

## Conservation of Non Wood Forest Resources for Sustainable Livelihoods

*Forest is a unique renewable natural local resource of global importance. India is one of the mega biodiversity countries of the world, and is home of 7.7% of world's bio-diversity. Non-wood forest products (NWFPs), also called Minor Forest Produce, although they are by no mean minor - are known to be source of livelihoods for over 300 million people living in and around forests and are in fact associated with their socio-economic and cultural lives. However, due to timber centric forest management, NWFPs have not got the importance they deserve. In recent years, the Non Wood Forest Resources (NWFRs) have gained importance due to their being vital source of livelihood for forest dependent communities and having a multiplier effect in the economy through employment generation in downstream value addition and trading activities. Multiplicity of Acts having a bearing on NWFRs has further compounded the prevalent confusion with regard to their ownership and management responsibilities.*

*In this paper an attempt is made to analyze the legal framework impacting upon the NWFRs and the current status of their assessment and management, and suggest strategy for their conservation and management for sustainable livelihoods in India.*

**Key words:** Non-wood forest resources, Non-wood forest products, National medicinal plants board, Forest management, Minor forest produce with major economic stakes.

### Forests - A Unique Renewable Resource

In recent years forests are being rediscovered as critical renewable natural resources due to greater realization of adverse environmental/climatic impacts of deforestation and forest degradation, and high resilience of forest ecosystems against climate induced changes. Forests not only regulate and influence global climate but also provide shelter, food, medicines, water security to indigenous and local people. They are being seen as essential resource for "green economy" and, that investment in forest conservation could make significant contribution to the transition to green economy, while reducing vulnerability and risks posed by climate change. Forests are thus seen as a critical link in the transition to a green economy – one that promotes sustainable development and poverty eradication as we move towards a low carbon and equitable future.

### Forests Management

The forest management in India has largely been timber centric which was considered to be the major forest product and all other forest products were considered to be Minor Forest Produce (MFP) although all MFPs/NWFPs are not found in forests only as the name MFP would suggest. The timber centric forest management continued till the 1988, when the National Forest Policy emphasized on maintenance of environmental stability and ecological balance as the principle aim of the forest policy. Gradually, under this Policy and various Judicial pronouncements, the focus of forest management has gradually shifted away from timber to ecosystem services and other forest products which

*It is high time to evolve a "National policy for Non-wood Forest Produces" comprising periodic assessment and strategies for conservation of Non Wood Forest Resources, along with their efficient utilization for augmenting sustainable livelihoods of forest dependent communities.*

**ARUN KUMAR BANSAL**  
Former Addl. DG Forests, India  
Email: bansalka@yahoo.in

Received April, 2025  
Accepted August, 2025

**Table 1:** Timber, ecosystem services and other forest products known by different names

| Term                      | Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minor Forest Produce      | Indian Forest Act, 1927 (IFA) uses the term “timber and other forest produce”. Thus, timber is considered as the major produce from forests and rest of the produces from forest are considered as MFP.<br><br>Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (commonly known as Forest Rights Act (FRA)) defines MFP as all non-timber forest produce of plant origin including bamboo, brush wood, stumps, cane, tussar, cocoons, honey, wax, lac, tendu or kendu leaves, medicinal plants and herbs, roots, tubers and the like. |
| Non Timber Forest Produce | All products of biological origin other than timber. Till the amendment of the IFA (by the Govt. of India in 2017) bamboos were included in “timber”.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Non Wood Forest Produce   | All products of biological origin other than wood. Wood includes timber as well as fuel wood.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

are known by different names such as Non Wood Forest Produce (NWFP), Minor Forest Produce (MFP), Non Timber Forest Product (NTFP), which are used interchangeably although there are subtle differences as mentioned in Table 1.

NWFP based economy has tremendous potential to fulfill several Sustainable Development Goals (SDGs): SDG 1 – No Poverty, SDG 2 – Zero Hunger, SDG 3 – Health and wellbeing; SDG 12- Responsible consumption and production, and SDG 15 – Life on Land.

## NWFP Trade

Extraction of NWFPs is not only a vital source of livelihood for forest dependent communities but also has a multiplier effect on the economy by generating employment in downstream value addition and trading activities. Nearly 75% of total MFPs collected in the country come from the six States - Maharashtra, Madhya Pradesh, Chhattisgarh, Odisha, Jharkhand and Andhra Pradesh. However, there is no system of national/state compilation of data on collection/trade of hundreds of NWFPs that are traded and used by various industries.

Although there have been several State and Sub-state level studies in India about economic valuation of NTFPs/NWFPs, national level studies have been rather few and they have mentioned widely varying estimates. Indian Council of Forest Research and Education estimated the economic value of NTFPs to be Rs. 810 billion based on an assessment of the quantities removed by the tribal communities and villagers (Bahuguna and Bisht, 2013). According to Statista (2023) in the Indian economy's forest products sector the gross value added of non-timber forest products during the period 2012-2021 remained in the range of only 260-280 billion Indian rupees.

Since a large number of NWFPs are used as

ingredients in various consumer products that are exported under different codes (Harmonized System HS), international trade data are available for only few NWFPs, that are traded under independent HS codes. Major exported NWFPs are Natural Honey, Lac, Gums and Resins, Tamarind, Neem leaf powder, Myrobalan extracts, Vegetable material used as plaiting, and vegetable seeds for planting. Table 2 gives the value of exports of some NWFPs in last five years.

The website of National Medicinal Plant Board, Ministry of Ayush, GoI, mentions that about 1178 species of medicinal plants are traded. Of these 242 species have estimated annual consumption of more than 100 metric tons (MT). Total domestic demand of medicinal plants was estimated to be 0.2 Million MT for the year of 2014-2015, and export demand of medicinal plants was estimated to be 0.14 Million MT in that year ([www.nmpb.nic.in](http://www.nmpb.nic.in)).

It is perplexing that NWFRs have received limited attention from forest policymakers and managers and have not yet got the importance they deserve in forest management practices. National Working Plan Code (NWPC), 2014 advised the states to make appropriate rules for the conservation and sustainable management of NTFPs from government forests, and suggested a seven-step methodology for community-based management of NTFPs (MOEFCC, 2014). The latest National Working Plan Code, 2023 emphasizes upon the application of sustainable forest management practices, considering ecological balance, biodiversity conservation, and social and economic aspects, and for the first time, includes the Indian Forest Management Standard (IFMS) with a set of Criteria and Indicators and also Verifiers to assess the sustainability of forest management practices. Criteria 6 - Optimization of Forest Resource Utilization deals with NTFPs and the indicators include listing of important NTFPs, non-destructive harvesting, recorded removals, resource valuation, access and benefit sharing. State Forest

**Table 2** : Value of export of some NWFPs (in Million \$) (<https://commerce-app.gov.in> accessed on 2nd March 2025/22nd June 2025)

| Trade name (HS Code)                                                   | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | Average |
|------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|---------|
| Tamarind Fresh (08109020)                                              | 2.5       | 1.98      | 2.5       | 1.98      | 3.14      | 2.42    |
| Tamarind Dried (08134010)                                              | 23.29     | 26.4      | 23.64     | 20.04     | 32.02     | 25.08   |
| Bees Wax (15219010)                                                    | 1.86      | 1.28      | 1.24      | 1.04      | 1.32      | 1.35    |
| Wattle Extract (15219001- 32012001)                                    | 0.46      | 0.56      | 1.46      | 1.31      | NA        | 0.95    |
| Myrobalan Fruit Extract (32019020)                                     | 0.58      | 0.97      | 0.81      | 0.86      | 0.74      | 0.79    |
| Nux Vomica Dried Ripe Seeds (12119012)                                 | 0         | 0.01      | 0.01      | 0.01      | 0.12      | 0.03    |
| Neem Seeds (12119014)                                                  | 0         | 0         | 0         | 0.01      | 0.01      | 0.00    |
| Jajoba Seeds (12119015)                                                | 0.01      | 0.02      | 0.01      | 0.01      | 0.02      | 0.01    |
| Neem Leaves/Powder (12119023)                                          | 0.45      | 0.48      | 0.44      | 0.62      | 0.43      | 0.48    |
| Belladonna Roots (12119041)                                            | 0         | 0         | 0.02      | 0.01      | 0         | 0.01    |
| Chirata (12119091)                                                     | 0.02      | 0.06      | 0.27      | 0         | 0         | 0.07    |
| Garcenia (12119096)                                                    | 0.46      | 0.33      | 0.29      | 0         | 0         | 0.22    |
| Vegetable seeds for planting (12099190)                                | 54.74     | 47.63     | 45.41     | 63.16     | 70.7      | 56.33   |
| Natural Honey (0409)                                                   | 96.79     | 163.76    | 203.04    | 177.66    | 206.47    | 169.54  |
| Lac, Natural Gum, Resins (1301)                                        | 111.81    | 132.91    | 125.9     | 86.93     | 97.85     | 111.08  |
| Veg materials used primarily as plating Bamboos, Rattans, Reeds (1401) | 0.72      | 1.16      | 1.83      | 2.78      | 0.96      | 1.49    |

Departments are also required to conduct management effectiveness evaluation. (MOEFCC, 2023). Since the actual adoption of the IFMS may take some time, most current working plans continue to have MFP (Overlapping) Working Circle with traditional prescriptions without any serious attempt for assessment/mapping of NWFPs, developing and prescribing sustainable non-destructive collection/harvesting practices or annual limits, and protocols for enhancing regeneration etc. Moreover, the issues relating to ownership, conservation, regeneration and sustainability continue to remain unclear, and recent enactments and their actual implementation have compounded the confusion.

### Legal Framework related to NWFPs

#### Indian Forest Act, 1927

Indian Forest Act (IFA) recognizes only two categories of forest produce namely (i) timber and (ii) other forest produce and does not define the term Minor Forest Produce. In common parlance all forest produces other than timber are known as MFPs. Bamboos recognized as timber till 2017, when they were excluded from the definition of trees by an amendment of IFA in 2017. It is worth mentioning that although the IFA prescribes the process for notification of Reserve Forest/Protected Forest/Village Forest etc. but does not define the term “forest” which was defined by the Apex Court in 1996 (in the context of the Forest Conservation Act, 1980) to include not only “forest” as understood in the dictionary sense, but also any area recorded as forest in the Government records irrespective of its ownership. ... With the amendment in 2023 the FCA has been renamed as Van (Sanrakshan Evam Samvardhan) Adhiniyam and will be applicable to (a) the land that has

been declared or notified as a forest in accordance with the provisions of the Indian Forest Act, 1927 or under any other law for the time being in force, and (b) the land that is not covered under clause (a), but has been recorded in Government record as forest, as on or after the 25<sup>th</sup> October, 1980. Categories of land that shall not be covered under the provisions of this Act include such tree, tree plantation or re-afforestation raised on lands that are not specified in (a) or (b) above. However, the amendments are Sub Judice in the Apex Court in WP (Civil) No. 1164 of 2023

IFA vests the power to make rules to regulate transit of forest produce as well as the control of all timber and other forest-produce in transit by land or water with the State Government, and may exempt any specified class of timber or other forest-produce from such regulations.

There are around 1.20 lakh JFM Committees, albeit known by different names e.g. Van Panchayat, Van Samrakshan Simiti, Van Suraksha Samiti, Village Forest Protection Committee; involving about 145 lakh families (of which around 50% are SC and ST families) supposedly managing around 23 Mha. of forest land. The functioning of these institutions is by and large government driven with funds provided under various programs viz. National Afforestation Programme, Compensatory Afforestation Management Planning Authority, and Externally Aided Projects, and State Schemes like Ama Jungle Yojna in Odisha.

#### The Panchayats (Extension to Scheduled Areas) Act

Constitutional Amendment in 1993 gave secured constitutional status to the Panchayati Raj Institutions. Panchayats Extension to Scheduled Areas Act (PESA Act), 1996 extends Panchayats to the Schedule V Areas across the nine states namely, Andhra Pradesh,

Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, and Rajasthan. This Act empowers the States, among other things, to entrust panchayats at the appropriate level and the Gram Sabha as the owners of MFP, *albeit* without defining the term. Most of the Panchayats are inadequately prepared to handle PESA, and States too have not taken actions as envisaged under PESA. In the States/UTs there is no institutional arrangement for reporting/ maintaining data about MFP wise quantity collected and/or compilation, collation of such information at block, district or state level.

Just to cite an example of implementation of PESA, in Odisha, in March, 2000, the Forest Department brought out a NTFP Policy through which ownership, control and management of over 60 items (revised to 69 items), excluding the nationalized items (Kendu Leaves and Bamboo) were handed over to Gram Panchayats (GPs). The state Panchayati Raj Department notified Odisha Gram Panchayat MFP Regulation Rules, 2002, whereby ownership rights of these MFPs were conferred to the GPs. The Rules also include provisions for registration of traders, regulation of the trade, fixation of minimum price to be paid to primary collectors by the Panchayat Samiti, reporting structures etc. The latest amendment to the transit rules came in December 2002 and MFPs can be transported without a Transit Permit. However, the implementation of these provisions has not been very satisfactory and rather limited to registration of traders on collection of registration fee of Rs.100, fixation of minimum price in some cases, without any monitoring of the activities of the traders in procurement of MFP.

### **Biological Diversity Act, 2002**

Enacted in the background of the United Nations Convention on Biological Diversity, the objectives of the Biological Diversity Act (BDA) 2002, include conservation of biological diversity, sustainable use of its components, fair and equitable sharing of the benefits arising out of the use of biological resources, including MFPs. The Act provides for establishment of independent three tier structure comprising of the Biodiversity Management Committees (BMCs) at local level, State Biodiversity Boards at state level, and the National Biodiversity Authority (NBA) at the national level for its implementation, and among other things mandates preparation of People's Biodiversity Register (PBR) as a document containing details of all biological resources occurring within a BMC and associated traditional knowledge. The Act specifies that any foreign individual or body corporate, association or organization is required to take prior approval of NBA to obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio-survey and bio-utilization, except the NWFPs of plant origin, both wild and cultivated, categorized as Normally Traded Commodities.

However, the absence of sustainability assessment of related resource is very noteworthy.

Presently, there are 2,77,673 BMCs at Village/ Panchayat level ([www.nbaindia.org](http://www.nbaindia.org) updated as on 26.05.2025). Although, NBA has issued guidelines for their operationalization, BMCs have been constituted in a target-driven mode without required actions for their actual operationalization and achievement of intended results.

### **The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**

As mentioned earlier, The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, popularly known as Forest Rights Act (FRA), gave a legal definition of the term "MFP". Among others, FRA recognizes and prescribes procedures for grant (i) individual rights (IRs), (ii) community rights (CRs) to own and dispose minor forest products from forests where they had traditional access [section 3(1)(c)], and (iii) right to protect, regenerate or conserve or manage any community forest resource (CFR) {defined under Section 2(a)} which they have been traditionally protecting and conserving for sustainable use [section 3(1)(i)]. However, recognition and vesting of forest rights under the Act shall be subject to the condition that such scheduled tribes or tribal communities and other traditional forest dwellers had occupied forest land before 13<sup>th</sup> Day of December, 2005. Individuals, communities and gram sabhas having rights under this section of the Act not only have the rights to use but also rights of ownership over MFPs. Till now, around one million hectares forest area has been recognized as CFRs in various states including Maharashtra, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Odisha and Rajasthan. In connection with actual implementation of the provisions of granting CFRs it is often reported that in many cases they have been granted despite non-fulfilment of the requisite conditions contained in FRA.

Under FRA, the authority to initiate the process for determining the nature and extent of the all types of rights lies with the Gram Sabha of the Village (defined as a village assembly which shall consist of all adult members of a village and in case of States having no Panchayats, Padas, Tolas and other traditional village institutions and elected village committees). However, implementation of the FRA has largely been for recognition of IRs and CRs and the Gram Sabhas generally have limited capacities to implement the Act. Ministry of Tribal Affairs, GoI has issued specific guidelines for management of CFRs in 2023, vide No. 23011/09/2026-FRA dated 12.09.2023, but no concrete information is available at State/National level about the actual management of CFRs and status of MFPs within CFR areas.

It is evident from the discussion in earlier paras that

there is a multiplicity of Acts/Rules/Regulation under which there are several committees at Gram Sabha / Gram Panchayat or sub-village level including the Forest Rights Committee (FRC), JFMC, BMC impacting upon management of MFPs within their jurisdictions (Table 3). It may be pertinent to clearly understand the connotation of "ownership of NWFP" in the context of management of forests from which MFPs are collected/harvested. Community Forest Resources include rights to protect, regenerate or conserve or manage the forests. Even in the CFR areas the punitive actions, if any warranted, have to be taken by the concerned State Forest Department. It means that the management related responsibilities continue to lie with the State through the Forest Departments.

Multiplicity of regulations related to MFPs/NWFPs has created a situation of utter confusion in the absence of any efforts to harmonize the provisions under various Acts. A proper coordination mechanism at various governance levels is essential for synergy in implementation of various Acts / Rules / Regulations / Guidelines aiming at conservation and management of NWFPs and supporting sustainable livelihoods for the local communities. Moreover, all states do not have uniform regulations for movement of NWFPs within and out of the state, requirement of registration of traders and foreign pass, and issue to in-lieu transit pass for inter-state movement. Additionally, various State Governments have evolved localized regulatory instruments to regulate collection and trading of NTFPs from their wild habitats/forests. MOEF&CC launched an online portal of national transit pass system (NTPS) for issuing transit permits for seamless intra-state and inter-state transport of timber, bamboo and other forest produce from private lands/government/private depot on 23<sup>rd</sup> July 2020. NTPS provides for Online application for species grown on private land which are exempted from the transit pass regime, and generation of No Objection Certificate(NOC) without physically going to the forest offices. It was piloted in two states Madhya Pradesh and Telangana and is now extended to all States/UTs. However, the states/UTs need to suitably amend the transit permit rules for harnessing the benefits of NTPS. It would go a long way if the present transit permit system is replaced by a Certificate of Origin (CoO) to be issued by competent authorities of Gram Panchayat/Gram Sabha or Forest Department, as the case may be, for transport of NWFPs (in the form they are collected – with or without primary processing) from the source to its destination with national validity for a prescribed period. Such a system shall have an advantage over the transit documents and shall have wider application value to the end user in addition to facilitating verification during inter-state transit.

### Management of NWFRs

Based on their needs and experiences the forest-dependent communities have evolved various practices

for collection and use of different NWFPs. As mentioned earlier, the timber centric scientific management of forests being ignored these practices and NWFRs were largely taken for granted.

Established in 2002, the National Medicinal Plants Board (NMPB) is mandated to enhance in-situ and ex-situ conservation and augmenting local medicinal plants and aromatic species of medical significance, research and development, capacity building, raising awareness and supporting programs for quality assurance and standardization through development of Good Agricultural and Collection Practices (GACPs). Although NMPB did conduct a demand and supply studies of medicinal plants in the country (Ved and Goraya, 2007), no comprehensive survey of Medicinal and Aromatic Plant Resources and their valuation at National/State level has yet been conducted.

Ministry of Tribal Affairs, GoI, has started the Minimum Support Price (MSP) scheme for 12 MFPs during 2014-15, designed primarily as a social safety net for improvement of livelihood of primary collectors by providing them, fair price for produce collected by them. The scheme now covers 87 NWFP items and is being implemented by Tribal Cooperative Marketing Development Federation (TRIFED a national-level cooperative body under the Ministry of Tribal Affairs, GoI) through designated nodal agencies in each state. The states are free to fix MSP +/- 10% of the MSP decided by the GoI. Some states have decided to give incentive (bonus) in addition to MSP on some NWFPs. However, at present the MSP scheme does not take into consideration either sustainability of resource from where the produces are collected or adherence to good field collection and primary processing practices that are necessary prerequisites for long term availability of these produces and a minimum guarantee for their quality.

Role of NWFR in the economy of tribal societies has also been emphasized in the concept note of Pradhan Mantri Van Dhan Yojana launched by GoI in 2018. It mentions that, "annually around Rs. 2 Lakh Crores worth of NTFP is gathered by the tribals and traded in the haat bazars.

While analyzing the value of NTFP in promoting India's Rural Livelihood in detail (Hazari *et al.*, 2023) found that NTFPs play a significant role in improving rural livelihoods in India, as well as providing a valuable source of employment for rural residents, though it has a complex marketing system. Creation of site-specific and species-specific strategies was advocated for the preservation, management, and exploitation of NTFP resources.

It is thus evident that conservation and development of NWFRs is important not only for supporting sustainable livelihood of people living in the vicinity of forests but also as a source of raw industrial material for

**Table 3 : Various regulations dealing with MFPS/ NWFPs**

| Item                                    | IFA                                                                                                                 | JFM                                                                                                                                                                                                    | PESA                                                                                                                                                                                       | BDA                                                                    | FRA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nodal Ministry/ Department              | Ministry of Environment, Forests and Climate Change                                                                 | Ministry of Panchayati Raj (PR)                                                                                                                                                                        | Ministry of Panchayati Raj (PR)                                                                                                                                                            | MOEFCC                                                                 | Ministry of Tribal Affairs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                         | State Forest Departments (SFDs)                                                                                     | State PR Departments                                                                                                                                                                                   | Environment Departments                                                                                                                                                                    |                                                                        | State Tribal Development Depts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Number/Area covered                     | Village Forests declared in many states Sec 28 (29)                                                                 | State Forest Departments (SFDs)<br>~0.1 Million plus<br>23 Mha                                                                                                                                         | Schedule V Areas<br>9 States                                                                                                                                                               | 72304 BMCs                                                             | 3.47 M Ha: Community Rights (CR) & Community Right to Forest Resources (CFR)                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MFP definition                          | (Timber and other forest Produce)                                                                                   | Defines Forest Produce                                                                                                                                                                                 | Not defined                                                                                                                                                                                | Defines bio-resources                                                  | Defined                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Ownership of MFPS                       | With Govt.,<br>Joint Forest Management Committees                                                                   | Joint Forest Management Committees                                                                                                                                                                     | Panchayats/ Gram sabhas                                                                                                                                                                    | BMC to levy charges on accessing bio resources for commercial purposes | Gram Sabha<br>Notwithstanding anything contained in any other law for the time being in force                                                                                                                                                                                                                                                                                                                                                                                                                |
| Jurisdiction Administrative structure   | Village / Helmet<br>Constituted under the State Forest Act or under State JFM resolution.                           | Scheduled areas with Gram Panchayats (GP)                                                                                                                                                              | BMC constituted by every local body – Panchayats or Municipalities                                                                                                                         |                                                                        | Village or tola etc.<br><br>CFRs (Section 3(1)(C) include right of ownership, access to collect, use, and dispose of MFP                                                                                                                                                                                                                                                                                                                                                                                     |
|                                         | Defined by DFOs, registered under Societies Act or with SFD<br>General Body/ Executive Body                         |                                                                                                                                                                                                        |                                                                                                                                                                                            |                                                                        | CFRs (Section 3(1)(i) rights to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use within traditional village<br>Jurisdiction including RF/PFPA areas, with delineation of boundaries and map, recorded as new category "CFR" in FD records<br>GS to constitute Committee for the protection of wildlife, forest and biodiversity from amongst its members.<br>CFR rights cannot be conferred on JFMCs |
| Protection, Management and Regeneration | States to make rules for management of VFs and duties of villagers for the protection & improvement of such forest. | Protection, Management and Regeneration under approved Micro Plan along with provision for benefit sharing as defined in the respective State's JFM resolution.<br>Legal action for violation with SFD | Some States have made rules empowering GP to fix collection prices etc.                                                                                                                    |                                                                        | Gram Sabha to protect the wild life, forest and biodiversity if there are any right holders under FRA (IR/CR/CFR)<br>CFR area to be managed as per conservation management plans for their sustainable use.<br>No comprehensive guidelines for CMPs preparation.<br>GS empowered to stop any activity, which adversely affects the wild animals, forest and the biodiversity. However, punitive action can be taken only under IFA/WLPA/SF Acts.                                                             |
| Access/ Collection/use                  | Free access, collection, use, sell                                                                                  |                                                                                                                                                                                                        | Does not include any provisions for conservation/ management.                                                                                                                              |                                                                        | access to collect, use and dispose of minor forest produce                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Documentation mechanism for Management  | Micro Plan approved by DFO in conformity with the Working Plan of the Forest Division/District                      |                                                                                                                                                                                                        | People's Biodiversity Register in consultation with local people, comprehensive information on availability and knowledge of local biological resources, their medicinal or any other use. |                                                                        | Community rights - no provision for plan for conservation/management except protection.<br>CFR Management Plan approved by Gram Sabha (Working Plan stands modified to that extent)                                                                                                                                                                                                                                                                                                                          |

phyto-therapeutic and cosmetic products, food and nutritional supplements, handicrafts etc. However, since the management of forest in India has been timber centric, there has been minimum focus on the management of the NWFRs so much so that there has been virtually no national/state level assessment of this national resource, which ideally should be the starting point for effective management of any resource following the dictum that unless you know what you have how do you manage it.

### Survey of NWFRs

FSI has been conducting National Forest Inventory (NFI) to estimate the growing stock or the carbon stock of its forests and of Trees Outside Forests (ToF) areas and findings are published in biennial India State of Forest Reports (ISFR). FSI switched to a grid based design with 5km X 5km uniform grids with 5 year revisit time in forest area (Recorded Forest Areas/Green wash boundaries in topo sheets) and 10 years in other (Tree outside Forest) areas. In recent years the ISFRs reports include biodiversity, NWFP resources, ecology or conservation for national planning purposes.

India State of Forest Report, 2019 (FSI, 2019) mentions Shannon-Wiener Index of tree, shrub and herb species in different forest type groups in each state based on rapid assessment of biodiversity undertaken by FSI in natural forests, and also relative abundance of top five NWFP species. However, no assessment of NWFRs has been attempted, except the bamboo resources.

Globally researchers and practitioners have developed NWFR assessment methodologies that are typically tailored to some species or local situations, and often based on timber inventory methods. In India also there have been some studies on NWFP resources following either area-specific or species-specific methodology, but there are no national or sub-national level surveys of NWFP resource.

A. During 2006, under International Tropical Timber Organization Project (Pre Project) on Sustainable Management of NWFP in Maharashtra quantitative assessment of NWFP herbs, shrubs and trees, and qualitative assessment (identification) of widely used, widely traded and important plant based NWFPs, excluding tendu leaves, was done across 50 villages in four divisions of Maharashtra (Sawantwadi, Alibag, East Melghat and Wadsa). Qualitative assessment (identification) of widely used, traded and important plant based NWFPs was based on PRA and RRA approaches, and additional information was collected from records, reports and other publications. Quantitative data were collected by laying sample plot in clusters in forest compartments adjoining each sample village with a sampling intensity of 0.1% (by area). The study identified 295 spp. including 211 for

household use, 167 for medicinal use, and 77 for income generation. The species were also ranked according to their uses in food, medicines. Additionally, villagers' perception about reduced availability of the widely used and traded species, and change in forest and availability of NWFPs was also recorded.

The study documented harvesting practices and post collection practices (cleaning drying, storage and local level processing) of some important NTFP spp. Nearly 70% of plant collection involves destructive harvesting since parts like roots (29.6%), bark (13.5%), leaves (5.8%), rhizome (4.4%), stem (5.5%) and whole plant (16.3%), fruits (10.3%), seeds (8.6%), flowers (5.2%) are used {Foundation for Revitalisation of Local Health Traditions data base of 880 plants}. Damage to trees for collection of fruits like Amla, and collection of unripe fruits was also observed. No pattern of conservation or regeneration in uprooting was seen in the study villages. Retention of seed material (tubers, rhizomes, fern culms) was found to be inadvertent, rather than being planned. The study emphasized the need to evolve management strategies to maintain, and if possible, enhance harvest levels and to ensure that harvesting is sustainable and not at the expense of important ecological processes.

- B. Mishra and Naidu (2014) estimated the population of a shrub named *Decalepis hamiltonii*, an important NWFP species in the Forests of Chittoor district of Andhra Pradesh, categorized as having "Endangered" status (International Union of Conservation of Nature 3.1), whose roots are used in Ayurvedic medicines and also use in pickles, adopting 'Adaptive Cluster Sampling' along the Horvitz – Thompson estimator, and concluded that this method can be replicated for other species with similar distributions. However, to standardize management prescriptions precise inventory coupled with productivity assessment is required.
- C. Chhattisgarh MFP Federation conducted first ever assessment of NWFP resources during 2007-08 in the State under a European Union funded "Non-timber Forest Produce based Employment Oriented Project". The objectives included Identification of forest product rich areas, productivity assessment and promotion of endangered species. In all 453 species were found of which 303 could be identified by the State Forest Department (SFD) staff and remaining 150 were identified through experts of Botanical Survey of India. At the state level, average number of trees per hectare was estimated to be 342.06 tree per ha comprising both timber (such as *Shorea robusta*, *Cleistanthus collinus*, *Terminalia tomentosa*, *Anogeissus latifolia*, *Pterocarpus marsupium*,

*Haldina cordifolia* *Ougenia dalbergiodes*) and non-timber (including *Buchanania lanzan*, *Madhuca latifolia*, *Phyllanthus emblica*, *Schleichera oleosa*, *Cassia fistula*, *Pongamia pinnata*, *Terminalia bellirica*, *Terminalia chebula*) species. In addition to tree species there were 26 Shrubs species, including 9 commercial species; 43 species of herbs and grasses including 22 commercial spp., 32 Climbers including 14 commercial species were identified.

The study assessed availability tree species in 2007 and 2008 but did not look into the reasons for changes in availability from 2007 and 2008, and recommended promotion of some species of medicinal value whose availability was found to be low, including *Terminalia arjuna*, *Aegle marmelos*, *Symplocos racemosa*, *Cordia macleodii* (Anon., 2012).

The federation is reportedly using these findings in optimizing its collection and marketing strategy. But there has been no subsequent assessment of NWFP resources in the state.

- D. The Energy and Resources Institute undertook a study entitled "Baseline survey to evolve methodology for Fixation of Minimum Support Price (MSP) under the scheme of Mechanism for Marketing of MFP through MSP and development of value chain for MFP" in which the Author was associated as a reviewer. The study sponsored by TRIFED covered nine states namely, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Andhra Pradesh, Telangana and Rajasthan. As a part of this study abundance of some important NWFP tree species yielding Myrobalans, Karanj (*Pongamia pinnata*), Mahua (*Madhuca longifolia*) Sal (*Shorea robusta*) leaves, Sal Seeds, Tamarind *Tamarindus indica*, Chironji (*Buchanania lanzan*), Gum karaya (*Sterculia urens*) was estimated, along with sustainability potential. This has been done based on potential habitat of these species as per the area under relevant forest types/Sub-types and average abundance obtained from working plan data and primary vegetation surveys and/or secondary literature. Subsequently, 14 more MFPs were studied for estimation of Minimum Support Price.

## Strategy for Management of NWFRs

Different people collect NWFPs for various reasons. Various parts of plants – roots, tubers, bark, leaves, flowers, fruits, seeds – from variety of species are collected. Some of them are used/consumed without any further processing and do not enter the markets. Others go through a long chain of traders and processors before reaching a highly competitive domestic/international market. Many of them come from the natural forests, while some others have been

domesticated for centuries. For effective and sustainable management of such an important resource which is natural, renewable, extremely heterogeneous, and provides significant livelihood support to the local communities, largely tribal and rural poor, a comprehensive resource assessment along with good collection/use practices is absolutely essential. From the above discussion, it is evident that, perhaps with the exception of Chhattisgarh, there has been no national or state level survey of NWFP resources in the country despite their importance being recognized and acknowledged repeatedly. There is a need to consider the vast body of work done by ethnobotanists in universities across India. There is a need to make efforts to compile this knowledge and continue the surveys with proper co-ordination between university system and governance system to come out with tangible outputs updated time to time.

There has also been no assessment of overall demand and supply of even the key NWFPs except in respect of the medicinal plants. Primary focus of NWFP development efforts has so far been on documenting collection practices prevalent in different regions/states, marketing mechanisms, value addition, development of new products, cultivation practices etc.

A comprehensive NWFP resource assessment has to answer the following key questions:

- i. Identifying the areas, showing where, what and how much is present, and the areas being managed under approved working/management plans; NWFP rich non-forest and cultivation areas.
- ii. Determining regeneration/replenishment rate;
- iii. Methods for calculating sustainable collection / harvest levels;
- iv. Estimation of current demand and its trend and need and feasibility of promotion for cultivation to meet the gap between demand and supply.
- v. Monitoring protocols to determine the efficacy management and cultivation practices including harvesting methods and quantities collected/harvested.

For any NWFR assessment to be meaningful, the following steps are necessary:

1. Prioritizations and classification according to products or end uses, though they tend to ignore the product source, but can facilitate tracking through the market. This can be useful in determining their importance in national and international economies. This can perhaps be the only source of statistics on NWFPs and starting point for resource assessments.
2. Classification of NWFPs according to (i) life form i.e. herbs, shrubs, climber, trees, (ii) plant part collected/harvested – reproductive propagules (fruits, nuts/seeds); Plant exudates (sap, resins);

Vegetative structures (whole plant, twigs, leaves, flowers, bark, roots/tubers). This is necessary to factor-in the important ecological processes while developing/standardizing sustainable management practices.

3. Actual assessment of resources including mapping areas with good presence NTFPs identified for survey, per ha. number of tree-stems in various age/diameter classes or number of shrubs/herbs/grasses/climbers etc., status of established regeneration ranked according to ecological requirement – good, moderate, or poor;
4. Standardization of collection of traditional/scientific and sustainable harvesting/collection practices according the plant part collected/harvested, including post collection practices for drying, storage, and local level processing.
5. Methods for fixing annual sustainable harvest limits.
6. Development of Sustainability standards for NWFRs – independent/third party certification.
7. Improving the marketing mechanism and promotion of local value addition.
8. Evolving a system of issue of “Certificate of Origin” in place of transit permit issued by the Gram Panchayat/Sabha or Forest Department, as the case may be to facilitate hassle free movement of NWFP from the collection areas to any destination in the country.

As a preliminary step, it would worthwhile for the States to look into the FSI's NFI data and explore the possibility of further analysis in conjunction with Forest Type/Sub type Maps and Forest cover density maps to generate preliminary NWFR maps, and to identify gaps - need for inclusion of more species of commercial/local importance and RET species, increasing the number of sample plots to generate more accurate maps of NWFRs and assessment of availability of NWFPs of importance. More importantly, the assessment of NWFRs need to go beyond the “Forest” since many NWFPs are found in non-forest /private areas and are also cultivated.

Srivastava and Anitha (2011) have demonstrated the utility of satellite remote sensing data and GIS in generating the NTFP maps by integrating the forest type, forest density, Non timber forest species and total economic value maps of the study area *i.e.* Pune Forest division, Maharashtra. These maps show the distribution of non-timber species having potential economic uses. The study concluded that this approach will facilitate establishment of a “Functional NWFR survey system”.

Along with creation of functional resource survey system, it is also necessary to establish a monitoring mechanism to periodically assess the status of NWFRs in various regions and also at national level resulting in both growth data, potential yields, and actual yield of

priority and RET/Niche species. This will facilitate evolving strategic/timely management interventions aiming at sustainability of the resources, including protecting the area from the drivers of degradation, improved management practices for enhancing regeneration etc.

There is also an urgent need to collate available methods for harvesting/collection, primary processing and local storage of key NWFPs and standardise the same and publish them in local language with pictorial depictions for ease of understanding. This will enable non-destructive collection of NWFPs resulting in sustaining livelihoods of forest dependent

For improving the marketing and local value addition of NWFPs the existing soft and hard infrastructure created under different initiatives, including the clusters under Externally Aided Projects, must be integrated with Van Dhan Vikas Yojna.

Continued R&D efforts are also necessary for ensuring optimal and efficient use of extracted NWFPs to meet domestic needs and also facilitating/enhancing exports.

State forest department needs to play the anchors' role and ensure synergising collaboration of universities, Research and Development, training and other expert institutions under various central ministries and state departments for steering the conservation and management of NWFRs.

It is necessary that the present forest management practices need to shift towards NWFPs and other ecosystem services in addition to timber centric approach to provide maximum livelihood support to the local communities. The MOEFCC has to play a crucial role in ensuring the adoption of National Working Plan Code, 2023, including effective monitoring of the implementation of working plans based on the Indian Forest Management Standard.

Identification of rich NWFR areas and their Independent/third party and mandatory “sustainability certification” seems a necessity to prevent resource depletion, and needs to be adopted without any further delay. The scheme of MSP should also be linked to collection from certified NWFRs and adoption of standard collection and post collection primary processing protocols to ensure sustainability of resource. Additionally, focused programs for cultivation (with good agricultural practices) of the selected NWFPs may be undertaken.

Network for Certification and Conservation of Forests (NCCF) has initiated a process of development of sustainability standards for NWFRs adopting a multi-stakeholder and consultative process to cover legal, environmental, social, economic aspects of NWFRs and involve extensive consultations with key stakeholder groups including representatives from various

international organizations, Central Ministries, State Forest Departments and Corporations/MFP Federations, Industries, Traders, NGOs, and independent experts. NCCF has already developed India specific and internationally bench marked sustainability standards for (i) Forest Management, and (ii) Trees outside Forests that have been endorsed by Programme for the Endorsement for Forest Certification (PEFC) and can be used for certification of NWFPs found in forests and other areas. The adoption of these standards is bound to address the various issues related to conservation, management, responsible utilization of these resources for sustainable livelihoods of forest dependent communities.

## Conclusion

The above discussion makes it clear that NWFPs make major contribution in the lives of millions of poor tribal and rural people living in the vicinity of forests while also supporting forest based economy in the country through raw materials used by several industries. However, in the absence of systematic compilation of collection database of NWFPs and their use by the pharmaceuticals based on Indian System of medicines, essential oils, and other NWFP based industries it is difficult to estimate the actual contribution of NWFPs to national or state economies. Although the government of India has established NMPB for conservation and augmenting local medicinal plants and aromatic species of medical significance, and have recently launched a scheme of Minimum Support Price for several, there is no national level assessment of NWFRs. It is high time to evolve a "National policy for Non-wood Forest Produces" comprising periodic assessment and strategies for conservation of NWFRs, along with their efficient utilization for augmenting sustainable livelihoods of forest dependent communities.

## सतत् आजीविका के लिए गैर-लकड़ी वन संसाधनों का संरक्षण

अरुण कुमार बंसल

### सारांश

वन वैश्विक महत्व का एक अद्वितीय नवीकरणीय प्राकृतिक स्थानीय संसाधन है। भारत दुनिया के मेगा जैव विविधता वाले देशों में से एक है, और दुनिया की 7.7% जैव विविधता का घर है। गैर-लकड़ी वन उत्पाद (NWFP), जिन्हें लघु वन उत्पाद भी कहा जाता है, हालांकि वे किसी भी मायने में छोटे नहीं हैं - जंगलों में और उसके आसपास रहने वाले 300 मिलियन से अधिक लोगों के लिए आजीविका का स्रोत माने जाते हैं और

वास्तव में उनके सामाजिक-आर्थिक और सांस्कृतिक जीवन से जुड़े हैं। हालांकि, लकड़ी केंद्रित वन प्रबंधन के कारण, NWFP को वह महत्व नहीं मिला है जिसके वे हकदार हैं। हाल के वर्षों में, गैर-लकड़ी वन संसाधन (NWFR) ने वन पर निर्भर समुदायों के लिए आजीविका का महत्वपूर्ण स्रोत होने और डाउनस्ट्रीम मूल्य संवर्धन और व्यापारिक गतिविधियों में रोजगार सृजन के माध्यम से अर्थव्यवस्था में गुणक प्रभाव डालने के कारण महत्व प्राप्त किया है। एनडब्ल्यूएफआर पर प्रभाव डालने वाले अधिनियमों की बहुलता ने उनके स्वामित्व और प्रबंधन जिम्मेदारियों के संबंध में प्रचलित भ्रम को और बढ़ा दिया है। इस पत्र में एनडब्ल्यूएफआर पर प्रभाव डालने वाले कानूनी ढांचे और उनके मूल्यांकन और प्रबंधन की वर्तमान स्थिति का विश्लेषण करने और भारत में स्थायी आजीविका के लिए उनके संरक्षण और प्रबंधन के लिए रणनीति का सुझाव देने का प्रयास किया गया है।

## References

- Anon. (2012). Survey of plant species resources of Chhattisgarh state under European Union funded Non-Timber Forest Produce based employment oriented Project, (in Hindi), Published by the Chhattisgarh State MFP (Trade and Development) Cooperative Federation Ltd., p. 298.
- Bahuguna V.K. and Bisht N.S.(2013). Valuation of Ecosystem Goods and Services from Forests in India, *Indian Forester*, **139**(1): 1-13.
- Forest Survey of India, (2019). India State of Forest Report, 208p.
- Hazari Sujoy, Mamoni Kalita and Biswajit Lahiri (2023). The value of Non-Timber Forest Products in Promoting India's Rural Livelihoods, *Indonesian Journal of Forestry Research*, **10**(2):221-237, October 2023.
- International Tropical Timber Organization, (2006). Completion Report - Pre-Project Report No. PPD 5/00 Sustainable Management of NTFP in Maharashtra, India, 39p.
- Ministry of Environment and Forests, GOI, (1988). *National Forest Policy*, 9p.
- Mishra C.K, and G. Ramakrishna Naidu, (2014). Inventory of Non-timber Forest Products through Adaptive cluster Sampling, *Indian Forester*, **140**(1): 1-10, 2014
- MOEFCC, (2014). National Working Plan code, 2014, 86p.
- MOEFCC, (2023). National Working Plan code, 2023, 163p.
- Srivastava V.K. and Anitha D. (2011). Mapping of non-timber forest products using remote sensing and GIS, *Tropical Ecology*, **51**(1): 107-116, 2010
- Statista (2023). Gross value added from non-timber forest products India FY 2012-2020. <https://www.statista.com/statistics/1083252/india-economic-contribution-of-non-timber-forest-products/>
- Ved D.K. and Goraya G.S. (2007). Demand and Supply of Medicinal Plants in India, National Medicinal Plants Board, New Delhi and Foundation for Revitalisation of Local Health Traditions, Bangalore, India.