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EXPANDING TREES AND FOREST- BASED LIVELIHOOD OPPORTUNITIES THROUGH MAHATMA GANDHI NREGA

An exploration

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Table of Abbreviations

APL	Above Poverty Line
BMZ	German Federal Ministry for Economic Cooperation and Development
BLPC	Bihar Livelihood Promotion Committee
BFDC	Bihar Forfest Development Corporation
BPL	Below poverty lines
CAMPA	Compensatory Afforestation Management & Planning Authority
CEO	Chief Executive Officer
CNUFPCL	Churchu Nari Urja Farmer Producer Company Ltd.
CInI	Collective for Integrated Livelihood Initiatives
CGM	Chief General Manager
DED	Deutscher Entwicklungsdienst
EFCCD	Environment, Forest and Climate Change Department

ECNRM	Environment Climate and Natural Resources Management
ERADA	Enhancing Rural Resilience through Appropriate Development Actions
FPC	Farmer Producer Company
FSI	Forest Survey of India
FY	Financial Year
GP & GS	Gram Panchayats and Gram Sabha
GGAY	Ghar Ghar Aushadhi Yojana
GIS	Geographical Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
InWEnt	Internationale Weiterbildung und Entwicklung
INR	Indian Rupees
JSLPS	Jharkhand State Livelihood Promotion Society
JJHM	Jal Jeevan Haryali Mission
JFMC	Joint Forest Management
JOHAR	Jharkhand Opportunities for Harnessing Rural growth
JICA	Japan Inter-Cooperation Project
ICDS	Integrated Child Development Scheme
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MFP	Minor Forest Produce
NTFP	Non-Timber Forest Produce
MJSA	Mukhyamantri Jal Swavlamban Abhiyaan
NABARD	National Bank for Agriculture and Rural Development
NRM	Natural Resource Management
PDS	Public Distribution
PMVDVY	Pradhan Mantri Van Dhan Vikas Yojana
SHG	Self Help Groups
THR	Take Home Ration
TRIFED	Tribal Co-Operative Marketing Development Federation of India Limited Ministry of Tribal Affairs, Govt. of India
TT	Tata Trusts
UNSDG	United Nations Sustainable Development Goals
VFPEDC	Village Forest Protection and Eco Development Committee
VDVK	Van Dhan Vikas Kendra

Executive Summary

More than one fourth of the world's population relies on trees and forest-based resources for its livelihood (according to UNFAO). The forest-based products industry is a major source of economic growth and employment around the world it is estimated to be a US \$255 billion industry.

The study on 'Expanding Trees and Forest -based Livelihood Opportunities Through *Mahatma Gandhi NREGA*: An Exploration' is done for the Indo-German development cooperation project "Enhancing Rural Resilience through Appropriate Development Actions (ERADA)" for the purpose of identifying the best suitable interventions from existing schemes of the Ministry of Rural Development, Government of India, State Governments, and public agencies. The study focused on mapping of the schemes and interventions, specifically trees and forest based, that could possibly be put in fray for implementation of the project ERADA rather than conducting experimentation as part of new interventions. This report is part of a series of studies for livelihood activities mapping under the Mahatma Gandhi National Rural Employment Guarantee Act (*Mahatma Gandhi NREGA*) for five thematic areas such as non-farm, livestock, agriculture, aquaculture, trees and forest. The motto is to 'not reinvent the wheel', and build on the existing successful thematic based livelihood activities with a potential to replicate and upscale at larger level.

In partnership with the Ministry of Rural Development (MoRD), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH implements the Indo-German development cooperation project ERADA on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). ERADA supports BMZ's *Corona Immediate Programme*. The project aims to strengthen the resilience of rural regions and enhance the ability of vulnerable people to make a living by building upon locally available development programmes as well as improved natural resource management. ERADA is operational in four Indian states such as Bihar, Jharkhand, Madhya Pradesh (MP) and Rajasthan.

About one billion people worldwide depend on produce derived from forest plants to meet their medicinal needs. Moreover, upwards of 350 million people derive their full or partial livelihood from forests across the globe. The population that lives along the tropical forests of the Indian subcontinents are dependent on the natural resources to make up for between 20%-40% of their livelihoods

(ELSEVIER Global Environmental Change 71 (2021) 102368). The mapping study also found that there are government reports stating that about 40%-60% of the annual income of forest communities, especially tribals, comes from the forests. (Report of Tribal Co-Operative Marketing Development Federation of India Limited Ministry of Tribal Affairs, GoI-TRIFED, GoI- 2019).

The study found a consistent increase (54.48%) in the number of women who got into the work force from 2017-18 to 2019-20 with slight decline to 52.35% during 2020-21. A possible attribute for this decline could be the sudden increase of immigrant work force demanding more work in the Mahatma Gandhi National Rural Employment Guarantee Act (*Mahatma Gandhi NREGA*). In fact, Female Labour Force Participation Rate (19.7%) indicates that women are less employed in the organised sector and higher wages work area whereas the participation of women in the *Mahatma Gandhi NREGA* is fairly high i.e., 52.35% to 54.48%.

Mahatma Gandhi NREGS, under Mahatma Gandhi National Rural Employment Guarantee Act is the main scheme for the rural employment which provides job guarantee of a minimum 100 days of work in a financial year to all the respective job card holder in rural areas. The scheme operates at village level through *Gram Panchayats*, Block and District Panchayat Committee in each state along with provision of financial and monitoring support by the Ministry of Rural Development, GoI.

Livelihoods intervention through trees and forest has a significant contribution in providing both short term as well as long term income security to rural and forest dwelling families. In fact, *Mahatma Gandhi NREGA* played a vital role in engaging rural job seekers in their time of need during the COVID-19 pandemic, but there seems to be inadequate allocation of funds as well as execution of works related to plantations, block plantations, agroforestry and horticultural intervention under R6 categories of work in the *Mahatma Gandhi NREGA*. Data analysis from 2018-19 to 2020-21 of MoRD portal shows that the budget share of total spending on plantation related work in *Mahatma Gandhi NREGA* fell between 0.03% to 3.07% in project states.

The trees and forests-based interventions are observed to a significant extent across all the proposed ERADA project states through various other major projects and schemes of

central and state Government other than the *Mahatma Gandhi NREGS*, providing livelihood opportunities to the rural communities. The recently flagged pro-tribal income generation scheme, *Pradhan Mantri Van Dhan Vikas Yojana* (PMVDVY), aimed at the formation of 50,000 *Van Dhan Vikas Kendras* (VDVKs) and has already achieved the formation 175 VDVks, thus linking 1.149 lakhs SHG entrepreneur members. They have been engaged in the collection, grading, value addition and sales of Non-Timber Forest Products (NTFPs) and have been able to improve their family income.

The Forest Department of Rajasthan has promoted 1,957 SHGs that are linked with the micro-enterprises by imparting training of value addition and processing of the Non Timber Forest Products (NTFPs). The department spent INR 183.17 lakhs on afforestation interventions between 2017-2018 to 2020-2021. Through Japan Inter-Cooperation Project (JICA) supported plantation drives, the department has also invested INR 64.68 lakhs on plantation and restoration of the forests. The National Bank for Agriculture and Rural Development (NABARD) supported plantations have utilised INR 66,801 lakhs covering 1.23 lakhs Ha under plantation. The department has also planted 22,120 Hectares (Ha) under canal side plantation efforts. 6,622 Village Forest and Eco Development Committees (VFEDC) have been constituted by the department in the states which are directly involved in forest protection and management. For plantation maintenance and compensation through Compensatory Afforestation Management & Planning Authority (CAMPA), the department carried out plantation efforts on 36,679 Ha forest land.

Ghar Ghar Aushadi Yojana, one of the flagship programmes of the Forest Department has planned to distribute three crore medicinal plants among all households, out of which it has achieved nearly 50% of the target in first phase of its launch, reaching 1.26 crores families of Rajasthan. Under the Forest Right Act (FRA), 2006 and Community Forest Rights (CFR), the land allotment claims have been approved by the department and 44,071 Ha forest land has been given to individual tribal families whereas 24,963 Ha and 4,971.32 Ha land has been allotted to groups for agricultural and forestry-based activities. The department of Forest, Rajasthan has developed a green cover of 3,678 Ha by planting nearly 28 lakhs plants under the Mukhya Mantri Jal Swalambhan Abhiyan.

Madhya Pradesh state's Forest department has helped generate livelihoods to a great extent by forming 15,608 Joint Forest Management Committees (JFMCs) who have been managing 46,993 square kilometres of forest area and have generated a revenue of INR 3,250.75 crores between 2017-18 and 2019-20. A direct benefit sharing of INR 106.22 crores was done with the JFMCs. The department has spent INR 7,268.87 lakhs through the Green India mission. Through Compensatory Afforestation Fund Management and Planning Authority (CAMPA) for compensatory plantations, the department has also spent INR 153.4 crores during 2019-2020. During 2020 and 2021, the department has produced 892.78 lakh plants, resulting in generating a revenue of INR 541.94 lakhs for the year 2020 by raising nurseries through women Self Help Group (SHG) members.

Forest lands covering an area of 34,1779 ha were allotted in Madhya Pradesh under CFR to 23,200 families under individual claims and 59,2911 ha to 27,976 communities under community level allotments.

The Madhya Pradesh Cooperative Federation has generated a revenue of INR 2,124.34 crores through collection and sales of tendu leaves. Nearly 85% of the revenue was spent back on the regeneration of the forests and 15% of the revenue was transferred to JFMC accounts. The incentive of INR 1,085.94 was paid to the Panchayats as per the new FRA for spending on its own discretion.

The state of Bihar has a notified forest area of 6,764.14 km², which is 7.5% of its geographical area, and has a target to make it reach 15% by year 2024 for which a flagship programme named *Jal Jeevan Haryali* (JJH) was launched. The Department of Forest and Climate Change (DFCC) through this programme has launched large scale plantation drives targeting the plantation of 2.52 crores trees during 2019-20, which was almost met in due course. This has helped generate livelihood on a large scale for the community during the COVID-19 pandemic. 366 nurseries were raised by the department with the support of women SHGs based on the nursery entrepreneurship model. These nurseries are called DIDI's nurseries. 13.51 Lakhs saplings have so far been raised on 737.70 Ha of land through DIDI's nurseries.

The Bihar Forest Development Corporation (BFDC), from 2015 to 2019 has generated labour wages of INR 944.94 lakhs and collected a revenue of INR 3,041.97 crores. 80%

of the profit was invested back on forest development activities whereas the remaining 20% was transferred to Gram Panchayats' (GPs) accounts. The Department of Horticulture Bihar has adopted a cluster-based approach for fruit plantation and brought 3,00,764 Ha land under fruit plantation with a major plantation of Mango, Litchi, Aonla (Indian Goose berry), Custard Apple (Sitafal), Lemon, Banana, Sweet Orange and other citrus fruits.

Jharkhand, as the name indicates, is the land of forests. The total forest and tree cover of Jharkhand is nearly 34% of its total geographical area. The state has a large population of forest dwelling community that is living on forest produce. The study on forest dwelling community has found that the community earns about 18% to 23% of their annual income from forest produce.

Jharkhand Opportunities for Harnessing Rural growth (JOHAR) under Jharkhand State Livelihood Promotion Society (JSLPS) Initiative is being implemented with 70% financial support from the World Bank, in 68 blocks of 17 districts in the State. The project focused on livelihood enhancement by introducing High Value Agriculture (HVA) through promoting Solar Micro Irrigation Systems, Livestock Development, Fishery and Non-Timber Forest Produce (NTFP) under an umbrella of more than 20 farmer producer organisations.

The scheme named 'Aroma of Success' for women has initiated micro entrepreneurship by cultivating and processing medicinal and aromatic plants. 35,512 women farmers from 35 blocks of 17 districts have started cultivation of Lemon grass, Chiraita, Tulsi, Khas, Palma Rosa by promoting Aushadhi Vatikas. Altogether, 212 Producers Groups have been formed under this initiative, thus strengthening more than 35,000 women farmers. Cumulatively, the women farmers have registered a transaction of a whopping INR 150 lakh in the field of aromatic and medicinal plants.

DIDI's Bagiya nurturing nursery is one more initiative of the forest department of Jharkhand meant for providing livelihoods to the women groups in the state.

395 such nurseries have been prepared by women SHG members which have produced 25 lakh saplings under the buyback support scheme by the forest department.

NABARD has played a key role in availing the resources to generate the livelihood during the pandemic period by implementing 791 projects across 29 states including the proposed ERADA project states through its special initiative of Tribal Development Projects. This has directly benefited 5.53 lakh tribal families by raising WADI (fruit plant orchards) on 4.54 lakh Ha land.

Initiatives of the states other than the ERADA projects, especially in the states of Maharashtra and Gujarat have paved the way for other states by exercising the Panchayats Extension to Scheduled Areas (PESA) and CFR. They have secured forest rights and got the individual and community allotment of forest land, have also started managing and taking forest produce under their control. 1,500 villages of Gadchiroli, Gondia, Amravati and Nagpur district of Maharashtra have asserted their forest rights and earned INR 32.9 crores from the sale of bamboo and tendu leaves besides enhancing the per unit production of bamboo from 0.90 MT to 1.89 MT per Ha.

Menda Lakha was India's first village to secure CFR in 2009 with over 1,800 Ha of forests land and its earning of INR 1.15 crore from the sale of bamboo alone. Similarly, Padboria village, with about 75 inhabitants of Gadchiroli District earned INR 2.71 crore during 2015-16 from the sale of bamboo. Panchgaon village in Chandrapur district with a population of 250 received CFR title for over 1,006.4 Ha land in 2013 and earned INR 1.46 crore during the same period.

The Vasava community in Shool Parmeshwar Wildlife Sanctuary of Narmada district in Gujarat is reaping the livelihood benefits from the CFR area. During 2013-17, a total of 31 villages earned INR 28 crore from the sale of bamboo alone. Additionally, the communities are identifying and mapping locations in their CFR areas. The execution of the PESA and FRA in its right spirit has vast potential for the project. Few of the successful models are covered in following pages.

- The successful models based on forest produce are seen across all states involving the local communities. Tendu leaf (leaf of *Diospyros melanoxylon*) collection is one of the successful models that played a key role in generating major portion of the livelihoods in rural forest dwellers, particularly the indigenous community in India. In Rajasthan it plays a vital role in generating significant income and livelihoods in western districts namely; Banswara, Cittergarh, Udaipur, Dunagarpur, Pratapgargh and Baran. There has been a collection of 2.70 lakh units recorded during 2019. A total payment of INR 2,565.00 lakhs was made to the community members who have been directly involved in collection of the leaves. Based on the information from Rural Development and Panchayat Raj Department Jaipur, the sum total of INR 838.66 lakh of Tendu leaf sale has been transferred to the Panchayat of the scheduled area basis the state's finance commissions payment pattern. The tendu leaf thus shows an enormous potential to provide long term livelihood-earning opportunities to the rural communities, particularly those living in the scheduled areas.
- Two *Van Dhan Vikas Kendra* (VDVK) in Alirajpur district, MP (Amkut village) started collection and sale of custard apples in collaboration with the Forest Department. 11 villages under *Van Dhan Vikas Kendra*-Alirajpur namely, Ambari, Rechhavi, Bhaidia's outpost, Somkua, Malwai, Behadwa, and villages under *Van Dhan Vikas Kendra*-Amkhut, namely, Mandar, Kanera, Pratappura, Du Nagargaon worked together and collected the fruit. Seven SHGs from eleven villages involving 70 SHG members collected 10,500 Kg of fruit in one week's time. The Fruit was sold in

the wholesale market of Bharuch, Gujarat and Indore, MP. The group purchased the whole collection of produce at INR 1,40,635 (inclusive of all expenses) and traded it for INR1,77,681. There was net profit of INR 37,046 which was equally amongst all group members. In addition to this, all 70 group members who were involved in the collection of the fruit also earned wages of INR 74,470. A total of 52 families got benefited from the collection and sales of the produce.

Lemon Grass and other medicinal and aromatic plants grown by women of Bishunpur village of Gumla, district Ranchi, Jharkhand, became financially self-dependent by cultivating lemongrass. The Prime Minister also included the success story in his "*Mann ki Baat*" episode on 26th July 2020. Women of Sakhi Mandal were linked with the medicinal/aromatic plants farming that was started by the Gramin Seva Kendra. Currently, 500 women of Bishunpur village are earning a livelihood through this lemongrass farming. Sumati Devi of Rahkuba group of Bishunpur, who started lemongrass farming on her 26 thousand square feet land after taking a loan has earned 1 lakh 10 thousand rupees by spending nearly INR 22,000 rupees. Rupmurti Devi of Navagadh Sirka village also cultivated lemongrass on her 22 thousand square feet of land and has earned about one lakh 45 thousand rupees from the same. She started lemongrass farming in 2018, and now the area has been extended to 10 acres of land. Nearly INR 77,000 rupees are earned per acre of land by each family. There are thousands of women who are involved in lemongrass farming under the Women Farmer Empowerment Project from around 31 villages of 16 districts, and benefitting from the same.



Part 1

Introduction

Project Context

The Indo-German development cooperation project 'Enhancing Rural Resilience through Appropriate Development Actions' (ERADA) is commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, India is implementing the project in partnership with Ministry of Rural Development (MoRD), Government of India (GoI). ERADA aims at strengthening livelihoods of vulnerable communities in selected rural areas based on locally available natural resources and development support programmes. The project is operational in eight blocks operational at a national level and across eight aspirational districts in four Indian states of Bihar, Jharkhand, Madhya Pradesh and Rajasthan.

The ERADA project supports the BMZ's *Corona Immediate programme*. The COVID-19 pandemic has affected the lives of a majority of vulnerable communities, especially women, youth, people with low economic background, ethnic and indigenous people, migratory unskilled and skilled labour. The ERADA project is implemented through developmental support programmes of the government

especially, Mahatma Gandhi National Rural Employment Guarantee Scheme (*Mahatma Gandhi NREGS*). Under this scheme, there is a wide scope of incorporating the community and individual natural resource base development activities ranging from infrastructural support to land development, afforestation, adopting agroecological development approach, institutional support, providing digital platforms, revitalising social/cultural and indigenous practices of conservations.

The outputs of the project are:

- Improving wage work potential of vulnerable households and enhancing the natural resource base.
- Long-term green livelihood development, in convergence with NRLM and other relevant national and state level programmes.
- Improving convergence and strengthening of multi-stakeholder platforms for providing better access to vulnerable households.

The COVID-19 pandemic has affected the lives of a majority of vulnerable communities, especially women, youth, people with low economic background, ethnic and indigenous people, migratory unskilled and skilled labour.



Part 2

Approach and Methodology

2.1 Approach

The mapping of trees and forest-based livelihood resources is done through extensive review of the prevailing data of all major agencies currently having a footprint on the ground. The department and agencies like the department of Forest, Rural Development, and Panchayat Raj, Jal Jeevan Haryali (Bihar), Jal Jeevan Mission, UNNATI Programme of MoRD, Cluster Facilitation Programmes under *Mahatma Gandhi NREGS*, department of agriculture, department of horticulture, NABARD, and Medicinal plant Board are chosen as major sources of information. Data are mostly taken from secondary sources. In person or online meetings were conducted with the department and agency personnel to seek the information on the interventions.

2.2 Methodology

The methodology followed covered two source of data collection i.e.,

- a) Secondary data from departments and agencies
- b) Primary information from the experts of department and agencies.

- **Secondary Data**

Literature and Policy guidelines, case studies, evaluation reports, periodic reports of departments and agencies, research papers on the prevailing schemes of both central and states governments on livelihood enhancement are thoroughly reviewed for mapping of livelihood activities. The collection and review of the data was limited to last three years (FY 2018-19, 2019-20 & 2020-21) for most the schemes, subject to

availability. Data was also considered for review/ mapping from older reports and research studies found to be relevant to the present study. The consideration of the data period ensured representation of both the pre-COVID-19 as well as post COVID-19 times that affected the livelihood of vulnerable migratory labourers and others who depend on labour employment for their food and livelihood security.

The secondary data also included information from the data available on official portals of the *Mahatma Gandhi NREGA*, Department of Forest, Department of Agriculture, Department of Horticulture, NABARD, *Jal Jeevan Mission*, *PM Van Dhan Vikas Yojana*, medicinal plants boards and major civil society organisation and UN bodies. Comprehensive review of the national and international research papers, publication and media coverage is done to authenticate facts about the data.

- **Primary source by reaching out to experts**

Officials and key resource persons from government departments and agencies are reached through phone calls and online meetings. In-person meetings could happen in a very restricted manner with only few of the officials present. Online discussion held with the officials following semi structures queries on livelihood activities/resources generated specifically through trees and forestation/plantation to gain deeper insight to map the quantum of work and resources created. The success achieved was not without some critical challenges that were faced, to address which, some suggestions for continuation or improvement of the schemes and interventions were discussed with the stakeholders.

The collection and review of the data was limited to last three years (FY 2018-19, 2019-20 & 2020-21) for most the schemes, subject to availability



Part 3

Rural livelihood scenario India
and Project states

3.1 Global Brief

Based on the first ever survey of forest resources conducted by the United Nations Food and Agriculture Organisation (UNFAO), more than one-fourth of the world’s population relies on forest resources for its livelihood. The forest-based products industry is a major source of economic growth and employment around the world-it is estimated to be a US \$255 billion industry. About one billion people worldwide depend on produce derived from forest plants to meet their medicinal needs. All this is possible due to the rich genetic resources of the world’s forests which help them in adaptation and evolutionary processes as well as in improving their productivity.

Forests are primarily considered as social and environmental resources, and then as commercial resources in India. More than 350 million people derive their full or partial livelihood and sustenance need from forests. India has stabilised its forest and tree cover, but the quality of forests is degrading due to unsustainable harvesting of fuel wood and other minor forest produce. The Government of India has voluntarily communicated to UNFCCC to achieve an

additional reduction of 2.5-3 billion tonnes of carbon dioxide by 2030 from the forestry sector on 2 October 2015 which was further ratified on 2 October, 2016.

A study conducted across 85 tropical countries by Giacomo Fedele-Camila I. Donatti, Ivan Bornacelly and David G. Hole, covering five million households, identified that there is a majority of households that are dependent on nature and forest produce for their survival. The result of the study revealed that there are 1.2 billion or 30% of the population across tropical countries that are highly dependent on natural resources for fulfilling their households needs viz; food, water, energy and occupation. The study suggests that in places where people highly depend on nature for their basic needs, nature-based strategies that protect, restore or sustainably manage ecosystems must be carefully designed to promote inclusive human development alongside environmental benefits. (ELSEVIER Global Environmental Change 71 (2021) 102368). The population lives along the tropic range of the Indian subcontinents are depending on the natural resources between 20% to 40% for their livelihoods.

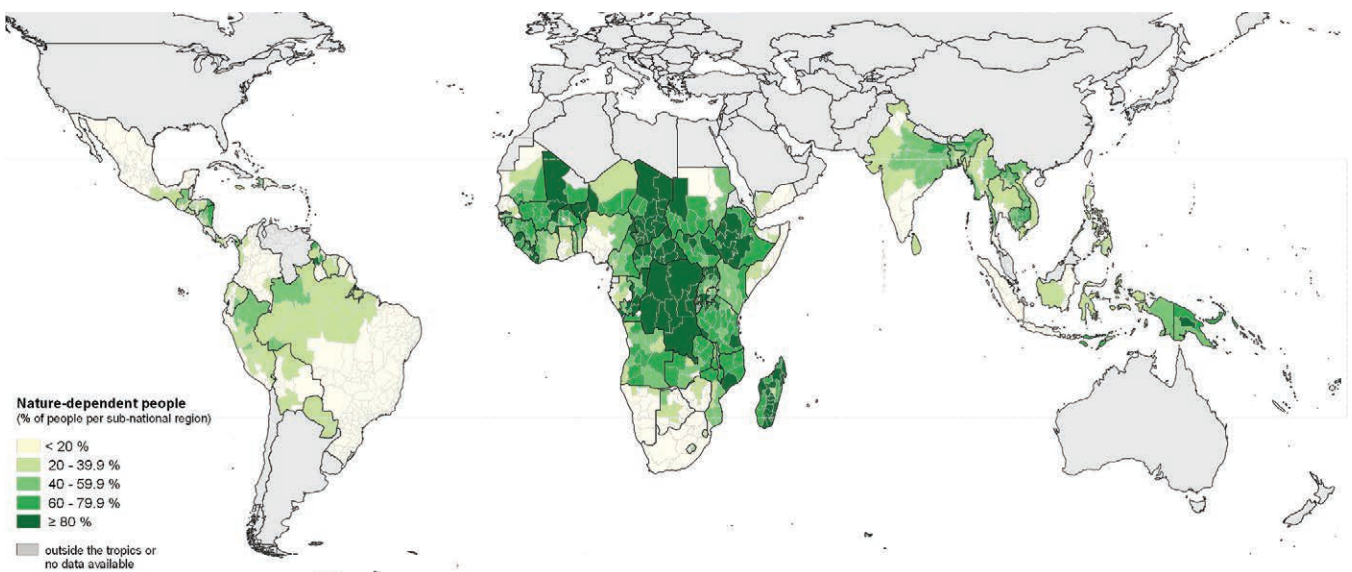


Figure.1. Proportion of people that highly depend on nature to fulfill their basic human needs at sub-national level across the tropics (30% on average across the tropics). Nature-dependent people are defined as those that directly use natural sources for at least three of the four basic needs considered: housing materials, water, energy, occupation. (Source: (ELSEVIER Global Environmental Change 71 (2021) 102368)

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3.2 Rural livelihoods in India and project states based on trees and forests

Trees and forests are the kind of resources which are being used by everyone, either directly or indirectly. There is hardly any household that is not utilising this resource. The lives of forest dweller communities', on the other hand, revolve in and around the forests for their livelihoods, and this holds true from east to west as the central tropical corridor depends entirely on forest resources. This tribal dominated corridor constitutes: North-eastern states, Jharkhand, Bihar, Chhattisgarh, Madhya Pradesh, Maharashtra, Rajasthan and Gujarat. These states are home to more than 70% of India's tribal communities. Among other vulnerable communities, the schedule tribes who live in forests and forest fringes are the people who depend the most on forests. The total population of the tribal community is about 8.6% of the population of India. Based on the growth trend, the absolute population of the tribal community was about 12.5 crores in 2020. Jharkhand state housed 8.645 million ST population out of the total of 32.98 million, which constitutes 26.02% of total population as per the population census report 2011. The ST population of the state of MP is 21.1% i.e., 15.31 million out of 72.72 million. Rajasthan's ST population is 13.48% of 68.90 million. In Bihar, more than 50% of this

population lives inside the forests (GoI, TRIFED- 2019) and depends on forest resources for their livelihood. A report of TRIFED, GoI- 2019 says that about 40-60% of the annual income of these forest communities comes from the forests. The tribal women are seen to be more dependent on the forest produces (MFPs) for their sustenance. A study report on state of Indian forest 2019 by the forest survey of India (FSI) revealed that people who live in the forest and forest fringe villages are highly dependent on the forests for fuel wood, fodder, small timber and bamboos, besides depending on other MFPs and medicinal plants etc. The landlessness is commonly seen among these tribal communities, thus the forests become more important to these families for earning food security. Additionally, the families who have got land inside forests or have land on forest fringes or who have been practicing agricultural operation inside the forest area for a long time but legally have no rights on it or those who are cultivating a single crop in a year during the rainy season only. These small holdings are mostly less fertile, eroded forest lands with low productivity, thus making community more dependent on forest produces.

Jharkhand state housed 8.645 million ST population out of the total of 32.98 million, which constitutes 26.02% of total population as per the population census report 2011.



Part 4

Trends of employment/Unemployment
among women in rural areas in
COVID-19 regime

Across the nation, 2020-21 posed unprecedented challenges before all in every aspect of life, be it economic, social or cultural. People from all walks of life were impacted due to the COVID-19 pandemic and subsequent lock downs. However, the women and girls are going through much more hardship and are affected adversely. The agencies and organisation from all sectors including policymakers, economists, and grassroots civil society organisation are trying to know the degree of impact the pandemic has left on women, to come up with the empirical data to suggest an immediate and a long-term recovery plan of action.

An independent study brought out on Women and Work: How India Fared, in 2020 by LEAD (Leveraging Evidence for Access and Development KREA University) and IWWAGE (Initiatives for What Works to Advance Women and Girls in the Economy) has a data story on women's livelihoods and work during the COVID-19 crises. The study report reflected on the key trends and policy developments impacting lives of women across India during 2020-21. The finding of the study talks about the changing

role of the women in the economy, their resilience while facing crisis and opportunities therein to get back on track for economic stability that had encountered a setback during the pandemic. The study has focused on assessment of the role of women in the Indian economy, covering the social and economic parameters viz; Female Labor Force Participation (FLFP), blockages to work and livelihoods opportunities, financial inclusion, access to skill development, digital literacy and violence.

In comparison to the Male Labour Force Participation Rate (MLFPR) of 55%, the Female Labour Force Participation Rate was found to be only 19.7% for rural women in India (World Bank report 2020). The facts revealed in the Periodic Labour Force Survey 2018-19 that despite of increasing education levels, rise in fertility rates and overall economic development of the country. World Economic Forum's Global Gender Gap Report 2020 ranks India among the five worst performing countries on the 'Economic Participation and Opportunity metric (World Economic Forum, 2020. Global Gender Gap Report 2020).

Table 1: Comparative account of Female Labour Force Participation Rate in India

Year South Asia	1990	2000	2010	2020
UK	60.1	60.3	60.5	61.5
India	30.2	30.4	25.6	20.3
Bangladesh	25.1	25.4	29.7	36.5
Pakistan	10.1	11.2	18.1	20.2
Source: World economic forum report-2020				

In comparison to the Male Labour Force Participation Rate (MLFPR) of 55%, the Female Labour Force Participation Rate was found to be only 19.7% for rural women in India (World Bank report 2020 Female Labour Force Participation Rate).

Women's Employment Under Mahatma Gandhi National Rural Employment Guarantee Act (*Mahatma Gandhi NREGA*)

The gender disaggregated data are maintained on the *Mahatma Gandhi NREGA* portal by Ministry of Rural Development, GoI. Data is analysed for the participation of women from 2016-17 to 2020-21. The data revealed that there is a consistent increase in women getting into to the work force from 2017-18 to 2019-20 with 53.12% to 54.48%. However, there is a slight decline in the number of women getting involved in *Mahatma Gandhi NREGA* work (52.35%) during 2020-21. The possible attribute for the decline in the work share of women could be the sudden

increase in the number of unemployed persons who returned to their hometowns and villages due to pandemic lockdowns in their work places. Also, another reason could be the issuance of more job cards in the family and immigrant work force demanding more work under *Mahatma Gandhi NREGA*. The overall data on Female Labour Force Participation Rate (19.7 %) indicates that women are insufficiently employed in the organised and higher wages work area whereas the participation of women in *Mahatma Gandhi NREGA* is fairly high i.e., 52.35% to 54.48%, but this picture does not speak about the (lack of) choice as not having the right opportunities in higher-wage jobs pushes them to accept whatever is available to earn minimum survival for themselves.

Table 2: Women work force in *Mahatma Gandhi NREGA*

Year	2017-18	2018-19	2019-20	2020-21
Total person-days worked by women from 2017-18 to 2020-21	11.81 crores	13.87 crores	13.87 crores	13.39 crores
Total person-days worked by men from 2017-18 to 2020-21	22.22 crores	25.62 crores	25.45 crores	25.58 crores
Percentage of women work-days	53.12%	54.21%	54.48%	52.35%

The data revealed that there is a consistent increase in women getting into to the work force from 2017-18 to 2019-20 with 53.12% to 54.48%.



Part 5

Impact of COVID-19 on
livelihoods and migration

The pulse was felt in the very beginning of the outbreak of COVID-19 pandemic that the second most populated country, like India with an average health infrastructure is going to be adversely affected, causing much threat to livelihood security, health and employment of many including elderly, women, youth and migratory skilled and unskilled labourers. The situation turned out to be just about so. The total shut down of the nation from 24 March 2020 to 31 May 2020 to curb on the fast spread of the pandemic by the government left no room for the people, who work away from home for livelihoods in other major towns and cities, than to come back home and face the situation. The GDP rate slipped into a technical recession in the first two quarters of FY 2020-21. The most severely hit sectors were construction, manufacturing, trade, hotel and other services. The Index of Industrial Production (IIP) also experienced a substantial contraction of 55.5% in the first half of FY 2020-21, reaching its historical low. Despite of the given recession in most of the sectors, the agricultural sector in India stood less affected and actually recorded a growth rate of 3.4% during the first two quarters of FY 2020-2021. The unemployment rate had gone up by 24% in the first wave of COVID-19 that went on till December 2020, whereas the second wave that started from February 2021 worsened the situation, further adding misery to the life of the rural communities. The unprecedented lockdown for the months posed challenges for all but it threatened the very survival of the most vulnerable section of rural youth, women and children. With the ease in the lockdown, the unemployment eventually came down, reaching a near pre-lockdown level but a worrisome long-lasting impact reflected in the form of smaller worker participation rates

observed in Labour Participation Rate (LPR) and Employment Rate (ER), which is far behind the pre-COVID-19 level. (Source: Rural pulse July 2021 issue- “COVID-19 crisis through a reverse migration lens” Department of Economic Analysis and Research-NABARD)

Measures adopted by the government to ease the lives of the people, though not felt enough, provided immediate relief to the communities facing acute scarcity of food and livelihood. The government, in addition to the routines food security schemes, through Public Distribution System (PDS), be it ration to BPL and APL families or THR from midday meal in schools and nutritional support to children and lactating mother from ICDS department, started providing free ration kits to most of the families found to be vulnerable to the pandemic and loss of work opportunities.

Continuation of PM Kisan scheme has also been proven to provide an immediate relief to most of the families. In this scheme, annually INR 6,000 has been directly transferred to farmers bank account as financial support for farming activities. The scheme was limited to farming families only, whereas the landless families are deprived of this support.

To look for a sustainable way out for providing a dignified livelihood solution to different categories of migrants, the government has launched an online portal for the registration of all migrant and non-migrant labour including skilled, semi-skilled and unskilled. Accordingly, efforts will be made to provide them with work opportunities under *Mahatma Gandhi NREGA* and other government projects.

The total shut down of the nation from 24 March 2020 to 31 May 2020 to curb on the fast spread of the pandemic by the government left no room for the people, who work away from home for livelihoods in other major towns and cities, than to come back home and face the situation.



Part 6

State wise trees and forest-based livelihood mapping

Data analysis and interpretation of the four states

6.1 Rajasthan

Analysis of Trees and Forest based interventions in *Mahatma Gandhi NREGA*

Plantation work: *Mahatma Gandhi NREGA* is the main wheel of rural employment and livelihoods. The data referred from the *Mahatma Gandhi NREGA* portal for the last three years (2018-2019 to 2020-2021) to understand

and quantify trees and forest-based interventions leading to livelihood generation for rural communities. The data indicates that, less than one percent of total budgetary expenditures under *Mahatma Gandhi NREGS* are incurred on plantation-related interventions, which is further reduced to 0.12 % of the total budget during 2020-21 (Table 2).

Table 3: Mapping of the trees and forest based livelihood interventions in Rajasthan under *Mahatma Gandhi NREGS* (All plantations)

Year	Number of Blocks	Number of All Plantation works Ongoing	Number of All Plantation works Completed	Percentage (%) of works on All Plantation works against total works	Expenditure on All Plantation works [In Lakhs rupees]	Expenditure on All works [In Lakhs rupees]	Percentage (%) of expenditure on All Plantation works against total Expenditure
2018-19	352	4155	4322	0.92	5069.4	598370.83	0.85
2019-20	352	2025	2083	0.45	1833.52	655966.25	0.28
2020-21	352	1421	870	0.24	1097.58	930686.08	0.12

(Source : Mahatma Gandhi NREGA portal work category R6)

Afforestation work: Plantation work on forestland forms one of the major activities carried under the convergence plan between the department of forest and Panchayats where people live around forests are involved in daily wages work. Afforestation work has been conducted on 8,524 ha land in 2018-19, 16,599 Ha in 2019-20 and 26,371 Ha in 2020-21. The year-wise expenditure incurred on the works was INR 12,524.69, INR 31,137.13 and INR 67,716.53

lakhs respectively (Table 3). This activity provided a reasonably good opportunity for the rural households, especially during COVID-19 pandemic, to earn their livelihoods. However, there is more scope for the people under FRA to get involved in further maintenance and management of these lands to come up with a long-term plan for livelihood security.

This activity provided a reasonably good opportunity for the rural households, especially during COVID-19 pandemic, to earn their livelihoods.

Table 4: Mapping of the trees and forest-based livelihood interventions in Rajasthan under Afforestation through *Mahatma Gandhi NREGS*

Year	Work Category Name/Work Sub Category Name/Work Type	Spillover + New			Expenditure (in Lakhs)	No. of New Works	Unit.
		Total Works	Ongoing Works	Completed Works			
2018-19	Afforestation	20,948	7,717	2,971	12,524.69	8,524	Ha
2019-20	Afforestation	31,406	8,118	2,323	34,137.13	16,599	Ha
2020-21	Afforestation	54,848	13,961	3,354	67,716.53	26,371	Ha

(Source: Mahatma Gandhi NREGA portal work category R6)

Block and Bund Plantations: Block and bund plantation is one of most important activities conducted on private land under the individual plan in *Mahatma Gandhi NREGS* within agroforestry wherein plants of multipurpose tree species are planted. These plantations are generally planned on the bunds and boundaries or in small blocks of agricultural lands or community land to avail a long-term source of fuel wood, fodder, fruits and timber etc. Unfortunately, these plantation works are not planned by the Panchayats/forest departments under the *Mahatma Gandhi NREGA* convergence during the period considered under the study (2018-19 to 2020-21). There is need to foster this activity.

Pradhan Mantri Van Dhan Yojana (PMVDY)

The PMVDY, one of the priority schemes of the ministry of tribal affairs, announced on the 15 August 2019 by Hon'ble Prime Minister of India, Shri Narendra Modi. The scheme is implemented across 27 states and union

territories. In his speech on 15th August from Red Fort PM said 'Incremental progress not enough, India needs high jump' specially referring to the overall development of the tribal community.

The *Van Dhan Yojana* under the Ministry of Tribal Affairs targeting the tribal community, particularly SHG member women that are involved in the collection, processing and trading of the MFPs in an unorganised way. Based on the cluster approach, the women are to be organised into the groups and are linked with Van Dan Vikas Kendra, comprising of more than one village for performing production, maintenance, collection, value addition and marketing of the minor forest produce through the forest department. This ambitious scheme has targeted the establishment of about 50,000 *Van Dhan Vikas Kendras* (VDVK) in the tribal areas across the country to ensure livelihood generation and empowerment of the tribal people. On completion of 200 days of this scheme, very overwhelming responses have been received from most of the states progressing towards establishing and benefiting the tribal population.

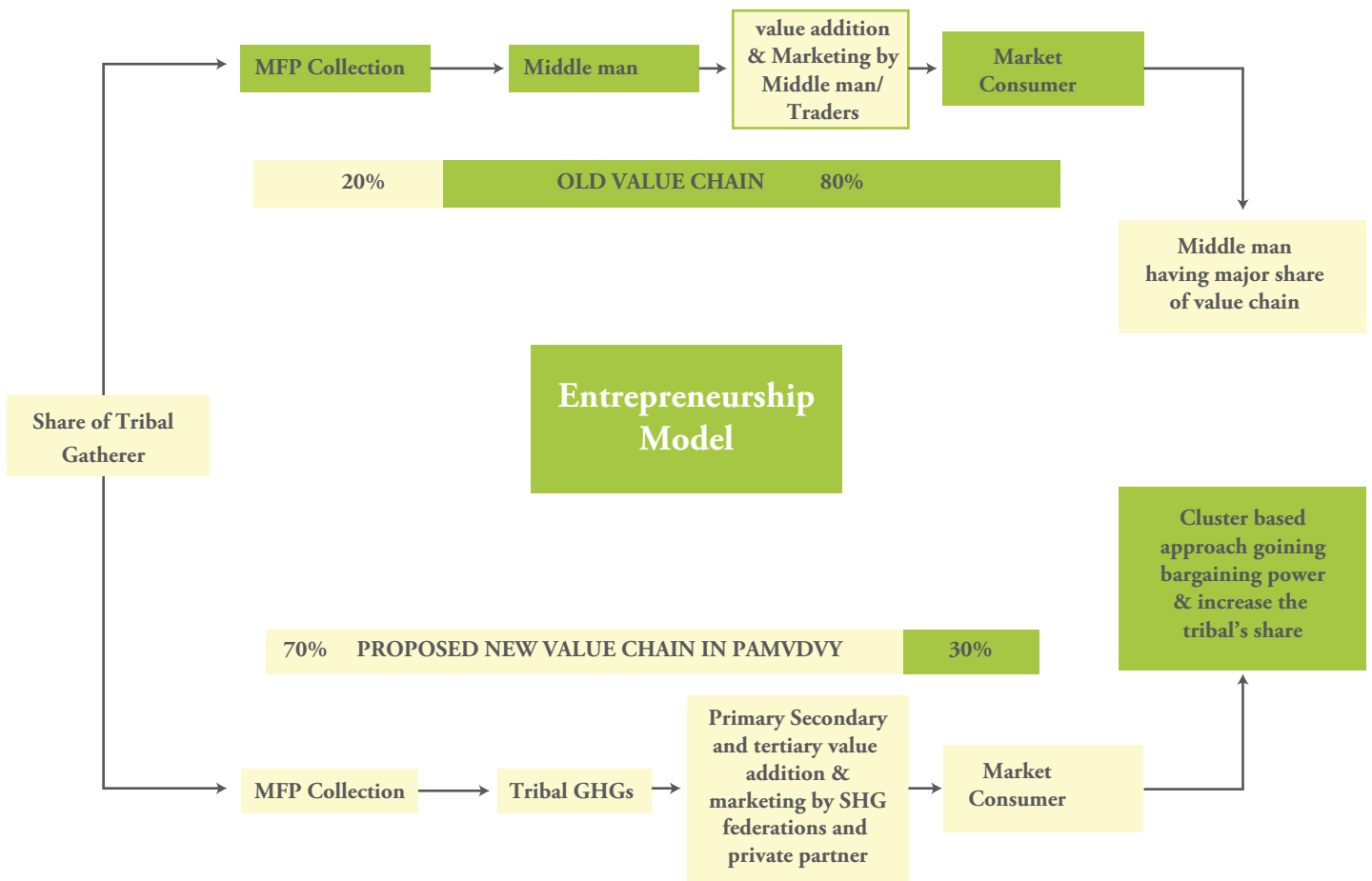


Figure 2. Depict the new entrepreneurship model of VDVks under PMVDVY

In Rajasthan, the scheme has been implemented in the tribal dominating districts of the state. Total 25 VDVk are formed in state and mainly nine forest-based products are identified to be taken for entrepreneurship by the SHGs (Table 4). These are Aonla, Honey, Mahua flower and seeds, Baheda, Karanj Seed, Ratanjot, Puwad Seed, Amaltas, Aritha, and Custard Apple (Sitafal). About 75,000 tribal entrepreneur members are linked with VDVks. They have been organised into groups and imparted trainings on value addition and preparation of finished consumable products from forests.

The Scheme has immense potential in involving the tribal women and youths for establishing the forest-based entrepreneurship to bring in an alternate source of income on a bigger scale and create their own brand and identity. Working with women for their skill and entrepreneurship development of the tribal women under PMVDY could be one area of intervention for ERADA.

Table 5: Mapping Livelihood Generation through *Van Dhan Yojana* in Rajasthan

State	Total <i>Van Dhan Vikas Kendra</i>	Total tribal entrepreneur (members)	MFPs	Successful case
Rajasthan	25	75,000	1. Amla, 2. Honey, 3. Mahua Flower, 4. Baheda, 5. Karanj Seed, 6. Ratanjot, 7. Puwad Seed, 8. Amaltas, 9. Aritha, 10. Custard Apple (Sitafal)	Van Dhan Kendra Jhamudi located in the Sirohi district. Sirohi district is tribal and hilly belt of south Rajasthan most of populations dependent on agriculture and daily wages laborious job. Tribal woman learnt to prepare Amla Pickles, jam and Murrabba, various preparation etc.

(Source: TRIFED Report PMJDY Ministry of Tribal Affairs GoI 2020)

Livelihood generation intervention by department of Forests Rajasthan

The Department of Forest, Government of Rajasthan, has a vast portfolio of operations. The department operates as per the state's forest plan. The forest plan is an independent action plan of the forest department covering afforestation, climate change action, wildlife management, eco-tourism etc. There are a number of projects and schemes run by the department that directly or indirectly impact the lives of the rural communities living around forests. Table 5 mapped the physical and financial targets and achievements of the projects and interventions implemented by the forest department providing livelihood opportunities to the rural forest dwellers.

The data are reviewed for the intervention for the last four to five years from the annual reports of the forest department of Rajasthan and other projects and scheme-specific reports. The department officials on the field level are contacted virtually and in-person regarding the fairness of the data available in reports.

As the annual report of the department of forest states, INR 1,83,176.41 lakh have been spent from 2016-2017 to 2020-2021 under various schemes of plantations and capacity building programmes providing short-term and long-term livelihoods and income generation to rural households. Table 5 depicts various schemes and programmes implemented by the department. The interventions like afforestation and agroforestry plantations, along with livelihood activities for 1,957 SHGs through JICA have invested INR 64,684.98 lakh and it could be one of the interventions creating revenue for long-term income

generation for the community. The NABARD financed plantation drive in the state has invested INR 66,801.06 covering 1,23,100 Ha area which is a reasonably good area where the rural household would play an important role in its maintenance and gain the benefits of the same for a long time.

The canal side plantations are mainly done on old canals where the previous plantations are getting mature and need replacement. The replacement plantation was carried from 2019-20 to 2020-21 on 22,120 Ha canal lands. The maintenance and benefit-sharing on maturity could be worked out with water user associations/SHGs. Under ERADA project a dialogue with the department may be initiated for the capacity building of SHGs and other institutions like water user associations, youths, department officials and PRI members based on the requirement of the state partners.

Plantation of farm-forestry seems to be one of the potential interventions where the plantation of multipurpose tree species on individual land could provide a long-term benefit to the households.

Total 6,622 Village Forest Protection and Eco Development Committees (VFPEDC) are formed in the state. These committees were formed under new FRA and PESA act, 2012 and have vital role to play in forest protection and the entitlement for benefit sharing of the goods and services of the forest. The ERADA project may bring in the plan to work with the department of forest for enhancing skills of VFPEDC.

Table 6: Mapping Livelihood Generation/Investment by Department of Forest Rajasthan (Physical and Financial)

Name of the Scheme	Years of Allotment /inception	Physical target (Ha)	Physical Achievement (Ha)	Financial Target (lakh)	Financial Achievement (Lakh)
National Adaptation for Climate Change (NAFCC)	2016-17 to 2020	1,195.00	1,195.00	163.00	163.00
IGNP (Canal Plantation)	2019- 20 to 2020-21	22,120.00	22,120.00	NA	NA
Plantation under Twenty point programme	2020-21	8,800.00	NA	NA	NA
Japan Inter-cooperation Project (JICA)					
Afforestation & Agroforestry	2019-20 to 2020-21	83,650.00	83,676.00	42,491.00	58,508.53
SHG Formation & Mobilisation		1957 SHG	1,957 SHG	6,542	5,350.53
Livelihood Improvement activities for SHGs		957 SHG	1,173 SHG	1,689	809.92
NABARD Financed Plantation Project	2012-13 to 2019-20	1,23,150	1,23,100.00	6,6801.06	6,6801.06
Plantation CAMPA (Mortality replacement) Under NFL	2017-18 to 2020-21	NA	3,649.43	NA	NA
Plantation CAMPA (Mortality replacement) Under DFL	2017-18 to 2020-21	NA	8,820.83	NA	NA
Plantation CAMPA (Mortality replacement) Under ANR	2017-18 to 2020-21	NA	24,227.00	NA	NA
Total Plantation under CAMPA			36,697.26	54,824.00	49,190.99

Name of the Scheme	Years of Allotment /inception	Physical target (Ha)	Physical Achievement (Ha)	Financial Target (lakh)	Financial Achievement (Lakh)
Bhakra Canal Plantation Project 2016-17 to 2020	2016-17	NA	NA	360.76	167.95
	2017-18	NA	NA	355.65	320.5
	2018-19	NA	NA	350	344.9
	2019-20	NA	NA	589.7	493.52
	2020-21	NA	NA	522.18	171.04
Total Bhakra Canal Plantation				2,178.29	1,497.91
Gang Canal Plantation Project 2016-17 to 2020	2016-17	NA	NA	315.89	228.71
	2017-18	NA	NA	274.5	274.35
	2018-19	NA	NA	199.24	194.9
	2019-20	NA	NA	153.51	118.85
	2020-21	NA	NA	151.51	67.66
Total Gang Canal Plantation		238.83 (For both canals)	238.83 (For both canals)	1,094.65	884.47
Replantation work on Indra Gandhi Canal	2017-18 to 2020-21	NA	2594.54	NA	NA
Plantation under Farm Forestry	2019-20 to 2020-21	NA	69.69	NA	NA
Revolving Fund BPP H1	2019-20 to 2020-21	NA	25.22	NA	NA
Village Forest Protection and Eco Development Committee (VFPEDC)	2020-21	6,622 VFPEDC	NA	10.00	NA
Grand Total				1,75,793.00	1,83,176.41

Ghar Ghar Aushadhi Yojana

During COVID-19, the Government of Rajasthan launched flagship programmes to sensitise people about the knowledge of our rich legacy of medicinal plants and create mass awareness about the benefits of the noble plants. The campaign also targeted employment generation and the passing on of health benefits to the all citizens. One of the most popular, and probably the biggest flagship programme of providing medicinal plants to all households has been launched by the Government through the forest department. The government has targeted the distribution of 30 crore medicinal plants of utmost health importance after looking into the COVID-19 pandemic. The scheme is planned to reach 1,26,50,000 families (according to census 2011). Nearly 50% of the families were already covered up to December 2021 in the first phase.

Four such important medicinal plants identified and selected for distribution are

Ocimum sanctum (Tulsi)

Withania somnifera (Ashwagandha)

Tinospora cardifolia (Giloy)

Andrographis paniculata (Kalmegh).

Two saplings of each plant are being distributed amongst each family in first year. The scheme is initially planned for five years. In the five-year period, each family shall receive 24 saplings.

Most of the state government departments are contributing to make the scheme a success. While the Forest Department is the nodal department for the scheme, district level task forces have been constituted in all districts under their

respective District Collectors to ensure due implementation at ground level. The scheme is monitored by state level committee, headed by the state chief secretary. A fund of INR 210 crore has been sanctioned by the state government for five years for the same.

The nurseries are being raised by the forest department with the active involvement of the women SHGs on the field level. The nurseries have generated employment on a good scale to rural communities during COVID-19 distress, thus securing immediate livelihood needs. Since the programme is there for a 5-year period initially, which may be extended, the nursery raising seems to be the one area of intervention that could be given to SHG members or groups associated with VDK with technical support from the department of forest to pass on more work opportunities and income to rural women.

Allotment of the Forest Land to the Tribes and other forest dweller for forest and non-forest use under PESA/FRA Act

The tribal people living near and inside the forest have been struggling to get the ownership of forests and forest land for a long time. Now they can play a vital role in forest conservation and avail the benefits from this inhabitation. Under the FRA and PESA, 2012 individual households and groups have claimed their rights on forest lands. In Rajasthan, up to date 31 December 2019, 44,071 individual HH claims are approved by the government and have been allotted an area of 24,965.22 Ha against the same. The community level allotment of 4,971.32 Ha in forest land has been given to the groups.



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The government has targeted the distribution of 30 crore medicinal plants of utmost health importance after looking into the COVID-19 pandemic.

The area allotted to individual HH has now proved to be a backbone to the tribal households for sustainable livelihood and a source of income. There are many pending claims

where the department has to scrutinise the merits and complete the allotment process.

Table 7: Allotment of forest land to individuals HH and Groups

Type of the land	Year of Allotment	Number of HH	Area in Ha
Forest Land Allotment under PESA & FRA 2012 to Individual HH	2019	44071	24,965.22
Forest Land Allotment under PESA & FRA 2012 to Community (Groups)	2019	NA	4,971.32
Non Forest land brought under Plantation	2020	NA	11.94

Mukhyamantri Jal Swavlambhan Abhiyaan (MJSA)

The project was launched by the Rajasthan state government between 2015-2017, with an objective to harvest and conserve water to the maximum, and make the state water-sufficient. Though the scheme mainly focused on the water-conservation-based interventions and created/rejuvenated thousands of the water harvesting structures, there was reasonably good thrust on increasing the tree cover near and on the water-conservation sites through plantation and direct seeding. This has provided livelihood to many rural communities across the whole state.

The plantation of around 28 lakh plants was done in the vicinity of the micro water bodies under MJSA, enhancing the green cover by 3,678 Ha. Indirectly, the treatment of the catchment area resorting to watershed development activities helped in sustaining the flora and fauna, and created long term resources for the communities that live in the surrounding areas. The maintenance plans of 5 years under *Mahatma Gandhi NREGS* further added to the creation of livelihood opportunities for the communities. The huge plantation drive of the state was highly appreciated by the Hon'ble Prime Minister in his “**Mann Ki Baat**” episode (Source: Impact Assessment Report MJSA, Government of Rajasthan - I Phase)

The plantation of around 28 lakh plants was done in the vicinity of the micro water bodies under MJSA, enhancing the green cover by 3,678 Ha.



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Successful Story Rajasthan

Successful Implementation of PESA in Scheduled Panchayats- Rajasthan Livelihoods and income generation through Tendu Leaf Scheme (leaf of *Diospyros melanoxylon*): Report from Rajasthan

Tendu leaf (leaf of *Diospyros melanoxylon*) is one of the minor forest produces that plays a key role in generating a major portion of the livelihoods for rural forest dwellers, particularly the indigenous communities in India. In Rajasthan, it plays a vital role in generating significant income and livelihoods, too. Beedi is a local cigarette made from Tendu leaf and tobacco. The tendu plants are mainly found in south and southwestern districts of Rajasthan namely; Banswara, Cittergarh, Udaipur, Dunargarpur, Pratapgargh and Baran.

The nationalisation of the tendu leaf happened in Rajasthan in 1974 with the enactment of the Tendu Patta Regulation Act 1974. With this enactment, only the Department of Forest, Government of Rajasthan was authorised to trade (procure and sell) in tendu patta plants. This was the most important step for the rural communities, taken with the objective of keeping out multiple traders and contactors and providing fair prices to the community. The objective of bringing in the act was also to develop scientific and

quality production of tendu leaves, and pass on more benefit to the collecting community and generate revenue in the forest department.

To protect the interest and prevent the exploitation of the collecting communities, the government forms separate advisory committees for each region or zone as per the direction of clause no six of the regulation act. Each year the advisory committee is constituted, comprising state government official, Panchayat members, elected representative and representatives from the community and traders to decide the pay-out prices to the leaf collectors. Now, there is a reasonably good incremental hike on the pay-out rates of leaf to the collectors, contributing to the overall increase in the income of their families.

Considering the regular increase in the minimum wages, there has been considerable rise in price of the per unit standard bag of tendu leaves. The pay-out prices per bag for the year 2017, 2018, 2019 and 2020 were declared as INR 800, INR 850, INR 900, and INR 1,010 respectively.

Table 8: Details of revenue generation during last three years

Mode of sales/disposal	Year	Total Units	Disposed Units	Number of Units pending for disposal	Income from sales (In INR)
Tender/Auction	2017-18	167	167	0	8,282.41
Tender/Auction	2018-19	167	167	0	3,349.42
Tender/Auction	2019-20	167	134	33	1,087.16*

(Source: Annual report 2020-21 Forest Department Govt of Rajasthan)

There has been collection of 2.70 lakh units recorded during the year 2019. Thus, at the rate of INR 950 declared by the advisory committee, a total payment of rupees 2,565.00 lakhs was made to the community members who have been directly involved in collection of the leaves. The fair prices during COVID-19 pandemic have contributed significantly in providing employment and livelihood to the communities.

Revenue sharing/transfer to Gram Panchayat of the scheduled area:

As per the Rajasthan Panchayat Raj Act 1999 and 2011, Extension to the Scheduled area (PESA) under sub rules 26 (2) and 26 (3), the net profits earned from the sales of the Tendu leaves and Bamboo have to be transferred the Gram Panchayats of the Scheduled area. Thus, based on the information from Rural Development and Panchayat Raj Department Jaipur, a sum total of INR 838.66 lakh for Tendu leaves have been transferred to the Panchayat of the scheduled area on state's finance commissions payment pattern

The tendu leaf thus shows an enormous potential to provide long term livelihood opportunities to the rural communities, particularly those living in the scheduled areas. Though, the department of forest has been doing fair practices under given provision of the legislation and rules under FRA and PESA, there has been a further scope to pass on the benefit directly to the communities by organising them into produce-based collectives or groups rather than involving them only as labour or wage-earning individuals. The net profit sharing could be partly shared with the groups, thereby involving them into the management of forests and quality production of the leaves and other forest produces like bamboo.

6.2 Madhya Pradesh

Analysis of Trees and Forest based interventions in Mahatma Gandhi NREGA

Plantation work: Like in other states, *Mahatma Gandhi NREGA* is also playing a central role in driving the employment wheel in Madhya Pradesh. The was data analysed from *Mahatma Gandhi NREGA* portal for last three years (2018-19 to 2020-21) to assess the trees and forest based interventions leading to livelihood generation for rural communities. The data shows that there is comparatively a higher allocation and utilisation of the overall budget for plantation work. 3.07 % of the total budget under *Mahatma Gandhi NREGS* was used in plantation work during 2018-19, but the allocation was reduced to below one percent during 2020-21. That indicates that the reduced revenues and opportunities to the people depend considerably on forest land based intervention. (Table 8)



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Table 9: Mapping of the trees and forest-based livelihood interventions in project state Madhya Pradesh under Mahatma Gandhi NREGS

Year	Number of Blocks	Number of All Plantation works Ongoing	Number of All Plantation works Completed	Percentage (%) of works on All Plantation works against total works	Expenditure on All Plantation works [In Lakhs rupees]	Expenditure on All works [In Lakhs rupees]	Percentage (%) of expenditure on All Plantation works against total Expenditure
2018-19	313	77,065	14,513	4.7	15,136.97	4,93,795.74	3.07
2019-20	313	59,896	18,842	6.48	10,410.51	4,87,571.76	2.14
2020-21	313	25,806	35,029	3.42	8,164.26	9,23,784.94	0.88

(Source: Mahatma Gandhi NREGA portal work category R6)

Afforestation work: Restoration of the forest by taking up plantation work on the forestlands was carried out under the convergence plan between the department of forest and the Panchayats. Mostly, the tribal people living around forests are engaged in daily-wage work. Afforestation work has been conducted on 3,873 Ha land in 2018-19, 3,087 Ha in 2019-20 and 3,792 Ha in 2020-21. The year-wise expenditure incurred on the works was INR 7,068.88,

INR 7,721.03 and INR 22,586.13 lakhs respectively (Table 9). This intervention provided a reasonably good opportunity for the rural households, especially in the time of the COVID-19 pandemic, to earn their livelihoods. However, there remains a larger scope for the people under the purview of FRA to get involved in further maintenance and management of these forest lands to come up with a long-term plan of livelihood security.

Table 10: Mapping of the trees and forest-based livelihood interventions in project state Madhya under Afforestation through Mahatma Gandhi NREGS

Year	Work Category Name/Work Sub Category Name/Work Type	Spillover + New				No. of New Works	Unit.
		Total Works	Ongoing Works	Completed Works	Expenditure (in Lakhs)		
2018-19	Afforestation	17,759	8,167	3,873	7,068.88	8,775	Ha
2019-20	Afforestation	22,289	7,272	3,087	7,721.03	11,228	Ha
2020-21	Afforestation	36,952	12,937	3,792	22,586.13	19,758	Ha

(Source: Mahatma Gandhi NREGA portal work category R6)

Livelihood Generation through PM Van Dhan Yojna (PMVDY) in Madhya Pradesh

In Madhya Pradesh, the scheme is implemented in the tribal dominated districts. Total 86 VDVKs are formed in the state and mainly four forest-based products are identified to be taken for entrepreneurship by the SHGs (Table 10). These products are; Aonla, Honey, Dona Pattal and Custard Apple (Sitafal). About 25,800 tribal entrepreneur members are linked with VDVKs. They have been organised into groups and imparted trainings on value addition and preparation of finished consumable products from the forest.

The Scheme is running a bit slowly compared to the other states, but has an immense potential in involving the tribal women and youths for establishing forest-based entrepreneurship on scale and acquire better bargaining power in the market to get higher prices within the given enterprise model of the scheme. After processing and value addition to the produce, members will be able to establish their brand and identity. **Working with the women for their skill and entrepreneurship development under PMVDY could be one area of intervention for ERADA.**

Working with the women for their skill and entrepreneurship development under PMVDY could be one area of intervention for ERADA.

Table 11: Livelihood Generation through PM *Van Dhan Yojna* (PMVDY) in Madhya Pradesh

State	Total <i>Van Dhan Vikas Kendra</i>	Total tribal entrepreneur (members)	MFPs	Successful case
Madhya Pradesh	86	25,800	<ol style="list-style-type: none"> 1. Amla 2. Honey 3. Donna Pattalleaves 4. Sitafal 	<p>The villages under <i>Van Dhan Vikas Kendra</i> and Amkhut, jointly worked and collected the Sitafal fruit on scale.</p> <p>7 SHGs from 11 villages involving 70 SHG members in collection collected 10,500 Kg of fruit in one week time. The Fruit was collected and sold in the wholesale market of Bharuch Gujarat and Indore Madhya Pradesh.</p> <p>The group purchased the whole collection of produce at INR 1.40 lakhs (inclusive of all expenses) and traded it for INR 17,7681. There was net profit of INR 37,046 to the group which was equally distributed among all group members. In addition to this all 70 group members who were involved in collection of the fruit also earned wages of INR 74,470. A total of 52 families got benefited.</p>

(Source: TRIFED Report PMVDY Ministry of Tribal Affairs GoI 2020)

Mapping Livelihood Generation/Investment by Department of Forest Madhya Pradesh (Physical and Financial)

Joint Forest Management

Under the Madhya Pradesh Gram Panchayat and Gram Swaraj Act 1993 and the Joint Process Rule 2001, the Gram Sabha is empowered to constitute the committees for Joint Forest Management. The GS can constitute the committee for a period of five years with mandatory representation of women up to one third. The executive body must have one female member representing the head or deputy head of the committee with overall 33% women. In MP, there are a total 15,608 Forest Management committees that are managing 46,993 square KM of the forests under different categories.

Table 10.1 and 10.2 depict the information on the benefit sharing of the forest produce as per the new FRA. The forest products including timber, bamboo generated a revenue of INR 3,250.75 crores between 2017-18 to 2019-20. The benefit of INR 106.22 was shared by direct transfer to the bank accounts of JFMCs. During this period, a direct employment of 72.68 lakh person days was generated from the production of timber and bamboo (Table 10.3)

JFMCs have remarkable potential to accelerate the speed of development amongst forest dwellers where a new forest law and act can fuel the ecosystem to work in favour of tribal community. Project ERADA may plan to work with JFMCs and the Forest Department of Madhya Pradesh on forest-based entrepreneurship development.



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Table 12: JFMC Status

Name of the Committee	Number of committees formed	Forest area Managed (SQ. KM)
Village Forest Committee	9,784	37,799
Forest Committee	4,473	3,625
Eco- Development Committee	1,051	5,539
Total	15,608	46,993

Table 12.1: Benefit sharing of Forest Produce with JFMC

Year	Timber INR In Cr	Bamboo INR in Cr	Total INR in Cr
2017-18	52.58	0.51	53.09
2018-19	19.18	0.00	19.18
2019-20	22.56	11.39	33.95

Table 12.2: Forest Produce (Timber, Bamboo & Others)

Year	Timber INR In Cr	Bamboo INR in Cr	Total INR in Cr
2017-18	174.35	28,262	1,097.63
2018-19	273.36	34,189	1,116.29
2019-20	299.21	27,016	1,036.83

Table 12.3: Livelihoods (Person days generated) in Forest Production

Year	Person days generated in Lakhs
2017-18	20.7
2018-19	24.6
2019-20	27.38
Total	72.68

Table 12.4: Forest based Tourism status

Year	No. Of tourists in lakhs	Income Generated INR in lakhs
2017-18	19.64	22,774.41
2018-19	20.25	3,107.51
2019-20	15.86	2,034.94
Total	55.75	27,916.86

Table 12.5: Green India Mission

Year	Fund Receipt In Lakhs	Utilisation Status
2018	1,704.161	1,626.04
2019	6,547.23	3,293.52
2020	2,000	2,349.31
Total	10,251.391	7,268.87

Tab 12.6: Plantation details as per plantation monitoring dashboard

Particulars	As On 1 January 2019 000 Ha	As on 24 December 2020 000 Ha
Total registered Plantation	18,371	21,218
Total Approved Plantation	18,220	21,168
Total Evaluated Plantation	15,217	19,693
Total Geo Mapped Plantation	13,081	20,103

Nursery Stock

Nurseries are raised by the forest department every year to supply the saplings needed for plantations under various afforestation drives. Departments have state-of-the-art modern nursery infrastructure at a number of locations across the state. These nurseries provide regular wages and work to the tribal women and SHG members. During 2020 and 2021, the department had produced 892.78 lakh plants, generating the revenue of INR 541.94 Lakhs for the year 2020. Revenue data for 2021 is not available so far. (Table 11)

With the purpose of availing more benefits and long-term involvement of the tribal women in nursery operation, a decentralised model of raising nurseries can be promoted by

women SHG members with the provision of technical support from the department. Women could be trained on nursery management.

Land allotment to Forest dwellers landless families and community

For sustainable livelihoods, under FRA 2006, the process of land allotment to the landless forest dweller is initiated by the Department of Tribal Welfare, Madhya Pradesh. The Department of Forest has allotted lands to the eligible families based on the application received from Department of Tribal Welfare.

Table 13: Nursery stock

Year	Number of plants (lakhs)	Revenue in Lakh INR
2020	392.45	541.94
2021	500.33	NA

Table 14: Land allotments

Category of applicants	No. of allotments	Area in Ha
Individuals	230028	341779.9
Community	27976	592911.8

Madhya Pradesh Minor Forest Produce Cooperative Federation: Tendu leaf (Tendu patta in Hindi) collection and wages generation

Table 15: Tendu leaves collection and revenue generation

Collection year	Prices per bag	Quantity collected (No of bag in lakh)	Wages paid for collection (Cr)	Sold Bags in lakh	Income Generated (Cr)
2018-19	2,000	19.15	382.96	14.82	737.35
2019-20	2,500	21.06	526.22	19.74	826.44
2020-21	2,500	15.88	397.00	13.70	560.55
Total		56.09	1,306.18	48.26	2,124.34

Profit sharing of MFPs with Gram Panchayat

As per the 73 amendment of the Panchayat Raj Act, the ownership of the MFPs is transferred to the Gram Sabha. Therefore, 70% of the MFPs profits is transferred to the collectors as incentives in proportion of their MFP collected by the individuals. Out of the remaining 30%, 15% is spent on regeneration and reproduction of the forests and 15% on village development activities through GS. Madhya Pradesh is the first state to implement these amendments.

Table 16: Incentive Transfer

Year	Incentives paid to GP
2016	207.54
2017	595.93
2018	282.47
Total	1,085.94

Successful Stories From Madhya Pradesh

Innovations In The Mahua Flower Value Chain, Madhya Pradesh

Central India has a pronounced dry season during which most forests lose all their leaves, and forest-dependent communities, after harvesting rabi crops, prepare themselves for the long wait until the monsoon rains. At the beginning of this long and dry period, when income generating opportunities are hard to find, women like Shilta Uyke (pictured here) help their families cope by collecting and selling mahua flowers. This wild flower can be turned into a variety of consumable products and provides a steady source of income for the rural women. A household reaps an average of INR 10,000-15,000 in a normal year from mahua harvest.

The mahua (*Madhuca longifolia*) flower is an important non-timber forest product (NTFP) for the region. It has a significant place in the livelihoods, food security and culture of the forest-dependent communities, especially among the tribal population.

Because forest-dependent communities are typically poor, live in remote locations, and are not well-connected to mainstream markets, local traders who can provide credit and market access to mahua collectors are in an advantageous position in this value chain. Mahua flower traders typically require flower collectors to settle their loans by selling them the mahua flowers they collect, usually at lower rates than what mahua demands in the open market. Since collectors do not have storage facilities, they then buy the flowers back from traders after a few months for self-consumption at a much higher price than they sold them. For example, a collector could expect to sell mahua flower for twelve rupees per kilogram, and buy a portion of it back in three months

at INR 50 a kilogram. Forest-PLUS, however, has changed this curbed this imbalanced practice in one village using simple technologies that can be widely replicated.

Innovations Introduced By Forest-Plus Help Farmers Escape Debt Trap

To find ways to increase collectors' income from mahua, Forest-PLUS surveyed and consulted with community forest management groups to understand what could be done to improve the situation. The principal barriers identified to accessing a higher price were storage facilities and access to credit.

Forest-PLUS then worked with Joint Forest Management Committees (a partnership between the Madhya Pradesh State Forest Department and communities to manage degraded forest land) in the Sukhtawa and Itarsi ranges of Hoshangabad Forest Division to pilot an approach to break these barriers.

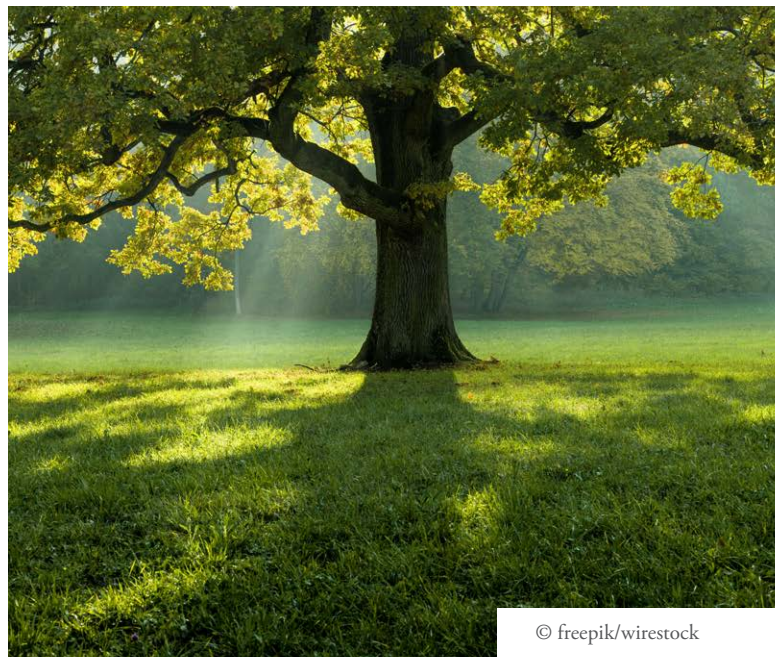
Using simple iron storage bins and commercially available netting, clean and high-quality flowers were collected and stored in a room provided by the community. By storing the flower in bulk in a clean setting, the community is able to secure a higher price at the beginning and the end of the season, and is, in some cases, able to forego purchase of mahua altogether. Building on this experience, Forest-PLUS also motivated a group of collectors to undertake further value addition to the flowers through the preparation of an indigenous sweet (Ladoo). Initial results have been very encouraging: a cooperative has been formed and based on its business plan, they project a sale of 1,000 kilograms of ladoo at INR 400 per kilogram with a profit margin of 30-50% in the first year of operation.

The mahua (*Madhuca longifolia*) flower is an important non-timber forest product (NTFP) for the region. It has a significant place in the livelihoods, food security and culture of the forest-dependent communities, especially among the tribal population.

The Payoff

According to Shilta Uyke, one of the members of the cooperative formed for this business, she received approximately double the return from selling mahua kernel to the cooperative collection depot this year. Traders in the market were buying mahua at INR 20/kg while at the depot she sold it for INR 40/kg.

The nets and storage bins can pay for themselves by the second year if collectors simply sell to the cooperative collection depot rather than middlemen, making this approach for working with mahua a viable commercial model for further development. Small loans or other options to scale it up in convergence with various government schemes like National Rural Livelihoods Mission (NRLM) and the Mahatma Gandhi National Rural Employment Guarantee Act (*Mahatma Gandhi NREGA*) can easily meet the financial and equipment needs for overcoming barriers to increased income generation from mahua collection.



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Successful story 2: Collection and Sales of Sitafal (Custard Apple) under Van Dhan Vikas Kendra (VDVK) District Union Alirajpur

The indigenously grown Sitafal (Custard Apple), a medium size seasonal fruit weighing around 350 to 400 grams, and having moderate pulp and seeds is the specialty of this forest produce of Alirajpur district. The work of collecting Sitafal in the district is limited to 20-25 days in a year. The community does it like a festival in the month of October-November.

Alirajpur District Minor Forest Produce Co-operative Union, for the first time in the month of October 2021 started collection and sale of Sitaphal. It was done by the committee and members of the self-help groups of *Van Dhan Vikas Kendra* Alirajpur and Amkhut in collaboration with the Forest Department.

The villages under *Van Dhan Vikas Kendra* - Alirajpur namely, Ambari, Rechhavi, Bhaidia's outpost, Somkua, Malwai, Behadwa and villages under *Van Dhan Vikas Kendra*- Amkhut, namely Mandar, Kanera, Pratappura, Du Nagargaon worked jointly and collected the fruit on scale.

Seven SHGs from eleven villages involving 70 SHG members in collection collected 10,500 Kg of fruit in one week's time. The Fruit was collected and sold in the wholesale market of Bharuch in Gujarat and Indore in Madhya Pradesh. The fruits were also sold in retail market of Dhar and Alirajpur towns.

The group purchased the whole collection of produce at INR 1,40,635 (inclusive of all expenses) and traded it for INR 1,77,681. There was net profit of INR 37,046 to the group which was equally among all group members. In addition to this, all the 70 group members who were involved in collection of the fruit also earned wages of INR 74,470. A total of 52 families benefited from the collection and sales of the produce.

There has been very active participation from each family member. The site and dates were fixed in the village itself for purchase by the members. After that the group members started collecting Sitafal from early morning every day for one week. Grading of the Sitafal was done by the villagers and the produce was brought to the designated site in the villages for proper packing in crates.

Based on the grading, the fruits were sold at differential rates from INR 90 to INR 150. The packing of raw un-ripened fruit packed in boxes was done to avoid any damage and affect to quality during transportation. Transportation vehicles were hired by the JDVKs and fruits were sold in Bharuch and Indore markets at wholesale prices of INR 250 to INR 500 per crate. After paying all the expenses including labour, transportation, crate rental, toll taxes, association fund and brokers' commission, there was a net profit of INR 37,046.

Being short-shelf-life, the trading of custard apple is a high-risk forest produce. This poses more challenge on collection, storage, transportation, and sales chain. Despite this challenge, well-managed efforts were made by the group members under the guidance and support of department officials, especially Divisional Forest Officer of Alirajpur district, who is also a nodal officer of the committee under VDVK.

In its first such attempt, a lot of enthusiasm was seen among the SHG members. Besides getting the normal wages, a sense of ownership towards the work was seen once they received the dividend of their efforts. Based on the experience, the members of the Self-Help Groups are inspired to work with more planning to secure a regular income through collection and trading of Sitafal. This could be seen as one of the potential areas that can ensure a sustainable livelihood and security for groups and families that live around the VDVK.

6.3 Bihar

Analysis of Trees and Forest based interventions in Mahatma Gandhi NREGA

Plantation work: Mahatma Gandhi NREGA is also playing a central role in providing the minimum guaranteed employment in the state of Bihar. The data is analysed from the Mahatma Gandhi NREGA portal for the last three years (2018-19 to 2020-21). The overall plantation work leads to livelihood generation for rural communities across the state. The data shows that there is comparatively lesser allocation and utilisation of the overall budget for plantation work. 0.82% of the total budget under Mahatma Gandhi NREGS was used in plantation work during 2018-19, which was reduced to 0.61% in 2019-20. The further reduction in allocation of works and fund utilisation during 2020-21 down to 0.03% shows that there were very few works under the plantation category (Table 15). This indicates there are reduced revenues and opportunities for the people who depend on forestland-based intervention.

Table 17: Mapping of the trees and forest-based livelihood interventions in project state Bihar under Mahatma Gandhi NREGS

Year	Number of Blocks	Number of All Plantation works Ongoing	Number of All Plantation works Completed	Percentage (%) of works on All Plantation works against total works	Expenditure on All Plantation works [In Lakhs rupees]	Expenditure on All works [In Lakhs rupees]	Percentage (%) of expenditure on All Plantation works against total Expenditure
2018-19	534	28,385	7514	2.38	2,922.25	3,54,836.75	0.82
2019-20	534	21,389	4977	1.06	2,272.42	3,74,583.02	0.61
2020-21	534	2897	1708	0.15	235.28	815805.82	0.03

(Source : Mahatma Gandhi NREGA portal work category R6)

The further reduction in allocation of works and fund utilisation during 2020-21 down to 0.03% shows that there were very few works under the plantation category

Afforestation work: Plantation and other forest restoration work including fencing direct seeding on forestland are carried out by the department of forest. Mostly the tribal people live around forests are engaged in daily-wage work. Afforestation work was completed on 7,562 Ha land in 2018-19, 4,325 Ha in 2019-20 and 6,229 Ha in 2020-21. The year-wise expenditure incurred on the works was INR 9,699.43, INR 9,696.45 and INR 21,290.45 lakhs

respectively (Table 16). This intervention provided a reasonably good opportunity for the rural households, especially in the time of the COVID-19 pandemic, to earn their livelihoods. However, there remains a larger scope for the people under the purview of FRA to get involved in further maintenance and management of these lands to come up with a long-term plan of livelihood security.

Table 18: Mapping of the trees and forest-based livelihood interventions in state Bihar under Afforestation through Mahatma Gandhi NREGS

Year	Work Category Name/Work Sub Category Name/Work Type	Spillover + New				No. of New Works	Unit.
		Total Works	Ongoing Works	Completed Works	Expenditure (in Lakhs)		
2018-19	Afforestation	66,629	38,786	7,562	9,699.43	29,445	Ha
2019-20	Afforestation	78,908	44,153	4,325	9,696.45	33,157	Ha
2020-21	Afforestation	1,15,579	59,349	6,229	21,290.45	46,636	Ha

(Source: Mahatma Gandhi NREGA portal work category R6)

Block and Bund Plantations: Block and bund plantation is one of the most important activities conducted on private land, community, and forest land in *Mahatma Gandhi NREGS* under agroforestry, farm forestry or community forests. These plantations are generally planned on the bunds and boundaries or in blocks of agricultural lands or community forest land to avail long-term source of fuel wood, fodder, fruits and timber etc. Unfortunately, these plantation works are not catching the attention of the Panchayats and the forest department. In Bihar, the initiative has been taken by the Panchayats and such plantations are done on individuals' lands other lands in

Mahatma Gandhi NREGA. During last three-year period, nearly 31.33 Ha plantation was conducted under the individual category and 8.2 Ha under other categories. Unfortunately, the survival rate is almost negligible. There seems to be no long-term benefits to the individuals and communities other than earning wages for their work. This intervention, though, seems to have good potential to create a long-term resource base for livelihood. There is a need to plan, with individuals and Panchayats, where individuals and groups understand the importance of maintenance of forestlands.

There is a need to plan, with individuals and Panchayats, where individuals and groups understand the importance of maintenance of forestlands.

Table 19: Block and Bund plantation through *Mahatma Gandhi NREGS*

Year	Area covered by the allotted plants (ha)		Number of plants allotted in		No. of Job card holders to whom plants allotted only for maintenance		No of Job cardholders to whom plants allotted for maintenance and usufruct rights	Number of plants surviving in	
	Individual beneficiary land (ha)	Other land (ha)	Individual beneficiary land (ha)	Other land (ha)	Individual beneficiary land (ha)	Other land (ha)		Individual beneficiary land (ha)	Other land (ha)
2018-19	0	0	0	0	0	0	0	0	0
2019-20 (Bund Plantation)	1.1	0.06	400	1,200	2	6	0	0	0
2019-20 (Block Plantation)	30.23	8.20	3700	1,400	22	8	2	12	85

(Source: Mahatma Gandhi NREGA portal work category R6)

Livelihood Generations through *Pradhan Mantri Van Dhan Yojna* in Bihar

In Bihar, the scheme is implemented in the tribal dominated areas. The progress of the scheme is bit slow compared to other states. There is a total of eight *Van Dhan Vikas Kendra* (VDVK) formed in the state. 2,400 SHG members are linked with the VDVKs. The state has identified about eleven types of forest products for collection, value addition and marketing. The products are 1. Mhaua flower, 2. Mahua seed, 3. Arjun bark, 4. Sal

leaves, 5. Van tulusi leaves, 6. Bael pulp, 7. Hill broom, 8. Chirata, 9. Satawari, 10. Dhavai flower dried, 11. Honey.

The Scheme has an immense potential for involving the tribal women and youths for establishing the forest-based entrepreneurship on Working with the women for their skill and entrepreneurship development under PMVDY could be one area of intervention for ERADA.

Table 20: Livelihood Generations through *Pradhan Mantri VanDhan Yojna* in Bihar

State	Total Van Dhan	Total tribal	MFPs Identified Vikas Kendra entrepreneur
Bihar	8	2,400	1. Mhaua flower, 2. Mahua seed, 3. Arjun bark, 4. Sal leaves, 5. Van tulusi leaves, 6. Bael pulp, 7. Hill broom, 8. Chirata, 9. Satawari, 10. Dhavai flower dried, 11. Honey

(Source: TRIFED Report PMVDY Ministry of Tribal Affairs GoI 2020)

Livelihood under Jal Jeevan Haryali (Bihar)

Nursery Establishment and Plantation work 2019-20

Under Jal Jeevan Haryali Scheme of the Government of Bihar, launched with formal approval of the Cabinet Co-mmittee of Ministers on 25 August 2019, Nursery and Palnatation drive was taken as one of the major components of the mission. This componet is the back bone for achieving forest cover, controlling polution and helping in enviromental restoration. Intensive plantation drives have been planned under these schemes. To ensure that there is no shortage of planting stock, the nurseries are being raised

in sufficient number across a number of districts inthe state. The implementation of both the plantation and nursery raising has been accorded to the Department of Rural Development and the Department of Forest Environment and Climate Change. The implementation of the nurseries and palntation is done under the Bihar Livelihood Promotion Committee (BLPC), for suataining communities by involving women groups. The nurseries raised by the women groups are called Didi Nurseries under the plantation drive, on the occasion of Bihar Prithvi Divas (Bihar earth day), dated 09 August 2020. The target was set to plant 2.51 crores trees during 2019-20.

Table 21: Nursery stock

Particulars	Units/Numbers
Number of Nurseries	366
Area of Nurseries (Ha)	737.70
Ready to plant stock in Nurseries	4.95 crores
Number of plants transplanted	1.35 crores

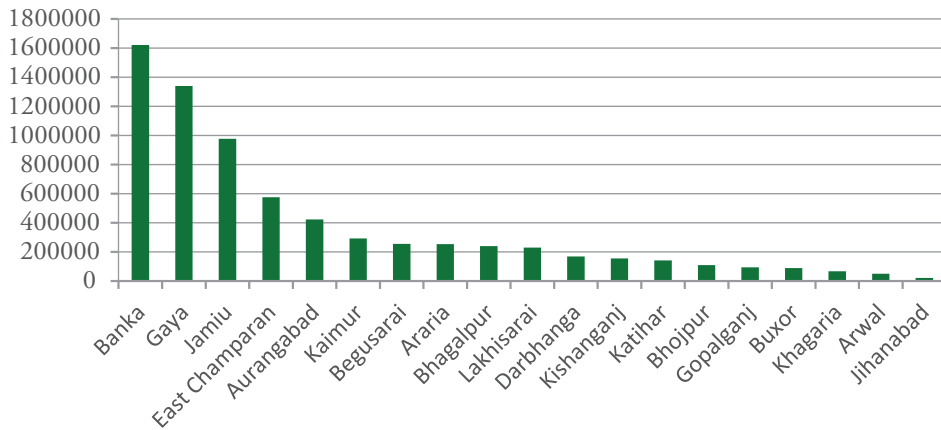
District wise plantation details (2019-20)

Table 22: District wise plantation data

Name of the District	District wise plantation completed (No. of plants, Lakhs)	Name of the District	District wise plantation completed, Lakhs
Banka	16.21	Rohatas	20.54
Gaya	13.39	Nawada	5.91
Jamiu	9.76	Samastipur	4.88
East Champaran	5.75	West Champaran	4.04
Aurangabad	4.22	Purnea	3.80
Kaimur	2.92	Munger	3.42
Begusarai	2.55	Siwan	3.24
Araria	2.53	Saran	2.72
Bhagalpur	2.38	Vaishali	2.45
Lakhisarai	2.29	Supaul	2.01

Name of the District	District wise plantation completed (No. of plants, Lakhs)	Name of the District	District wise plantation completed, Lakhs
Darbhanga	1.67	Muzaffarpur	1.77
Kishanganj	1.55	Sitamarhi	1.73
Katihar	1.41	Sahersa	1.33
Bhojpur	1.08	Madhubani	1.30
Gopalganj	0.93	Patna	1.24
Buxor	0.88	Madhepura	1.05
Khagaria	0.65	Nalanda	1.06
Arwal	0.49	Sheohar	0.90
Jihanabad	0.21	Sheikhpura	0.69

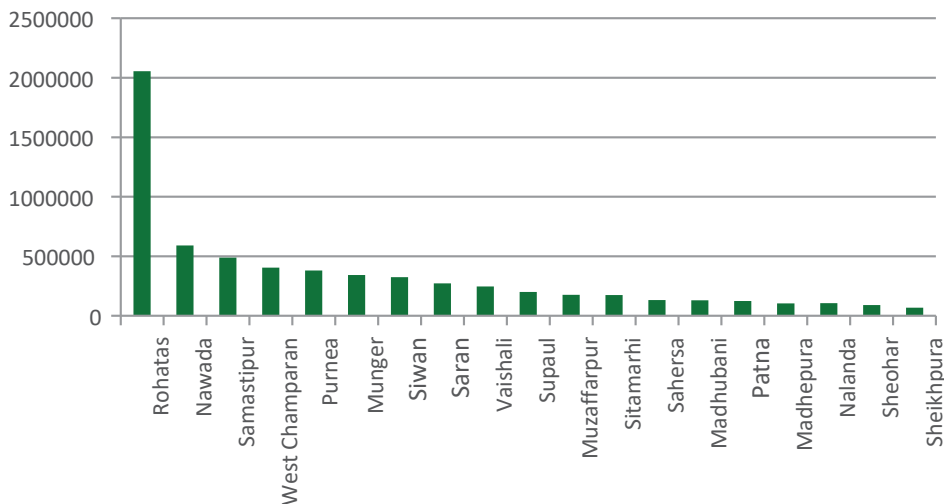
District wise plantation completed



District wise plantation completed

Figure 10A District-wise plantation data

District wise plantation completed



District wise plantation completed

Figure 10B District-wise plantation data

Livelihood Generation/Investment by Department of Forest Bihar (Physical and Financial)

Bihar Forest Development Corporation (BFDC)

Bihar BFDC came into existence in the year 2003 with the major objective to collect/purchase, store and market the important forest produces. It was the only government agency represented in the Gram Panchayat to purchase and sell the tendu leaves grown on government and private land.

From the very time it came into existence, the BFDC started working in Yathagya, Navada, Aurangabad, Banka and Jamui districts of the state, which constitute more than 80% of the total forest land. The work of the BFDC was to collect, store and market tendu leaves and provide fair prices to the collectors.

Table 23: Revenue and wages generation from, 2015-2018

Year	Tendu leaves Collected/ Sale (No. of bags)	Revenue to BFDC INR in Cr	Labor Wage Generated for INR in Lakhs
2015-16	30,916	101.22	309.16
2016-17	59,419	662.98	635.78
2017-18	75,846	2,277.77	NA

(Source Annual reports 2015 to 2018 EFCCD)

The revenue sharing and transfer with the Panchayat has been processed swiftly by the BFDC. 80% of the net profit has been invested in forest development activities by the forest department through forest development committees and the remaining 20% has been directly transferred to the 125 GP of the above five Districts for spending to be incurred on village development activities upon their discretion. With the adaptation to new FRA and Gram Panchayat Act there is remarkable rise in long term livelihood generation of the community lives around forestlands that need to be strengthened by promoting agroforestry on private lands.

Other Plantation Work by the EFCCD

EFCCD has conducted and maintained the plantation on Roadside, Canal side and Agroforestry. During 2012-16, about 154.1 lakh plants, and during 2016-17, 345.17 lakh plants were planted on roadside, canal side and agroforestry. Under Agroforestry plantation, a total of 12,355 farmers were given 94.62 lakh plants. Plantation was carried out under the Namami Gange project on 166.5 Ha area along the banks of river. (Table 23).

Table 24: Other plantation work

Year	Scheme	No Of plants planted (in lakhs)	Beneficiaries labor/ Farmers
22012-16	Road, Canal side plantationand Agroforestry	154.1	NA
2016-17	Road, Canal side plantation	345.17	NA
2016-17	Agroforestry	94.62	12,355
2017-18	Plantation under Namami Gange	0.398	166.5 Ha

(Source Annual reports 2015 to 2018 EFCCD)

Livelihood Generation/Investment by Department of Horticulture Bihar (Physical and Financial)

The Department of Horticulture headed by director of horticulture is the government agency which acts as an implementing organisation for a number of central and state government sponsored schemes and projects in Bihar, including the national horticulture mission. The cultivation of all types of vegetables crops and all types of fruits plantation are done through the directorate of horticulture, Bihar. The fruit plantations are promoted on cluster-basis looking in to the agroclimatic suitability of the districts and zones as per the state policy on a cluster-based approach. The area under fruit plantation in Bihar is 30,0764 Ha, with a major plantation of Mango, Lichi, Amla, Sitafal, Lemon, Banana, Sweet Orange and other citrus fruits.

The large area of around 35,32,156 Ha is under various vegetables' cultivation round the year during kharif and rabi seasons. The area covers seasonal fruits like watermelon, muskmelon, papaya, vegetables like tomato, cauliflower, cabbage, brinjal, potato, beans, cucumbers, gourds, ladyfinger, carrot, radish, tubers and aromatic spices etc. (Report department horticulture)

The major perennial fruit plantations are carried in clusters on farmers' lands, who have a fairly larger land holding. Apparently, these target farmers do not come under the marginalised and small farmer's category with relatively less vulnerability exposure (investigators opinion).

Table 25: Fruit plantations in Bihar-all districts (2016-17)

Name of the Plantation	Area In Ha	Production
Amla	910	14210
Guvava (Sitafal)	29380	370369
Banana	37067	1527845
Lemon	18346	131606
Lichi	32187	198637
Mango	149962	1472384
Sweet Orange	500	5500
Other citrus fruits	32412	310997
Total	300764	

6.4 Jharkhand

Analysis of Trees and Forest based interventions in Mahatma Gandhi NREGA

Plantation work: Jharkhand, like other states, has also carried plantation works through *Mahatma Gandhi NREGS* and provided employment to the job card holders. The data procured from the *Mahatma Gandhi NREGA* portal for last three years (2018-19 to 2020-21) indicates that a very small percentage of the total works and budget was allocated to plantation intervention. A mere 0.21% of the budget was

spent on plantation intervention spread across 264 blocks of the state in 2018-19. The allocation was further reduced to 0.11% in 2019-20 and 0.03% in 2020-21 (Table 24). This forms a potential area to look into for the convergence plan between forest and the Rural Development department to make people participate in plantations.

Table 26: Mapping of the trees and forest-based livelihood interventions under Mahatma Gandhi NREGS

Year	Number of Blocks	Number of All Plantation works Ongoing	Number of All Plantation works Completed	Percentage (%) of works on All Plantation works against total works	Expenditure on All Plantation works [In Lakhs rupees]	Expenditure on All works [In Lakhs rupees]	Percentage (%) of expenditure on All Plantation works against total Expenditure
2018-19	264	1,556	111	0.19	280.95	1,35,022	0.21
2019-20	264	1,373	166	0.17	172.47	1,59,809.83	0.11
2020-21	264	1,133	250	0.09	97.39	3,20,184.93	0.03

(Source : Mahatma Gandhi NREGA portal work category R6)

Afforestation work: Afforestation works were completed on 131Ha land in 2018-19, 229 Ha land in 2019-20 and 116 Ha land in 2020-21. The year-wise expenditure incurred on the works was INR 361.87 lakhs in 2018-'19, INR 240.38 lakhs in 2019-20 and INR 824.95 lakhs in 2020-21.

(Table 25) However, there is larger scope for the people under the purview of FRA to get involved in further maintenance and management of these plantations and lands for a long-term plan of livelihood security.

Table 27: Mapping of the trees and forest based livelihood interventions under Afforestation through Mahatma Gandhi NREGS

Year	Work Category Name/Work Sub Category Name/Work Type	Spillover + New			Expenditure (in Lakhs)	No. of New Works	Unit.
		Total Works	Ongoing Works	Completed Works			
2018-19	Afforestation	4911	512	131	361.87	681	Hec.
2019-20	Afforestation	4823	305	229	240.38	114	Hec.
2020-21	Afforestation	6021	1155	116	824.95	1558	Hec.

(Source: Mahatma Gandhi NREGA portal work category R6)

A mere 0.21% of the budget was spent on plantation intervention spread across 264 blocks of the state in 2018-19.

Livelihood Generations through *Pradhan Mantri Vandhan Yojna* in Jharakhand

The scheme is specially designed for the sustainable income generation of the tribal communities. This very ambitious scheme has promised to change the lives of the tribal communities by developing strong forest-based entrepreneurs through VDVKs. The scheme is progressing well in the state. There are effective initiatives conducted by the groups of tribal entrepreneur women who are excelling in establishing their products and earning reasonably good money to support their families. A total of 38 *Van Dhan Vikas Kendra* (VDVKs) are formed in state, with a membership of 11,700 women SHG entrepreneurs. The VDVKs have identified about 13 types of forest

products for collection, value addition and trading. The products are 1. Amla, 2. Honey, 3. Mhua flower, 4. Neem Seed, 5. Lac, 6. Date, 7. Sal leaves, 8. Tendu leaves 9. Tamarind, 10. Karanj seed, 11. Bamboo, 12. Mango, and 13. Palash flower (Table 26).

The Scheme has an immense potential for involving the tribal women and youths for establishing the forest-based entrepreneurship on Working with the women for their skill and entrepreneurship development under PMVDY could be one area of intervention for ERADA.

Table 28: Livelihood Generation through PM *Van Dhan Yojna* in Jharakhand

State	Total VDK	Total tribal entrepreneur	MFPs	Successful case
Jharkhand	38	11,700	1. Amla, 2. Honey, 3. Mhua, 4. Neem Seed, 5. Lac, 6. Date, 7. Sal leaves, 8. Tendu Leaves 9. Tamarind, 10. Karanj seed, 11. Bamboo, 12. Mango, 13. Palash flower	<p>1-The Daru VDK has been run by Aajeevika, Jharkhand State Livelihood Promotion Society (JSLPS) Jharkhand. In the said PMVDY beneficiaries are already trained under JSLPS and doing value addition of some NTFP commodities like Bahera, Chiraita, Chironji etc. Roughly 240-300 beneficiaries are involved in collection and sales of these produces.</p> <p>2-Basanti Devi is one of the active members of <i>Van Dhan Vikas Kendra</i>, Siladon. She has expertise in making of traditional lac bangle. The group is making good quality bangles and earning good amount to sustain their family. Basanti represented the group in various event organised at State and National level. Group participated in exhibitions organised at India Gate New Delhi, Saras fair Bhopal, Patna, Dhanbad and recently at Ranchi Morabadi ground. Their product is going popular and Basanti earns profit of around INR 60,000 annually.</p>

(Source: TRIFED Report PMJDY Ministry of Tribal Affairs GoI 2020)

A total of 38 *Van Dhan Vikas Kendra* (VDVKs) are formed in state, with a membership of 11,700 women SHG entrepreneurs.

Jharkhand State Livelihood Promotion Society's (JSLPS) initiative in promoting Forest based Livelihoods

JOHAR (Jharkhand Opportunities for Harnessing Rural Growth) is being implemented by the Government of Jharkhand with 70% financial support from the World Bank, in 68 blocks of 17 districts in the state. The major components under this project for rural livelihood enhancement have been identified as High Value

Agriculture (HVA), Solar Micro Irrigation Systems, Livestock, Fishery and Non-Timber Forest Produce (NTFP). This is effectively supported by agricultural finance and Agri-business marketing through an umbrella of more than 20 farmer producer organisations.

Non-Timber Forest Products (NTFPs) based livelihood and income in Jharkhand: Findings of a Research Study

Jharkhand, as the name indicates, is the land forests. The total Forest & Tree Cover of Jharkhand is nearly 33% of its total geographical area. The state has a large population of forest-dwelling communities who are living on forest produce. A field research study was conducted on "Contribution of Non-Timber Forest Products to livelihood and economy of the communities lived in and around Palamau Tiger Reserve (PTR), areas of Jharkhand, India- (Preeti Kumari-1, S. K. Tiwari-2 and A. K. Choudhary-1)" The study was published in Advances in Bioresearch in 2018. An assessment was made to estimate the annual income from NTFPs of the people living in PTR and Betla National Park (BNP) areas in Jharkhand, covering the households of four forest circles of blocks Barwadiah, Mahuadnar, Garu and Manika. This study area is predominantly inhabited by Tribal and Scheduled cast communities with marginal or no lands. They depend primarily on forest produces and labour, besides agricultural subsistence.

The commonly found NTFPs in the study area are following

- ▶ Tendu leaves
- ▶ Sal seeds
- ▶ Sal leaves
- ▶ Mahua flower
- ▶ Katha
- ▶ Amla
- ▶ Harra
- ▶ Gum
- ▶ Lac
- ▶ Tamarind
- ▶ Siali (Mohulam) leaves

The most common activity of livelihood the is collection and sale of non-timber forest products such as collection of fuel wood, honey, mahua, amla, satawar root, doori, masroom, kusum, sal leaves, leafy vegetable and bamboo. In the study in the villages, they collected dead leaves of khajur to make mats, which they sell in the market. The households earned by selling honey, mahua, fuel wood, sal leaves, bamboo etc. Additionally, roots and edible leaves were collected from the forest, which they either sell, or consume at home. The annual household income from NTFPs collection of study blocks has been found as under:

Table 29: Average annual income from NTFPs

Block/Forest Circle	Average Annual Income (Lakhs INR)	Annul Income from NTFPs (INR)	NTFP Income percentage (%) of total Income
Barwadiah	1.08	25,000	23
Mahuadnar	1.05	20,000	19
Garu	0.95	20,000	21
Manika	0.16	30,000	18

Though the research findings of the year 2017-18 are little older, it shows a significant importance in terms of potential area as a major source of livelihood for the communities relying on trees and forests. The area needed an organised approach for sustainable production, collection, value addition and facilitating agencies to pass on the rights and benefits to the communities involved.

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Successful Stories Jharkhand: From lac to lakhs

Lac cultivation becomes a sustainable source of alternative income for rural communities in Jharkhand

Surrounded by mountains and dense forests, Itahi Tola in Chanaro village, Churchu, Jharkhand is home to Parwati Tudu, her husband, Cheto Manjhi, and their three children. Traditional methods of cultivation on their 1.5 acres of land did not provide them with enough to meet their needs. So, they supplemented their income through pig rearing, while Ms Tudu also worked as a daily wage labourer in a local brick factory. Despite all this, the family continued to live in dire poverty. It was difficult to manage two meals a day, let alone dream of an education for their children. Through a self-help group, Ms Tudu came into contact with the Churchu Nari Urja Farmer Producer Company Ltd. (CNUFPCL), which is supported by the Tata Trusts' Collective for Integrated Livelihood Initiatives' (CInI). CNUFPCL introduced Ms Tudu to CInI's Lac Programme, a part of the Trusts' larger 'Lakhpati Kisan' initiative.

Lakhpati Kisan initiative with its concerted effort, institutionalised oppression, empowers tribal women to become leaders in their community institutions, and helps them bridge the gender and caste gap. It does so in a convergent ecosystem where multiple stakeholders including communities, governments and private sector players align towards the common goal of making a sustainable difference in the lives of disadvantaged communities in the region

Thus, the programme places tribal women at the centre of its strategy, planning, implementation and monitoring. It has equipped them with relevant skill and knowledge to sustain the initiative at the end of the five-year intervention period. Women have begun playing a dominant role in the largely agrarian state where livelihoods depend on agriculture.

How lac supplements rural livelihoods in India

The cultivation of lac, a high-value non-timber forest product, has been a traditional practice and a significant source of income for approximately 4-6 million households in Jharkhand, Chhattisgarh, Madhya Pradesh, Odisha and West Bengal. The product, used in paint, electrical, automobile, cosmetic, adhesive, leather, wood furnishing and other industries, is produced from a resin secreted by the insect *Laccifer Lacca*, which inhabits the twigs of specific host plants like Ber, Kusum and Palash.

Jharkhand provides much scope for lac cultivation; indeed, it is the country's biggest lac producing state. Through its work with Jharkhand's rural tribal communities, CInI's Lac Programme aims to foster a three-part 'Lac-Value Chain Market'.

These comprise: lac cultivation by the farmers; lac processing to get the raw material for jewellery; and lac jewellery and handicraft-making.

To that end, short exposures to training as well as training camps were conducted to introduce farmers to scientific methods of lac farming.

This training has helped the women develop their skills in cultivating both Kusumi lac and Rangini lac variety. Kusumi lac is cultivated bi-annually, in two cycles of six months each on Kusum and Ber trees. Rangini lac is cultivated on the Palash and Ber trees. Farmers are assisted to obtain good quality brood lac and trained to cultivate them for a higher yield, maintaining a proper package of practices (PoP).

Despite the risks involved, farmers were mostly enthusiastic and 1,048 potential lac farmers were groomed during the five year period. The cultivation of Kusumi and Rangini lac in two cycles or seasons has generated a new source of income for farmers in the area.

Parwani Tudu, who also attended one such training and exposure visit for lac cultivation, says, "I decided to begin lac cultivation by planting seven Kusum trees in the forest near my village. My first year of engagement netted an additional income of INR 12,300 from just lac cultivation."

Giving lacquer artisans a platform to learn and earn

"Lac cultivation is not the only alternative source of income offered under this initiative. CInI also set up a lac processing unit at Kajri village in collaboration with CNUFPCL. The harvested branches are scrapped at this processing unit regulated by a village organisation called

Anjana, either manually or with the help of a scrapper machine, and graded. Depending on market demand, the scrapped lac is sold via the FPC, or is washed, winnowed, and stored for future sales.

What is left of the processed lac is further processed by the FPC, which employs tribal women to make jewellery and artifacts. This provides a secondary source of income, further raising the morale of the women who were previously unable to provide for themselves or their families.

In October 2017, four experts from a partner organisation trained 25 tribal didis as lac artisans through a 15 day training programme. Post-training, a lac bangle unit was inaugurated in Kajri so that the didis could begin manufacturing lac bangles.

CNUFPCL played a leading role in the aggregation and scouting for the best quality raw materials from Kolkata, which were centrally purchased and provided to the lac bangle unit. A lac bangle entrepreneur was also trained to establish the business.

In January 2018, lac artisans participated in the Saras Mela at Morabadi Maidan, Ranchi, selling bangles worth INR 48,000. In April that year, a handicraft mela at Pragati Maidan, New Delhi, netted the artisans INR 24,000. Trainers from Khunti district gave the didis a refresher course in December 2018.

In January 2019, CNUFPCL hired a designer from the National Institute of Fashion Technology (NIFT) to assess the quality of the lac products and discuss how they could be marketed on different platforms. The designer was also responsible for building the artisans' capacity, providing support, introducing new verticals and products apart from bangles, and grading the different products. The artisans were soon making pen stands, flowerpots, statues, idols, photo-frames, etc.

The diversity in products gave CNUFPCL a platform to demonstrate the artisans' skill on different crafts platforms like exhibitions, stalls, melas, etc., selling approximately Rs 90,000 worth of products in 2019-2020. By selling these products during Diwali and Chhath Puja, the organisation netted a further INR 60,000 between April and December 2020. Further progress has been made in 2021. A Lac Handicrafts e-Catalogue has been designed and printed, to create an identity for artisans on various stakeholder and social media platforms. Three new handicrafts units also are yet to set up, employing 45 artisans who have been trained to work on Garam Lah, another variety of lac.

Turning rural women into lac entrepreneurs

The impact has been both real and visible. CNUFPCL has created employment opportunities for forty-five rural women in their own village. Two of them, Rani Pradhan and Reena Pradhan, have become master trainers themselves, providing training to other didis and newcomers. Their daily production of lac products includes 40 sets of bangles and other handicrafts and utility items.

Furthermore, CInI's Lac Programme is not resting on its laurels yet; the aim is to generate employment opportunities through artisanal work for 100 rural women, who are either landless or reverse migrants. The programme is also hoping to link lac products to different retail platforms like Amazon and Flipkart. The diversification of products and their aggregation with the help of a designer, depending on customer demand, is in the pipeline. Going forward, they also hope to establish lac products as a separate business vertical of the FPC, with a target of INR 10.00 Lakhs as the annual turnover.

Overwhelmed by her family's success, Ms Tudu says, "Over the years, I have been able to increase my income from lac cultivation to over INR 65,000 a year in 2019-20. My husband has also diversified into lac entrepreneurship, and now sells good quality brood lac, further augmenting our household income."

Through a self-help group, Ms Tudu came into contact with the Churchu Nari Urja Farmer Producer Company Ltd. (CNUFPCL), which is supported by the Tata Trusts' Collective for Integrated Livelihood Initiatives' (CInI).

Successful story: How Lemon Grass has become a Boon for Jharkhand Women

This is the story of women from Bishunpur village of Gumla district which is 120 km away from Ranchi, the capital of Jharkhand. These women are now financially self-dependent by cultivating lemongrass. Even our Prime Minister included their success story in his “Mann ki Baat” episode on 26 July 2020.

Women of Sakhi Mandal were linked with medicinal/ aromatic plants farming that was started by the Gramin Seva Kendra. 500 women of Bishunpur village are now making a regular earning through this lemongrass farming.

Sumati Devi of Rahkuba group of Bishunpur who started lemongrass farming on her 26 thousand square feet land after taking a loan, said, “I have not even heard about lemongrass ever before but now after knowing its benefits, we suggest others to do farming of lemongrass. Lemongrass for us is like gold on barren land. We got training about this under the Women Farmer Empowerment Project. And I’ve started the farming only in January. Despite the lockdown so far, I could sell it for INR 1.10 lakh by spending around INR 22,000.”

Rupmurti Devi of Navagadh Sirka village also cultivated lemongrass on her 22,000 sq. ft of land and earned about INR 1.45 lakh. Rupmurti Devi also mentioned that the farming of lemongrass has improved their financial condition for the last two years.

One more farmer from Sirka village, Basanti Devi said, “We have started lemongrass farming in the year 2018 and now I am cultivating lemongrass on ten acres of land, and presently 25 lakh plants of lemongrass are there on my farm. I am happy to mention that now we are able to earn from the land which was once barren and of no use.”

Sumati Devi mentioned that, on an average, for the cultivation of lemongrass on one acre of land, the expenditure required is about INR 20-25,000 and after four months, when the crop is ready for harvesting, it is worth one lakh. In this way, around INR 77,000 can be earned from a single harvest. According to Sumati Devi, the cost of lemongrass oil is about INR 3,000 per litre and is sold to

wholesale traders at about INR 2,000 per litre. Leaves of lemongrass are also sold at higher rates.

In Jharkhand, under the Livelihood Mission, ladies of Sudoor, after taking a loan from Sakhi Mandal, are also earning a good amount of money through the farming of lemongrass.

As the price of lemongrass oil is good in the market, the Gramin Seva Kendra has also installed a distillation unit for Sakhi Mandal under the livelihood mission, so that the processing of lemongrass oil can also aid in improved earning for these farmers.

This initiative has increased the self-confidence in women farmers. Along with the farming of lemongrass, and the processing and packaging of lemongrass oil, ladies are also cultivating other medicinal plants and selling them at good prices.

There are thousands of women like Sumati Devi, Basantidevi, and Rupmurti Devi who are doing lemongrass farming under the Women Farmer Empowerment Project from around 31 villages across 16 districts. Women farmers are becoming independent through the farming of medicinal plants like lemongrass.

Benefits of Lemongrass

The importance of lemongrass is because of its fragrant leaves. By the vapor distillation of lemongrass, oil is extracted which is used in many cosmetics, beauty products, medicines, and pesticides. Lemongrass can also be used as an antioxidant.

How do to lemongrass farming?

Lemongrass can be easily cultivated even on barren land. And after single sowing, harvesting can be done for up to five years (3-4 harvesting in a year). Lemongrass can be cultivated on all types of land. After growing a single plant of lemongrass, many plants can be prepared from roots. Transplantation can be done from July to September months. Little life-saving irrigation is required initially.

After growing a single plant of lemongrass, many plants can be prepared from roots. Transplantation can be done from July to September months.

Success Story: Aroma of success women farmers in Jharkhand through Mahila Kisan Sashaktikaran Pariyojna (MKSP) under JSLPS

Women farmers in Jharkhand under JSLPS are reaping the benefits of medicinal and aromatic plant farming under the MKSP project. The primary objective of the Mahila Kisan Sashaktikaran Pariyojna (MKSP) is to empower women farmers. The project under JSLPS is working with community-based organisations (CBOs) to enhance their participation and productivity, and also create a sustainable livelihood model in the medicinal plant and aromatic plant-based subsectors. MKSP is mandated to conduct value chain intervention around some of the key subsectors. The aim of the project is to enhance the production and postharvest methodology of locally available medicinal plants. Under this project, the knowledge and skills of women farmers on medicinal and aromatic plants collection and cultivation is being upgraded. The project works on conservation and self-sustaining medicinal plant-based livelihood with a value chain approach. The project is currently working on promotion of existing medicinal plants of Jharkhand, collection of medicinal plants and cultivation of aromatic plants, involving 33,512 farmers in 35 blocks of 17 districts in the state. Aushadhi Vatikas are being promoted to conserve the medicinal plants available in the state and also for reviving their cultivation. More than 30 plants are being grown under the Aushadhi Vatika (Home Herbal Garden) project involving 4,000 farmers in the state.

Altogether, 212 Producers Groups have been formed under this initiative, strengthening more than 33,000 women farmers across 35 blocks of the state. Lemongrass, Chiraita, Tulsi, Khas, Palma Rosa are some of the aromatic plants being cultivated in large quantities by the women farmers under the project. Members of Harli Producer Group, Daru block of Hasaribagh district are a group of progressive women farmers who are cultivating aromatic plants like Lemongrass, Chiraita, Tulsi, Khas, Palma Rosa in more than 50 acres of land. Rakhi Devi of Harli PG claims that they have earned INR75,000 by just selling lemongrass oil distillate at Daru Rural Service Centre. They are also involved in value-addition to lemongrass leaves to be sold in the form of tealeaves. Leaves of aromatic plants are being used to prepare incense sticks, organic floor cleaners and sanitisers. Harli PG has also earned a good profit by selling lemongrass slips from existing plots. Cumulatively, the women farmers have registered a commendable transaction of INR 150 lakhs in the field of aromatics plants. The value addition to products and expanded market reach through Palash branding is expanding the consumption and usage of aromatic plants, thus leading to enhanced production due to rising demand. This has paved the way for better and more sustainable livelihood opportunities for rural women.

DIDI BAGIYA Nurturing Nursery Entrepreneurs

A unique scheme that on one hand works to ensure that the state's green cover is not compromised, while on the other hand, provides sustainable employment to rural women.

Jal, Jangal and Jameen (Water, Forest and Land) are the true treasures left by tribal elders of Jharkhand (Land of Forests). Plantation activity remains the top priority for the Government to ensure that the green cover is not compromised. Since plantation is a time-bound activity, getting saplings of the desired quality and in the required quantity on time remains a herculean task even with the best of available resources. With the aim of expanding horizons, and to develop sustainable livelihood opportunities, Didi Bagiya Yojna was initiated. The scheme was conceptualised by the Rural Development Department in convergence of *Mahatma Gandhi NREGA* and Jharkhand State Livelihood Promotion Society (JSLPS). Through this scheme, the SHG members are being encouraged to become nursery entrepreneurs. In the initial phase, the SHGs are being encouraged to nurture plant saplings for various schemes like Birsa Harit Gram Yojna and Didi Bari Yojna. Through this project, women entrepreneurs will get a

market base and a new opportunity for earning a decent livelihood. Since it was a new initiative, proper handholding support was required for implementation. Exposures followed by trainings were provided to the emerging entrepreneurs. In the primary phase, only timber plants were taken into consideration. This would be expanded to mango plantation and other useful plants in the second phase. JSLPS team chalked out the plant and implementation modalities. In a limited period of time, it was difficult to create permanent shade structure for development of timber nursery. Land and entrepreneurs were identified, and it was decided that timber species would be taken up with the focus on Teak, Gamhar, Sheesham, etc. The teamwork helped in execution of this activity. The cadre of Aajiveeka Krishak Sakhis, trained under NRLM in agriculture practices, played an important role in the identification of nursery site and the field staff helped in identification and approval of these for taking up

the activity as per the requirement. Beds of requisite sizes were prepared with the help of SHG members. Being an SHG-based activity, the SHG members played an important role with a collective approach towards bag filling and preparation of nursery poly-tubes for sapling raising. With sheer motivation, a total of 395 units were setup by the SHG members with an average of 16 units per district. Through this streamlined channel in various parts of the state, more than 26 lakh plant saplings were developed across Jharkhand. Marangmay Soren is resident of Dhundapahari village of Littipara block, Pakur. Marangmay has been associated with Surajmukhi SHG and is an entrepreneur under the Didi Bagiya scheme. Since April, she has invested INR 7,000 to develop approximately 4,800 saplings of timber trees. She has grown saplings of three

varieties of timber plants, namely Teak, White teak and Indian rosewood. Marangmay kept and took care of these saplings for three months and then supplied them to the beneficiaries of Birsa Harit Gram Yojna (BHGY) in the blocks of Littipara and Amrapara. She sold each sapling at the rate of INR 14 and made an overall profit of INR 44,000 in just three months. Moreover, through integrated approach, the saplings grown are provided to the beneficiaries at their doorstep. Farmer Producer Companies (FPC) were identified in each district to take on the supply of timber saplings. This activity provided a dual-benefit to the SHG members as working in nurseries was included in *Mahatma Gandhi NREGA* person-days, and on other the hand, they earned a profit by selling the saplings. The saplings developed are being sold under *Mahatma Gandhi NREGA* within the district as well as outside the district.

Successful Story: “Wadi” The Sustainable Implementation of High Nutritional Importance Orchard development for Livelihood and Nutritional Security of Tribal community under Tribal Development Programme (TDP) of National Bank for Agriculture and Rural Development (NABARD)

NABARD has been closely associated with tribal development and sustainable livelihoods through orchard (wadi) based farming systems. As an integral component of NABARD’s Natural Resource Management (NRM) policy of providing sustainable livelihoods, NABARD laid special emphasis on providing support for holistic development of tribal communities with orchard establishment of horticultural plants with high nutritional importance as the core element.

Based on the successful experience of *Adivasi* Development Programmes, NABARD embarked upon an ambitious programme of replicating the orchard (wadi) model across the country. The plantations of nutritional value horticultural plants have set a model of sustainable livelihoods in tribal area of Rajasthan, Madhya Pradesh and

many other states. In this direction, NABARD created a Tribal Development Fund (TDF) of INR 50 crores out of its profits in 2003-2004. The corpus was augmented from time to time. The Fund has grown over the years and the credit balance as on 31 March 2020 was INR 1,143 crore. **As on 31 March 2020, 791 Tribal Development Projects are being implemented with a cumulative sanction of INR 2,302.29 crore.** These projects are implemented across 29 States and Union Territories, **covering 5.53 lakhs tribal families which spread over 4.54 lakhs acre of land.** All projects under TDF are implemented by partnering with State Governments, Government of India, NGOs and corporates etc. The details of all on-going TDF projects can be accessed from the link given below:

<http://tdfextwebdata.assetview.in/>

As on 31 March 2020, 791 Tribal Development Projects are being implemented with a cumulative sanction of INR 2,302.29 crore. These projects are implemented across 29 States and Union Territories, covering 5.53 lakhs tribal families which spread over 4.54 lakhs acre of land.

Genesis of the programme

The tribal communities are dependent mainly on agriculture, forests and livestock for their livelihood. In many parts of the country, the tribal communities reside in inaccessible areas and are still devoid of common infrastructure facilities such as roads, communication, health, education and safe drinking water, which do not allow them to absorb technological and financial facilities provided by the government. NABARD has been supporting tribal development through a separate line of credit to agencies supporting tribal families, promotional activities, etc. However, a key concern for NABARD has been the sustainability of tribal livelihoods. NABARD gained rich experience in this direction through implementation *Adivasi* Development Programmes in Gujarat and Maharashtra. Based on the successful experience of *Adivasi* Development Programmes, NABARD embarked upon an ambitious programme of replicating the wadi model across the country. The comprehensive tribal development programme, popularly called as "*Wadi*" model along with agri-allied activities is being implemented for improving livelihood of tribals under this programme.

The objective of TDP was to promote sustainable participatory livelihood programmes ("*Wadi*" model and "beyond *Wadi* approach" along with agri-allied activities) which inter alia, aim at economic upliftment through sustainable agriculture, social empowerment, improvement in quality of life including health and women development, in tribal predominant areas of the country supported through Non-Government Organisations (NGOs)/Community Based Organisations (CBOs)/KVKs, Corporates etc.

The basic elements of the wadi model supported by NABARD have been briefly described below

- **Central focus is on "Wadi" (meaning a small orchard of one or two acre of horticultural crops).**
- **Agri-allied & off farm sector activities.**
- **Staggered income over long term through plantation of forest species on private farm lands.**
- **Family based approach towards development.**
- **Sustainability - key for success of the model.**
- **Community ownership of project.**
- **Measures to improve the quality of life of tribal families.**
- **Institutional building by formation of cooperatives.**
- **Support for processing and marketing of farm produce.**

TDP aims to

- **Create replicable models of integrated development of tribal families, on participatory basis, through adoption of sustainable income generating activities based on potential of the area and the tribal needs.**
- **Build and strengthen tribal institutions which would enable the communities to be partners in policy formulation, execution of programmes, and improve their social and economic status.**

NABARD gained rich experience in this direction through implementation of the *Adivasi* Development Programmes in Gujarat and Maharashtra.

Success Stories from other than ERADA project states (Maharashtra & Gujarat) effective implementation of PESA/FRA

Despite the poor implementations of FRA in most states, there are some success stories from Maharashtra and Gujarat. In places where District Collectors have played a pro-active role, tribals and other forest dwellers benefitted hugely from recognition of both individual and community forest rights. A recent study of 246 villages in 2017-18 by Sahu (Sahu, 2020) shows that due to legal recognition and effective realisation of community forest resource rights, more than 1,500 villages in Vidarbha region, i.e., in the districts of Gadchiroli, Gondia, Amravati, Yavatmal and Nagpur have asserted their rights over non-timber forest products by opting out of the traditional NTFP regime of Maharashtra Forest Department and brought about substantial socio-economic benefits to forest dwellers. The communities earned about INR 32.98 crore from the sale of kendu/tendu leaves, using their new negotiating power with the contractors for better prices in 2017.

The success story of Menda Lekha village is well documented (Deshpande, 2016). Menda Lakha was India's first village to secure CFR in 2009, in over 1,800 hectares of its nistar forests. In 2011, it earned INR 1.15 crore from the sale of bamboo alone. Similarly, Padboria village, with about 75 inhabitants, nearly 50 km from Gadchiroli earned INR 2.71 crore during 2015-16 from sale of bamboo harvest from 508 hectare of CFR land that it had got in 2012. Besides, there was significant improvement in the productivity and sale of bamboo due to legal recognition of the community forest resource right. For example, the Panchgaon village in Chandrapur district with a mere population of 250 received the CFR title for over 1,006.4 hectare land in 2013 and earned INR 1.46 crore during 2013-17 (Agarwal and Chakravarty, 2018). The employment that it has generated due to bamboo harvesting

in a sustainable manner decreased the distress of out-migration to almost nil [Gutgutia et al., 2017]. Besides, there was an increase in bamboo productivity from 0.94 tonne per hectare per year in 2013 to 1.89 tonne per hectare per year in 2015. This indicates that even if half the CFR potential area in Maharashtra, Madhya Pradesh, Chhattisgarh and Odisha is brought under bamboo cultivation, the production of this resource will at least be two-fold in the country, creating local employment opportunities and bamboo-based industries to contribute significantly to the socio-economic wellbeing of tribals and other forest dwelling communities.

Amravati's experience provides another example on how the village communities in Nayakheda, Upatkheda Pey Vihar and Khatijapur regenerated degraded forest lands and are growing species such as bamboo, amla and teak along with intensive soil and moisture conservation and wild life protection. Regeneration of natural resources has led to the increased availability of fodder for livestock, the wild life returned to CFR areas and the rights over CFR have provided round the year livelihood to the people.

The Vasava community in Shool Parmeshwar Wild Life Sanctuary of Narmada district in Gujarat is also reaping the livelihood benefits from the CFR area. During 2013-17, a total of 31 villages earned INR 28 crore from the sale of bamboo. In addition, the potential of CFR to provide economic benefits has created incentives for the communities to invest in the management of CFR (Agarwal and Chakravarty, 2018). Using integrated watershed approach, they are improving the health of the forests. Additionally, the communities are identifying and mapping locations in their CFR areas that need intervention using GPS devices.

The communities earned about INR 32.98 crore from the sale of kendu/tendu leaves, using their new negotiating power with the contractors for better prices in 2017.



Part 7

Challenges in securing sustainable
trees and forest base livelihood
among tribals

Securing sustainable trees and forest base livelihood among tribals and other traditional forest dwelling communities face multiple, as well as complex challenges;

- Despite having progressive laws such as PESA, 1996 and FRA, 2006, there is no de facto security of forest tenure and decentralised forest governance for the tribals and other forest dwelling communities, because the Government of India has subsequently or simultaneously passed several laws, rules and executive orders which dilute the key provisions of both PESA and FRA. These include
 - (a) Wildlife Protection (Amendment) Act, 2006, allowing the Wildlife Protection authorities to deny or curtail rights of tribals as provided under FRA;
 - (b) Forest Conservation Act (Amendment) Rules, 2014, which further strengthens the exclusionary conservation policy;
 - (c) Guidelines of the Ministry of Environment, Forest and Climate in August 2015, to lease out 40% of the degraded forest in the country to private companies for afforestation;
 - (d) Constitution of Compensatory Afforestation Fund Management and Planning Authority (CAMPA) under the Supreme Court order, since 2002;
 - (e) Enactment of Compensatory Afforestation Fund Act (CAFA), 2016 and
 - (f) CAFA Rules, 2018 and also
 - (g) Policy decisions taken at the inter-ministerial meetings in 2012 as well as 2015, allowing diversion of forest land for certain categories of projects without the consent of Gram Sabha.
- As per the FRA rules, the forest departments have a negligible role in the implementation process of FRA. However, in practice, they are seen to be functioning as veto by denying rights to the people and rejecting their claims at the screening stage itself (GoI, Manthan Report, 2010). They have been rejecting claims without authority on flimsy grounds (Madhusari, 2014; Kailash Sarap et al., 2013).
- The meetings of VLCs, SDLCs and DLCs which decide the outcomes of claims submitted are not held regularly in most places, thereby slowing down the pace of implementation of FRA.
- There is strong reluctance of the forest bureaucracy to recognise community forest resource rights (Citizens Report, 2016). So far, the focus has been on individual forest rights, claimable under the Forest Rights Act, ignoring the community forest rights.
- Many states have not yet devolved power to the Gram Sabhas, as required under the FRA or PESA. Rather, Section 2(f) of CAFA rules define village forest management committee as one constituted for joint forest management, which is equated with Gram Sabha (Saxena, 2019). It should be noted that the joint forest management committees are largely initiated and dominated by forest officials, without any sanctity or security of the statute (Lele, 2014), whereas Gram Sabha consists of all adult members of a village or hamlet, and have the legal sanctity of both PESA and FRA.
- There has not been any progress to convert forest villages to revenue villages, as required and despite the direction from the Supreme Court (Saxena, 2015).
- Many states have not ensured one-third representation of women in the FRCs and have issued titles in only men's name instead of the names of both spouses (Bandi, 2013; Madhu Sarin, 2014).
- Community forest rights claims have been the victim of lack of proper demarcation of revenue and forest lands. Some CFR claims, in order to qualify for verification, need the forest department's recommendation and the same are being turned down for not being forest lands (Upadhaya et al., 2009). It has also been observed that the customary boundaries delineated by Gram Sabhas are not generally accepted by revenue and forest departments. The rejection rates are very high. There is already a pending Supreme Court order, dated 13 February 2019, asking states to evict all those from forests, whose claims have been rejected. Once and if the present stay order gets vacated, lakhs of tribals and other forest dwellers would lose their forest rights and forest-based livelihoods.
- The Forest dependent and other traditional forest dwelling claimants are largely being left out of the purview of implementation of FRA due to their inability to produce documentary evidence in support of 75 years of residence (Madhu Sarin, 2014).
- Litigation against FRA in various high courts and also in the Supreme Court has created uncertainty and insecurity about the future of forest rights of tribals.

The constitutional validity of the Act itself has been questioned by several former bureaucrats, forest officials and exclusionary conservationists (Bejoy, 2017).

In January 2015, all such cases were transferred to itself by the Supreme Court in response to transfer petition filed by the Ministry of Tribal Affairs. Although the apex court has not stayed the implementation of FRA so far, uncertainty persists about the future of FRA and forest tenure security of the tribals and other traditional forest dwelling communities.

- There is a huge challenge of building capacities including knowledge and awareness of tribals and other forest dwellers to submit claims accurately and get their rights recorded in an expeditious manner. In many villages, tribal communities are not simply aware of FRA provisions. (Sahu, Dash and Dubey, 2017). More specifically, training on how to undertake a basic forest inventory, and use simple tools such as GPS in order to mark the community land boundaries and GIS maps for designating areas for agriculture, housing, forest conservation, etc., remains a challenge. Equally challenging is the capacity building of government officials and civil societies working on implementation of Forest Rights Acts for leveraging appropriate technologies, institutions, and participatory forest governance and management of community forest resources.
- Even though forests and forest products are presently important for livelihoods of tribal communities, it is not certain whether the forest sector in its present form can create sustainable livelihoods, especially when accessibility of tribal communities to minor forest produce in protected areas is highly restricted. Besides, there is very little post-harvest processing and value addition at the local level due to poor infrastructure, and there is little incentive for the tribal communities to invest in improved production and marketing (Brain Belcher et al., 2017). In addition, tribal youth may no longer be interested to stay in the forestry business,

unless the production/collection and marketing of timber and non-timber forest products become remunerative. Although Government of India fixes minimum support prices for 49 minor forest produce, only a few States like Chhattisgarh, Maharashtra, Nagaland and Jharkhand have shown some interest in implementing it. During 2018-19, about 151 tons of MFPs was procured at minimum support prices in Chhattisgarh, 80 metric tons in Maharashtra, 45 metric tons in Nagaland and 26 metric tons in Jharkhand (Government of India, TRIFED, 2019). Other States did not show much interest in this. In fact, there is no suitable institutional mechanism for procurement of minor forest products at minimum support prices, with a system of timely payment in most places. Providing support through *Van Dhan Vikas Kendras* does not help much as there are hardly 1,126 such Kendras in the country, most of which are non-functional. Also, unlike agricultural commodities which are priced based on the cost plus 50% margin, there is no such remunerative pricing of minor forest products. Besides, in the case of nationalised MFP such as tendu leaf, the State fixes prices arbitrarily to the disadvantage of tribal collectors/gatherers. While tendu leaf is a nationalised product in most States, and there is a State monopoly over its trade, individual State exercises monopoly control over certain other MFPs too, thereby restricting their free trade in open markets. The exercise of monopoly encourages illicit trade as well as exploitation of gatherers (Government of India, 2011).

- *Mahatma Gandhi NREGA*, that provides job and livelihood opportunities in a limited manner to the rural communities have least reach to the indigenous forest dwelling communities. The low participation of these communities in *Mahatma Gandhi NREGA* entitlements is attributed to the limitation of Gram Sabha to outside forest boundaries. The GS is unable to make the development plans to non-revenue villages of the forest dwellers.

In addition, tribal youth may no longer be interested to stay in the forestry business, unless the production/collection and marketing of timber and non-timber forest products become remunerative.



Part 8

Recommendations for Trees and
Forest based Livelihoods enhancement
through ERADA

- Keeping in view the enormous economic, social and ecological benefits of individual and community forest management, the Centre in co-operation with State governments should implement the Forest Rights Act, 2006 in its right spirit. It has the potential of unlocking various development opportunities in tribal areas on win-win basis for all. These opportunities must not be lost and therefore, all governments should ensure that key provisions of FRA are not diluted, under any circumstances. The Gram Sabha should have an active role in planning livelihood intervention for the individuals and community and the utilisation of the land and other forest resourced under the ambient of *Mahatma Gandhi NREGA* for the livelihood generation of the forest dwellers.
- There is a need to review some of the recent laws, rules and executive orders which have diluted specific provisions of FRA and suggest corrective measures, including amendment in rules and guidelines for effective and expeditious implementation of FRA. Removing conflicts between various laws and policies would be of utmost importance.
- Larger scope is there to see venues of convergence and diverting forest-based production and revenue sharing/transferring of MFPs for either securing livelihoods of tribals or protecting biodiversity and environment. In fact, appropriate choice of tree species and growing timber and non-timber species in a balanced manner has to be promoted through collective decision of Gram Sabha and Department of forest in a well synergised way prioritising the landlessness issue of forest dwellers. The participation of the community in planning process for *Mahatma Gandhi NREGA* is must by exploring the convergence between department of forest and rural development
- The compensatory afforestation fund should be transferred to Gram Sabhas or the forest departments should use this fund in close collaboration with Gram Sabhas for sustainable afforestation and employment generation in tribal areas. However, there is a need to bridge the trust deficit between the forest officials and Gram Sabhas for this purpose.
- The success stories of community forests resources done right in quite a few places such as Gadchiroli, Amravati, Chandrapur and Gondia districts in Maharashtra and Narmada district of Gujarat should be closely studied for replication in other areas. There is a need for sustained advocacy for up scaling and replicating these in other areas with necessary context specific adaptations.
- Building capacities of tribals and other forest dwellers to submit claims accurately and get their rights recorded, in an expeditious manner is of crucial importance. In the absence of capabilities to participate among possible beneficiaries, it is unlikely that the FRA will be effectively and expeditiously implemented. Equally important will be the capacity building of government officials and civil societies working on forest rights. Besides, those who either have individual or community forest resource rights should be trained to improve production and productivity of minor forest produce through the use of improved technology, marketing and value addition.
- There is a need to devise appropriate institutional mechanism for effective implementation of minimum support prices of minor forest products, involving Gram Sabhas and the Forest Management Committees as provided under the Forest Rights Act, 2006 with necessary financial and logistic support. Therefore, a competitive marketing framework should be developed, involving cooperatives, and private and public enterprises.
- There is a need for region-specific and cluster-based business plans for harnessing the potentials of minor forest products in different areas, ensuring the participation of tribal communities in production, marketing, value addition and other forms of entrepreneurship. Example: Mahua (*Madhuca longifolia*) flower is an important non-timber forest product (NTFP). It has a significant place in the livelihoods, food security and culture of the forest-dependent communities, especially among the tribal population. By simply taking some measures at the time of collection and drying with cleanliness and holding for the right time, farmers can fetch the double

There is a need for sustained advocacy for up scaling and replicating these in other areas with necessary context specific adaptations.

income. To scale it up in convergence with various government schemes like *Mahatma Gandhi NREGA* and National Rural Livelihoods Mission (NRLM) can easily meet the financial and equipment needs for overcoming barriers to increased income generation. (Detailed innovation and value addition example is shared for reference in case stories)

- Custard apple value addition in states like Madhya Pradesh has a wider scope. PMVDVY has formed the VDVK. The groups could be given handholding in carrying out plantation under *Mahatma Gandhi NREGA* through GS and cooperative efforts through SHG. The cluster plantation of Custard apple of suitable stock should be promoted other than the conventional natural forest-based produce.
- Besides leveraging modern technology to map and monitor the implementation of FRA, the forest bureaucracy should work in close proximity of Gram Sabhas and involve the tribals and other forest dwelling communities for the efficient and inclusive sustainable development.
- For communities having agricultural land, less suitable for farming-based livelihood, the provision must be explored on scale to adapt the forestry and horticulture-based intervention under *Mahatma Gandhi NREGA*. Data from 2018-19 to 2020-21 of MoRD shows that the budget share of total spending on plantation related work in *Mahatma Gandhi NREGA* was between very low (0.03 % to 3.07% in project states). Agroforestry and horticulture should be planned by the GP under development plans and carry out block plantation. The NABARD's wadi and agroforestry/horticulture-based interventions have brought out many successful models in Rajasthan and Gujarat States that may have potential for adaptation on scale in other states.
- NABARD needs to review its project implementation strategy and work in collaboration with Gram Panchayat

and Rural Development department to come up with more resilient Sustainable Integrated Farming (SIF) model centrally driven by trees and forest-based intervention.

- Block plantation, roadside plantation, plantation on major and minor canals, common lands which is already being carried under *Mahatma Gandhi NREGA* has an issue of identity, ownership, and management. The trees selection, plantation and management, must be transferred to the community and GS, thereby giving ownership and entitlement to the community or SHGs.
- At prima facie, it appears that forest development plans have less coherence with the Gram Sabha. The Livelihood intervention planned by the forest department has to be aligned with the GS development plan to realise better convergence.
- There is a need to review some of the recent laws, rules and executive orders that have diluted specific provisions of FRA and suggest corrective measures, including amendment in rules and guidelines for effective and expeditious implementation of FRA. Removing conflicts between various laws and policies would be of utmost importance.
- Effective implementation of PMVDVY and functioning of VDVK could be useful in seeking better negotiation power with tribal community and get good value for the forest produces under proposed business model. This need, the capacity building of groups and entrepreneur member linked with the VDVKs.
- Lac Cultivation providing supplementary income to nearly 60 lakhs families in Jharkhand alone through conventional practices. Cultivation/culture by small holder on private land in addition to the forest-based collection may boost up the livelihood in states like Jharkhand, Madhya Pradesh and Rajasthan.

The NABARD's wadi and agroforestry/horticulture-based interventions have brought out many successful models in Rajasthan and Gujarat States that may have potential for adaptation on scale in other states.

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Annexure I:

Plantation intervention status under Mahatma Gandhi NREGS (2016-17 to 2020-21)

Assets/Work Categories	Afforestation	Block Plantation	Construction	Development	Drainage	Levelling/ Shaping	Line Plantation	Lining	Raising	Reclamation	Renovation	Repair and Maintenance	Grand Total
Building			9									5	14
Bund			18									3	21
Canal			5					5			4	5	19
Channel			1								1	1	3
Check Dam			10									4	14
Compost Pit			1										1
Compost structure			11									4	15
Compound wall for government schools			1									1	2
Crematorium			1									1	2
Culvert/cross drainage structures			1									1	2
Cyclone shelter			1									1	2
Embankment			1										1
Fish Drying Yards			2									1	3
Grasslands				2									2
Grey Water/ Storm Drain			1									1	2
Gully Plugs			4									2	6
Infrastructure for Azola cultivation			2									1	3
Infrastructure for Liquid Bio manure			3									1	4
Land				2	2	2				1			7
Livestock Shelter			8									4	12
Mini Percolation Tank			2									1	3
Nursery									3				3
Open Well			3									1	4
Play field			1									1	2
Production of building material			1										1
Recharge Pits			2										2
Roads			7									7	14

Assets/Work Categories	Afforestation	Block Plantation	Construction	Development	Drainage	Levelling/ Shaping	Line Plantation	Lining	Raising	Reclamation	Renovation	Repair and Maintenance	Grand Total
Sand filter for well recharge			5										5
Soak Pit			2										2
Soakage Channel			1										1
Spur			3									3	6
Stabilisation Pond			1									1	2
Storm Water Drain			2									2	4
Storm Water drain for coastal protection			1									1	2
Terrace			4										4
Toilets			3										3
Trench			4										4
Underground Dykes			1										1
Village/ Rural Haat			1									1	2
Water Harvesting Ponds			3								2	2	7
Work shed for Livelihood activity			1										1
Trees Plantation	2	29					21						52
Grand Total	2	29	128	4	2	2	21	5	3	1	7	56	260

Notes

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