verifiers:

1. Assessment of the estimation of requirement of small timber for agriculture, handicraft andother local community uses on the basis of socio-economic survey.
2. Estimation of the supply of small timber to local people.
3. Demand and supply gap if any and strategy to meet the gap.

Periodicity: 5 years

Indicator 2.6.2: Listing of important NTFPs

It is expedient to identify, produce, or enable the productions of diversified products such as NTFPs, their use, parts used, based on the range of resources without jeopardising the flow of ecosystem services in order to strengthen and diversify the local economy proportionate to the scale and intensity of management activities.

Intended situation: All the species of important NTFPs must be recorded along with their marketability.

Verifiers:

1. Documenting all NTFPs including herbs and shrubs which diversify the local economy.
2. Assessment of demand & supply of NTFPs.
3. Market value of NTFPs/ Medicinal and Aromatic Plants (MAPs) (value should increase inconsonance with market forces, transportation and value addition.).

Periodicity: 5 years

Indicator 2.6.3: Extent of non-destructive/sustainable harvesting of resources

Bio resources are harvested and whole plants or different parts are used. If whole plants, underground plant parts or bark are used, this often leads to the death of the plant and is likely to have an adverse effect on its population than a plant whose leaf or seed or

flower is used. An analysis of the parts used, collection and harvesting practices shall indicate the sustainability of NTFPs.

Intended situation: Evolution and implementation of a mechanism to ensure the harvest is within sustainable limits for the species of important NTFPs including herbs and shrubs.

Verifiers:

1. Protocols for non-destructive/sustainable harvesting and collection of important NTFPsincluding herbs and shrubs.
2. Fixing annual extraction limits for major NTFPs/MAPs.
3. Creating awareness and promoting good collection practices.
4. Capacity building of local community on sustainable harvesting practices.
5. Assessment of adoptability of sustainable harvesting techniques.

Periodicity: 5 years

Indicator 2.6.4: Demand and supply of timber

The socio-economic study and the local market survey will provide an assessment of the dependence of the local people on the forests for timber. This will also include the estimation of import and export of timber/ from other States and Country. This will enable the assessment of per capita consumption of timber and by the people living near the forests.

Intended situation: Assessment of the dependence of the local people on the forests for timber.

Verifiers:

1. Estimation of local consumption, production, import and export of timbers.
2. Timber requirement of industries and other stakeholders.
3. Regular documentation of timber production and harvest.
4. Supply and demand gap and strategy to meet the gap.

Periodicity: 5 years

Indicator 2.6.5: Low impact harvesting of timber.

Assessment of any low impact harvesting technique being followed in the forest division. Harvesting and extraction of forest resources are undertaken in the manner so that merchantable waste is reduced, and damage to other products and services is avoided.

Intended situation: Progressive implementation of low impact harvesting techniques in forestry operations.

Verifiers:

1. Document of low impact harvesting techniques for forestry operations.
2. Assessment of damage in various forestry operations.
3. Creating awareness and promoting low impact harvesting techniques.
4. Use of modern machinery, tools and technology for low impact harvesting.

Periodicity: 5 years

Indicator 2.6.6: Recorded removal of timber, firewood, grasses, fodder, bamboos, NTFPs etc.

Analysis of annual removal over a period of time indicates the sustainability of a species. Any reduction or excess extraction over the average extraction during a period of time warrants immediate action for its rehabilitation or augmentation of natural population.
Intended situation: All timber, firewood, grasses, fodder, bamboos, NTFPs etc. removals should be recorded and extraction should be within permissible limits.
Verifiers:

1. Details of all removals of timber except for petty felling as per the control forms. Harvestshould not exceed the accretion (Growing Stock/ MAI).
2. Information on all removals of fuel wood based on socio-economic survey and assessment is provided. Evolving mechanism for quantified data on recorded removals and sharing with the community is explored and highlighted.
3. Assessment of bamboo/rattans and mechanism for generating quantified data on their removal and sharing with the community is provided.
4. Description of cattle rearing community of forest dwellers with regard to removal of fodderand availability of palatable species and pasture land etc.
5. Record of forest produce removal by the community.
6. Analysis of annual removal of timber, firewood, grasses, fodder, bamboos, NTFPs etc over a period of time.
7. Measures taken to meet the energy demands of local communities using alternatives such as biogas stoves, solar powered stoves, etc. and improve fuel wood quality (wood gasifier).

Periodicity: 5 years

Indicator 2.6.7: Valuation of the forest resources

An estimation of the value of all the goods that are extracted from the forests based on the market value gives insight for making decisions for the optimisation of the use of the goods from the forests.

Intended situation: Valuation of tangible benefits derived from the forest

Verifiers:

1. Recorded forest produce removal by forest department, community, others and their valuation on market price.
2. Change in valuation of forest resources if any.

Periodicity: 5 years

Indicator 2.6.8: Forest enterprises

Wood based industries and other industries that use raw materials sourced from the forests are important stakeholders. Listing of forest-based industries and enterprises in the forest division and outside forest division but sourcing raw material especially NTFPs from the division, not only indicate the forest-based employment generation but also the contribution of the forests towards the local economy and indicates scope for new forest-based enterprises.

Intended situation: All wood-based and forest produce-based industries operating in the forest division are listed and their raw material demand and consumption is assessed.

Verifiers:

1. Listing of all wood-based and forest produce-based industries operating in the forest divisionand their annual requirement.
2. Listing of all wood-based and forest produce-based industries operating outside forest divisionbut sourcing raw material especially NTFPs from the division and their annual requirement.
3. Recorded forest produce removed and used within the division.
4. Recorded forest produce removed and supplied outside division.

Periodicity: 5 years

Indicator 2.6.9: Access and Benefit sharing

NTFPs are sourced from the forest areas for commercial use by the industry. Proper documentation of traded quantity and sharing of the benefits with the BMCs as per the provisions of BD Act and Access to Biological resources and associated knowledge and benefit sharing regulations (ABS guidelines) 2014 notified there-under can help in the conservation and sustainable use of NTFPs.

Intended situation: The forest bio-resources are accessed for commercial use as per the ABS guidelines.

Verifiers:

1. List of registered traders/manufacturers and their annual requirement.
2. Sharing of levy/fee with the BMC for the conservation, management and benefit sharing as perABS regulations.

Periodicity: 2 years

Criteria 7: Benefits to local people - social, and cultural values

The social and cultural values of forests aside from their ecological and economic benefits and optimisation of forests and their products are intrinsically connected with local stakeholders. Traditionally, they form a significant part of the life of the local people with many patches of forests across the country protected as sacred groves. Several floral and faunal species of religious and cultural significance also exist. Hence, such cultural and social sentiments are of great importance as motivational drivers behind their conservation ethos. The assessment of the role of forests on the social, cultural, economic and ecological aspects of the local people will provide inputs for making management decisions as indicated below:

Indicator 2.7.1: Details of employment generated
Indicator 2.7.2: Use of traditional Knowledge and listing of knowledge holders
Indicator 2.7.3: Sacred groves and other cultural values
Indicator 2.7.4: Details of social customs on forests and forestry practices
Indicator 2.7.5: Ecotourism sites and activities

Indicator 2.7.6: Identification of rights and concessions of the local communities (other than FRA)
Indicator 2.7.7: Ecosystem services and benefits

Indicator 2.7.1: Details of employment generated

The activities of the forest department generate livelihood and an analysis of the same provides insight into the employment generation potential of the forest sector and the dependence of the local community on forests for employment. The details of trainings and capacity building programmes organised towards employment generation helps in identifying the potential human resource available for different activities including guides for ecotourism related activities.
Intended situation: The human resource undertaking forest-based activities is sufficiently trained.

Verifiers:

1. Details of the capacity building for the local community.
2. Status-Job card and employment generation activities.
3. Analysis of employment generation in terms of man-days.

Periodicity: Every year

Indicator 2.7.2: Use of traditional Knowledge and listing of knowledge holders

The local traditional health practitioners and indigenous medicinal systems are repositories of traditional knowledge which have a close linkage with the forests. This information may also be available in the Peoples' Biodiversity Register (PBR) prepared by the Biodiversity Management Committees (BMCs). Their knowledge on the distribution of the species, their extent, its diverse use and availability etc shall form the basis for making sound management prescriptions.

Intended situation: Utilisation of information from PBR and TKDL (Traditional Knowledge Digital Library) for conservation, management and utilisation of forest resources and incorporation of the same in the micro-plans and WP.

Verifiers:

1. Availability of Peoples' Biodiversity Register prepared by the Biodiversity Management Committees.
2. Identification of different communities living in and around forest having different types of indigenous knowledge.
3. Indigenous knowledge on forest management is incorporated in micro-plans and WP.

Periodicity: 2 years

Indicator 2.7.3: Sacred groves and other cultural values

Sacred groves are great repositories of biodiversity with religious, cultural and conservation significance. Listing of these groves such as trees, forest patch, ponds/lakes etc. shall provide insight into necessary special management interventions required.

Intended situation: Details of sacred groves, their significance and management interventions.

Verifiers:

1. Sacred groves are identified, mapped and protected in consultation with local stakeholders.
2. Assessment of ecological services from sacred groves.
3. Conservation plan for sacred groves.
4. Good management practices borrowed from sacred groves are incorporated in micro plans andWP.

Periodicity: 5 years

Indicator 2.7.4: Details of social customs on forests and forestry practices

There are community specific social customs, customary laws on various forestry related activities like collection of NTFPs, their use etc. Identification of the same indicates the close cultural linkage of the communities with the forests which could contribute to making culturally conscious management prescriptions with the active participation of the local communities.

Intended situation: Social customs relevant to the forests and forestry practices are respected while making management prescriptions in the WP.

Verifiers:

1. Documentation and incorporation into micro plans and WP of the social customs on various forestry related activities for conservation, management of bio-resources and benefit-sharing.

Periodicity: 5 years

Indicator 2.7.5: Ecotourism sites and activities

Ecotourism is responsible travel that involves interpretation and education about natural areas. Areas inside and adjoining designated forests, which have ecotourism potential shall be identified and documented for effective implementation of ecotourism principles.

Intended situation: Potential sites in the forest division identified and encouraged for eco-tourism activities.

Verifiers:

1. Areas inside and adjoining designated forests, which have ecotourism potential, are identified and listed (Such as landscape, waterscape, wildlife and also the human-scape).
2. Ecotourism development plan is prepared and implemented in the division within the carryingcapacity.
3. Capacity building of eco-guides.
4. Records of tourist inflow to eco-tourism sites and commensurate benefits to the local community.

Periodicity: Every year

Indicator 2.7.6: Identification of rights and concessions to the local communities (other than FRA)

The communities living near the forest enjoy certain rights and concessions from the forests. Documentation of these rights and concessions, other than the rights recognised under FRA as considered in indicator 2.1.7, as they have bearing on the management of forests.

Intended situation: Documentation of Rights and concessions to the communities and their exercisewithin the management prescriptions.

Verifiers:

1. Document on rights and concessions of the local communities on forests.
2. Extent of exercise of rights and concessions and their bearing on the sustainable managementof forests.

Periodicity: Every year

Indicator 2.7.7: Ecosystem services and benefits

The local community derives benefits from the forest ecosystem services which have bearing on the quality of life of the community and the forest. Wherever possible a framework for quantification and valuation of ecosystem services may be explored and documented.

Intended situation: Quantification and valuation of ecosystem services and documenting the benefits to the community.

Verifiers:

1. Identification of the ecosystem services and benefits to the community in the division.
2. Preparation of a plan to build capacities and infrastructure for quantification of ecosystemservices through existing technical expertise from Government institutions.
3. Budgetary provisions for quantification and valuation of ecosystems and capacity building.

Periodicity: 5 years

Criteria 8: Policy, Legal and Institutional Framework

National and State policies on forests, wildlife, water and environment govern the way forests are managed. The Indian Forest Act, 1927, the Forest Conservation Act, 1980, Wildlife (Protection) Act 1972, Environment (Protection) Act, 1986, Biological Diversity Act, 2002, Compensatory Afforestation Fund Act, 2016 and any other state specific law and rules made there under provide legal framework for the conservation and sustainable management of forests, wildlife and the biodiversity that the forests harbours. The Forest Rights Act 2006 and PESA Act also impact the management of the forests in India. An analysis of these legal instruments and their implementation, various institutions involved with the forest management and research will indicate the impact of these instruments on forest management as indicated below:

Indicator 2.8.1: Existing policy and legal instruments governing the forest management
Indicator 2.8.2: Role of panchayats or any locally elected bodies in the district / council areas inforest management
Indicator 2.8.3: Participatory forest management
Indicator 2.8.4: Details of Biodiversity Management Committees (BMCs)
Indicator 2.8.5: Forest, biodiversity and wildlife related offences
Indicator 2.8.6: Financial outlay
Indicator 2.8.7: Human resource
Indicator 2.8.8: Gender aspects
Indicator 2.8.9: Labour welfare
Indicator 2.8.10: Environmental awareness and education
Indicator 2.8.11: Infrastructural support
Indicator 2.8.12: Research and development
Indicator 2.8.13: Existence of monitoring mechanism

Indicator 2.8.1: Existing policy and legal instruments governing the forest management

This includes all national /state/ locality specific rules, regulations existing that govern forest management.

Intended situation:

Existence of legal framework at national, state and local level on environment, forest, tree preservation, wildlife, biodiversity, forest-dwellers and others related to forest management.

Verifiers:

1. Awareness amongst the forest personnel and local communities about the existing legal provisions for safeguarding environment, forests, wildlife, biodiversity and rights of the forests dwellers.
2. Availability of important legal provisions in local languages with field staff and local organisations (JFMCs/EDCs/ BMCs and SHGs)
3. Awareness programmes conducted on legal issues

Periodicity: 5 years

Indicator 2.8.2: Role of panchayats or any locally elected bodies in the district / council areas in forest management

Analysis of the village / local body development plan and its focus on forests, wildlife and environment.

Intended situation: Development plan with focus on forests, wildlife and environment by involvement of division staff with panchayats or any locally elected bodies in the district /council areas for preparation of village development plans.
Verifiers:

1. Status of inclusion of management aspects of forest, wildlife and environment conservation invillage / local body development plan.

Periodicity: 5 years

Indicator 2.8.3: Participatory forest management

The listing of the committees constituted for the participatory forest management which are mandated to protect and conserve the forests and the biodiversity thereof. Micro-plans are prepared in congruence with working plan prescriptions. Analysis of the functioning of these committees and implementation of the micro-plans prepared through Participatory Rural Appraisal is an indication of the participation of the stakeholders in forest management for sustainable management of forests.

Intended situation: Participation of stakeholders in sustainable management of forest

Verifiers:

1. Listing of the committees constituted for the participatory forest management.
2. Mapping of forest areas covered under participatory forest management.
3. Participatory Rural Appraisals and involvement of local community in preparation of micro-plan.
4. Number of micro-plans prepared.
5. Mapping of the areas covered under Micro-plans.
6. Analysis of the functioning of these committees and implementation of the micro-plans.

Periodicity: 5 Years

Indicator 2.8.4: Details of Biodiversity Management Committees (BMCs)

BMCs are constituted under the BD Act for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, and chronicling of knowledge relating to biological diversity. The Access and Benefit sharing (ABS) Guidelines specify the process for Access and Benefit sharing of bio-resources. Listing of BMCs, benefit sharing agreements, if any, data on the quantity and valuation of traded bio-resources including NTFPs indicate the benefits derived by the communities.

Intended situation: Duly constituted and functional BMCs

Verifiers:

1. Constitution of BMCs.
2. Details of periodical meetings of BMCs.
3. PBR (People's Biodiversity Register) available with the BMC.
4. BMCs have management plans for sustainable use of their biological resources.
5. Records of NTFP harvesting/extraction and traded quantity and prices by the BMCs.
6. Records of Levy charges received by BMCs.
7. Records of ABS implemented.

Periodicity: 5 years

Indicator 2.8.5: Forest, biodiversity and wildlife related offences

Listing of year wise forest, wildlife and biodiversity related offences; details of conviction and compounding under various legal instruments governing the same indicate the effectiveness of enforcement of law.

Intended situation: All offence cases are registered, investigated and concluded as per law.

Verifiers:

1. Maintenance of offences registers.
2. Use of IT in offence monitoring.
3. Higher rate of convictions of cases.
4. Capacity building of frontline forest staff to handle offence cases.

Periodicity: Every year

Indicator 2.8.6: Financial outlay
Requirement of funds as per the working plan vis-à-vis allocation of funds in the previous planperiod and expenditure.

Intended situation: Finances available match the annual plan of operations drawn from the workingplan.

Verifiers:

1. Trend analysis of allocation vis-à-vis plan prescriptions and expenditure and inflow of finances from other sources.
2. Outcome-based budget analysis.

Periodicity: Every year

Indicator 2.8.7: Human resource

Adequate and trained man power is essential for effective management of forests. Regular recruitments, promotions, induction and refresher trainings, skill up-gradation trainings are necessaryfor bringing efficiency in forest management.

Intended situation: Adequate and trained manpower available at all levels in the division. In servicetraining done periodically.

Verifiers:

1. Number of posts sanctioned and positioned to assess the adequacy of the manpower.
2. Assessment of the requirement of daily wage/contractual man power.
3. HRD plan in place with regular Training Need Assessment (TNA)for meeting the emerging challenges.
4. Trainings imparted at all levels.
5. Enforcement of Environment, Health and Safety (EHS) measures.

Periodicity: 2 years
Indicator 2.8.8: Gender aspects

Women are involved in forest-based income generation activities as they are the primary collectors of NTFPs and their primary processing. The women are likely to have knowledge on forestry resources linked with food, health, fodder and firewood. However, their commensurate roles do not reflect in the forest management. Mapping of gender-based roles and activities in forestry, assessing the contribution of the women in forestry activities, their role in forest management planning, training and capacity building for women organised by the forest department etc. are essential to understand gender mainstreaming in forest management.

Intended situation: Forest management with adequate gender participation and enabling working conditions.

Verifier:

1. Mapping of gender-based roles and activities in forestry operations.
2. Records of gender participation.
3. Capacity building for women community and frontline staff.
4. Adequate working conditions for all genders.
5. Enabling access to government schemes for child and women development.

Periodicity: 5 years

Indicator 2.8.9: Labour welfare

The welfare of the labour involved in forestry operations is of utmost importance. Listing of the applicable laws governing the labour welfare and analysis of adherence to the same indicate efforts taken for labour welfare.

Intended situation: Compliance to all applicable laws, rules and schemes governing the labour welfare.

Verifiers:

1. Listing of the applicable laws, rules and schemes governing the labour welfare.
2. Adherence to the wages rates as applicable.
3. No engagement of child labour.
4. Direct payments to the beneficiary account.
5. Implementation of applicable government welfare schemes (life insurance, health insuranceetc.).

Periodicity: 5 years

Indicator 2.8.10: Environmental awareness and education

Assessment of all efforts made to increase public awareness and education on environment, forests,the benefits provided by the forests, along with list of the published material.

Intended situation: People are well aware of the tangible and intangible benefits of the forests andimportance of sustainable forest management.

Verifiers:

1. Communication strategy for public awareness on the importance of and the benefits provided by forests and sustainable management of forest.
2. List of the published material such as brochures, pamphlets, leaflets, posters, etc for publicawareness.
3. Extent of use of social media handles.
4. Public participation & celebration of important events like Van Mahotsav, Wildlife week, Earthday, World environment day, International day of forests etc.
5. Number of meetings with the general public to inform them of the benefits provided by forests to society
6. Details of forestry/environmental awareness and education programmes conducted for studentssuch as Prakriti etc.

Periodicity: 2 years

Indicator 2.8.11: Infrastructure support

Adequate infrastructure in terms of office, residential accommodation of the staff, transportation facilities and communication facilities are necessary for effective forest management. Listing of the entire infrastructure available enables identification of gap, if any, and planning for reducing the gap.

Intended situation: Adequate infrastructure for effective forest management.

Verifiers:

1. Listing of office, residential accommodation of the staff, transportation facilities andcommunication facilities.
2. Assessment of requirement of infrastructure
3. Infrastructure planning for reducing the gap

Periodicity: 2 years

Indicator 2.8.12: Research and development

Research and academic institutes are important stakeholders. Research plots, preservation plots, seed orchards, seed stands/seed production areas etc. established by forest department and research institutes, are important for research and development in the forestry sector. Documentation of the efforts of the forest department, the details of research undertaken, application of results in the field and further identification of problems for research are essential for effective science-based forest management.

Intended situation: Long-term research and development plan in place.

Verifiers:

1. Listing of research plots, preservation plots, seed orchards, seed stands/seed production areasetc. established by forest department and research institutes and their status.
2. Number of research problems identified and referred to the research wing / research institution.
3. Utilisation/Implementation of research findings and transfer of knowledge and technology.

Periodicity: 5 years

Indicator 2.8.13: Existence of monitoring mechanism

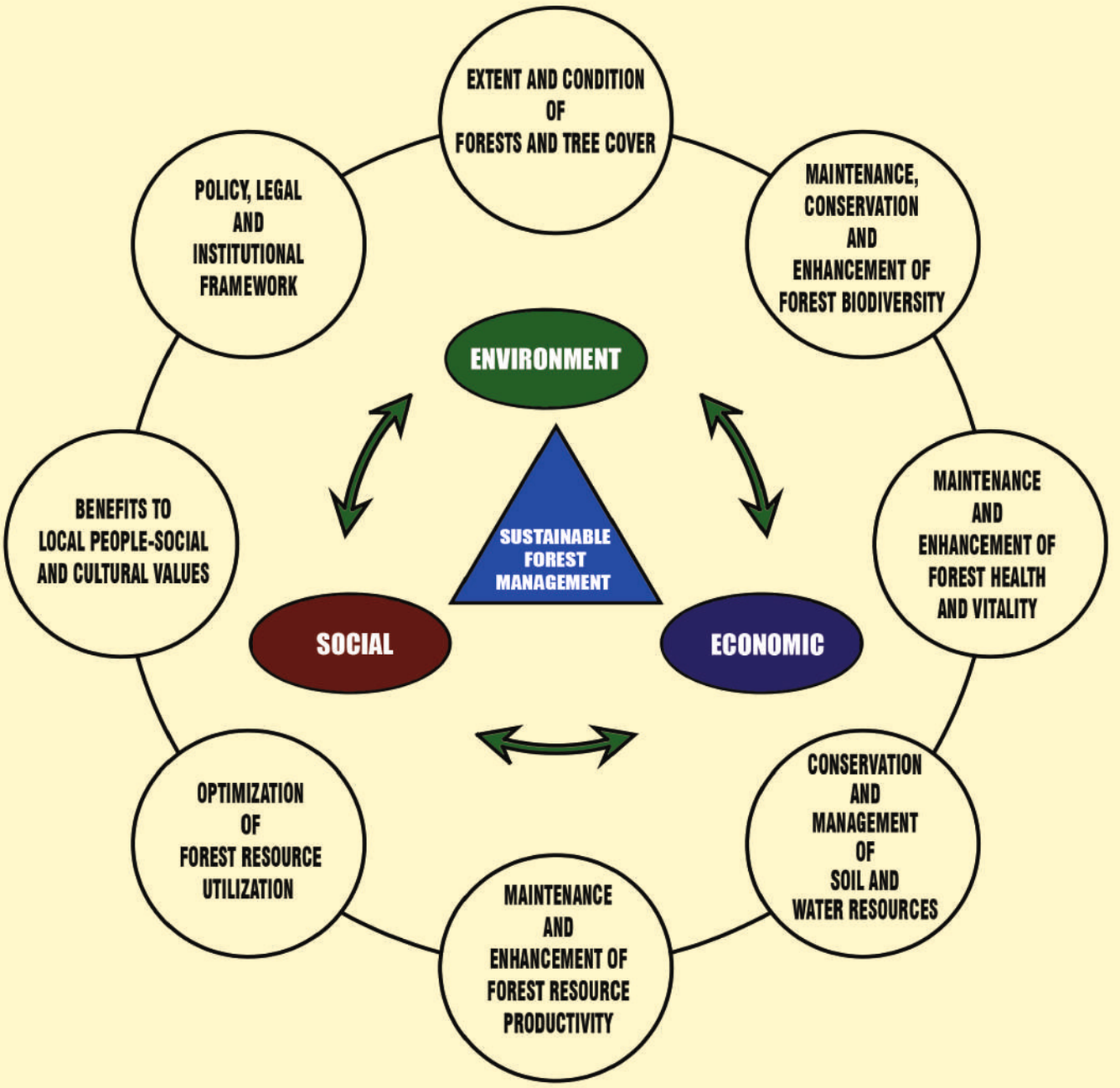
Periodic monitoring and evaluation are essential tools for effective and adaptive forest management. Analysis of adherence to monitoring protocols like control forms, compartment history etc. gives insight into the management of forests.

Intended situation: Regular monitoring of management effectiveness.

Verifiers:

1. Regular monitoring and evaluation mechanism is in place.

Periodicity: Every year



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