



# Scoping Study and Policy Imperatives on Green Jobs and Eco-Entrepreneurship Opportunities for Women in Select States in India.

CARBON SINKS: FOREST



Green jobs and Eco-Entrepreneurship has been integral to the discourse on green growth/economy for over a decade and has assumed greater significance of late. This study - Scoping Study and Policy Imperatives on Green Jobs and Eco-entrepreneurship Opportunities for Women in Select States in India was initiated in early 2020 and draws upon the learnings from the United Nations Development Programme (UNDP)'s project "Creating Employment and Entrepreneurship Opportunities for Women in India" (Disha) project. The intent of the study is to identify areas for and promote greater women's workforce participation in renewable energy, green construction, green transport, water management and carbon sinks (forests and marine fisheries). Given the vastness of its scope and geographies, the study was confined to the UNDP's Inclusive Growth project states of Delhi, Haryana, Maharashtra, Karnataka, Telangana, Uttarakhand and Odisha.

The report, prepared by KPMG, is based on secondary sources and stakeholder interactions, as the study was initiated just prior to the COVID-19 pandemic and lockdown, that greatly limited access to primary research, physical consultations and data collections. Even though virtual stakeholder interactions, online consultations and peer review provided information across thematic areas, it is likely that there may be some gaps due to unavailability of gender disaggregated data or restricted information.

The report is edited and designed by Roots Advertising.

Published by:

UNDP India

55, Lodhi Estate, New Delhi 110003, India

Tel: +91-11-46532333,

Email: [info.in@undp.org](mailto:info.in@undp.org)

Copyright@2021

All rights reserved. The publication may be quoted, in part or full, by individuals or organizations for academic or advocacy and capacity building purposes with due acknowledgement to UNDP India. This publication is for information only and is not to be sold for commercial purposes.



Scoping Study and Policy Imperatives on  
Green Jobs and Eco-Entrepreneurship  
Opportunities for Women in Select  
States in India.

CARBON SINKS: FOREST

# Contents

<b>Foreword</b>	<b>vii</b>
<b>Acknowledgements</b>	<b>ix</b>
<b>Executive Summary</b>	<b>1</b>
<b>1. Overview</b>	<b>3</b>
<b>1.1 Setting the Context</b>	<b>4</b>
<b>1.2 Introduction to the Sector</b>	<b>6</b>
<b>1.3 Implications of COVID-19 on the Sector</b>	<b>10</b>
<b>2 Sectoral Analysis</b>	<b>11</b>
<b>3 Policy and Regulatory Frameworks</b>	<b>23</b>
<b>4 Potential Pathways</b>	<b>39</b>
<b>4.1 Suggested Action Plans</b>	<b>51</b>
<b>5 Annexures</b>	<b>59</b>

## List of Abbreviations

<b>AYUSH</b>	Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy
<b>CFR</b>	Community Forest Rights
<b>CIFOR</b>	Center for International Forestry Research
<b>CO2e</b>	Carbon-dioxide equivalent
<b>DFID</b>	Department for International Development
<b>FGD</b>	Focus Group Discussion
<b>FRA</b>	Forest Rights Act
<b>FAO</b>	Food and Agriculture Organization
<b>ILO</b>	International Labour Organization
<b>JFMC</b>	Joint Forest Management Committee
<b>KSLWF</b>	Kaluveti Sustainable Livelihood Women Federation
<b>KVK</b>	Krishi Vikas Kendra
<b>LSMS-ISA</b>	Living Standards Measurement Study-Integrated Surveys on Agriculture
<b>MoEFCC</b>	Ministry of Environment, Forest and Climate Change
<b>MoFPI</b>	Ministry of Food Processing Industries
<b>MFP</b>	Minor Forest Produce
<b>NABARD</b>	National Bank for Agriculture and Rural Development
<b>NAP</b>	National Afforestation Programme
<b>NGO</b>	Non-governmental organization
<b>NMPB</b>	National Medicinal Plants Board
<b>NSTFDC</b>	National Scheduled Tribes Finance and Development Corporation
<b>NTFP</b>	Non-Timber Forest Product
<b>PMVDY</b>	Pradhan Mantri Van Dhan Yojana
<b>R&amp;D</b>	Research & Development
<b>SHG</b>	Self Help Group
<b>TBO</b>	Tree-Borne Oilseed
<b>TRIFED</b>	Tribal Cooperative Marketing Development Federation
<b>TSSDM</b>	Telangana State Skill Development Mission
<b>VDVK</b>	Van Dhan Vikas Kendra
<b>VFC</b>	Village Forest Committee



# Foreword

Climate change is perhaps the biggest challenge of our times and it is forcing all of us to define the kind of economy that works for everyone. The effects of climate change will undoubtedly alter the structure of employment; new jobs and new job families will emerge, others will evolve or become unsustainable. Economies must find ways to reorganize work and production differently.

According to ILO, at least half of the global workforce, around 1.5 billion people will be affected by the transition to a greener economy. The challenge lying ahead of us is the urgent need to equip the people with the right skills that will help them adapt to this transition. Skills gaps have already started emerging across a number of sectors, such as renewable energy, energy and resource efficiency, renovation of buildings, construction, environmental services and manufacturing.

Moreover, the exclusion of women and their needs in decision-making process for mitigation or adaptation measures can pose challenge to achieving gender equality at work. This will have a deep impact on the larger economies. Given that women make up a little over half of the world's population (WEF 2013), their untapped talent could significantly alter our economic development (UNDP 2013).

Nearly 60 percent of India's population is directly dependent on climate-sensitive sectors such as agriculture, fisheries and forestry for its livelihoods, and 80 percent of economically active women are in the agriculture sector. Hence the climate crisis severely affects the women who are dependent on these climate-sensitive livelihoods and who do not have any alternative livelihoods.

Keeping in mind these multiple challenges and based on our learnings from Disha Project that UNDP implemented in partnership with IKEA Foundation, to create employment and entrepreneurship opportunities for women, a study was commissioned to assess the green jobs and eco-entrepreneurship opportunities for women in India. The study focused on five major sectors identified by the Skill Council for Green Jobs: renewable energy, green transport, green construction, forestry, fisheries and water management. It covered Delhi NCR (National Capital Region), Haryana, Maharashtra, Karnataka and Telangana as well the potential states such as Uttarakhand and Odisha.

Although we faced the challenge of lack of gender-disaggregated data, and the study being conducted during the COVID-19 pandemic, the sector-specific reports present some promising prospects for a greener skilling and livelihoods ecosystem. The Government of India and some of the state governments are already moving in the right direction. For instance, the International Solar Alliance in the Renewable Energy space has already gained momentum and the cost of the solar panels in India has reduced in the recent years.

While substantial work has been done to build capacities of people and communities on water management, forest or fisheries, to promote climate-resilient practices, women are often left out and mostly under-represented in such initiatives. As we recover from the pandemic, we must ensure that women are given equal opportunities to be part of our green recovery. Only when we tap into their talents and the huge demographic dividend that is often left out, can we achieve our Sustainable Development Goals at the end of this decade.

UNDP has been working closely with the Government of India and other key partners for an inclusive and climate-sensitive response to COVID-19 that paves the path to greener pathways for recovery. India, as an emerging economy, holds immense potential, given its demographic dividend. But it can never recover fully, or reach its full potential, if half of the population – the women- are not part of its green recovery.



Shoko Noda  
Resident Representative





# Acknowledgement from Lead Facilitator

UNDP India has undertaken a study on the “Scoping Study and Policy Imperatives on Green Jobs and Eco-Entrepreneurship Opportunities for Women in Select States in India”. The report takes into cognizance the climate crises and its implications on lives and livelihoods of the people, and provide some pathways in terms of nature-based livelihoods, that can often be turned into opportunities for more decent work. Be it renewable energy, green transport, green construction water management, forest or fisheries, strides are being made by the Governments at national and state levels to build the capacity of the people and promote climate-resilient practices. And it is but appropriate to bring in the women to partake in the development and be part of the dynamic workforce in the country. And this forms the basis of the study.

This report has been made possible with contributions from many individuals and experts, who took out time and helped put this study together. This report was initiated just prior to the onset of pandemic and was drafted virtually through the lockdown period. A number of virtual consultations with thematic and regional experts were held between April and November 2020, and inputs received on each of the chapters drafted.

In this endeavour, we owe our deepest gratitude to Dr. Sunita Sanghi (Additional Secretary and Senior Advisor, Ministry of Skill Development and Entrepreneurship, Government of India), Dr. Praveen Dhamija (Advisor, Sector Skill Council on Green Jobs), Vandana Bhatnagar (Chief Programme Officer, NSDC), Sudipta Bhadra (Senior Programme Officer, ILO), and Anubha Prasad (National Coordinator, PAGE) for their guidance while discussing our findings, assessing the quality of analysis, the reliability of data, and the soundness of the recommendations emerging from the study.

The support provided by our collaborators in the formulation of background papers needs a special mention. We express our utmost appreciation for the hard work put in by the KPMG team lead by Manpreet Singh and Vivek Panda.

We would like to thank and acknowledge the inputs received during the peer review of the draft chapters by Dr. Srinivas Shroff Nagesha Rao (CEO, REC Foundation), Hitesh Vaidya (Director, NIUA), Suneel Padale (Director Programs, CARE India), Vishaish Uppal (Livelihoods Specialist, WWF India), Moho Chaturvedi (Independent Consultant) and Ramya Rajagopalan (Independent Researcher).

Our gratitude to UNDP colleagues for their insightful comments during the peer review process. Our heartfelt appreciation for the overall insight and guidance by Harsh Singh, Amit Kumar, Alka Narang, and the contributions by UNDP India team, especially Sushil Choudhury, Saba Kalam, Dilip Singh, Abha Mishra, Rashmi Bajaj, Manisha Choudhury and colleagues from the Inclusive Growth team.

We are eternally grateful to Ms. Shoko Noda, Resident Representative, UNDP India and Ms. Nadia Rasheed, Deputy Resident Representative, UNDP India for their inspiration, encouragement and guidance throughout the process. None would have materialised without the faith that they reposed in our endeavours.

We thank all the experts and colleagues for their support and contribution.



Swayamprabha Das  
Inclusive Growth



## Executive Summary

As governments around the world deal with the staggering impacts of COVID-19, there is an increased consensus on tailoring fiscal stimuli to combat climate change. As a signatory to the Paris Agreement, India is uniquely positioned to pursue 'green recovery' targeting the twin objectives of progress and preservation.

Forests are vital ecosystems, serving both as carbon reserves and sustaining rural economies worldwide. Globally, more than 1.6 billion people rely on forests for livelihoods and subsistence<sup>1</sup>. In India, a significant proportion of marginalized poor, in around 1,70,000 villages (census 2011) located in the proximity of forest termed as forest fringe villages, depends directly or indirectly on forests to subsist. Specifically, women depend on forests for basic income as well as food security and nutrition. Additionally, forest dependent communities rely on forests for meeting their nutritional requirements. Forests act as 'safety nets' during periods of food shortage, especially in times of primary crop failure, seasonal crop production gaps and market disturbances. Such inconsistencies affect the woman in the household the most. Thus, there is an urgent need to mainstream gender in the forest sector and develop 'green jobs' for long-term, sustainable growth.

In this context, the concept of green jobs entails sustainable forest management practices and gainful livelihood for communities. The forest sector value chain presents huge potential for developing employment opportunities and enhancing meaningful participation of forest-fringe communities in development, sustainable extraction and equitable distribution of forest resources for the collective benefit of communities. However, disproportionate gender participation in workforce and huge skill gaps pose serious challenges to sustainable growth of the sector.

Keeping in view the criticality of the situation and the tremendous potential the sector possesses, there have been numerous policies and regulatory interventions at both national and state levels to support livelihoods, enhance community forestry and increase women's participation in the sector. India is one of the pioneering countries in the world which has legislated a law called Forest Rights Act 2006 for sustainable and equitable governance and management of the forests by local communities (Gram Sabhas,) recognized under the law with legally mandated focus of women's participation and voice. Additionally, several training programmes have been organized across states to improve knowledge and awareness on sustainable forestry practices, with specific focus on reskilling and upskilling of women.

---

<sup>1</sup> FAO, May 2015. Forests and poverty reduction.

Despite several interventions, women's participation continues to be low and huge 'skill gaps' persist. This necessitates improved effectiveness of policy implementation through the establishment of robust databases that offer sound empirical conclusions. Further, enhanced representation of women is required in the consultative process and in managerial as well as decision-making roles for sustainable growth of the sector.

Overall, mainstreaming gender coupled with creation of 'green jobs' is essential for creating sustainable forest resources that yield long-term economic, socio-political and environmental gains.

Disclaimer: This report has been developed considering the pre-COVID-19 landscape. Hence all estimations that have been made in this report are suitable for the pre-COVID-19 market scenario only.

1.

# Overview



## 1.1 SETTING THE CONTEXT

As the momentum towards climate change mitigation picks up, the forest sector presents a unique opportunity to pursue preservation and progress. Nearly 350 million people worldwide live in or around forest areas depending directly or indirectly on forests for their sustenance. According to the Center for International Forestry Research's (CIFOR) Poverty and Environment Network, rural and forest fringe communities derive almost 22 percent of their incomes from forest-based resources<sup>2</sup>. This necessitates enhanced focus on developing forests as 'carbon sinks' and vital ecosystems for augmenting income. Over the past couple of decades, the forest sector's contribution has been increasing and, on an average, the sector is growing at 2.5 percent annually<sup>3</sup>. The need for transition to a 'green economy' across the globe has brought the forest sector to the forefront of climate-related talks. As the economic scope widens and the sector undergoes major transformations, the forest workforce has experienced several structural changes. There is an enhanced push for identifying 'green jobs' in the sector and expanding the scope of related activities to increase workforce participation and productivity.

Globally, forest industries encompassing both timber and non-timber play a pivotal role in driving socio-economic development. Production, harvesting, processing and marketing of timber and non-timber forest products are associated with secondary industries and are important sources of employment, particularly in rural areas. More specifically, the role of Non Timber Forest Products (NTFPs) and agro-forestry is increasingly being observed in ensuring biological diversity, sustainable forest management, livelihood generation and food security. In most marginalized rural communities worldwide, women are actively engaged in NTFP-based livelihoods and agro-forestry. However, there are glaring skills gaps that adversely impact their income earning capacities. Some of these include low skilling in processing and value-addition and inadequate skills in accounting and marketing. In addition, enhanced scientific skills on managing forest resources, specifically the sustainable extraction of resources, coupled with indigenous knowledge systems would create an environment of ecological balance/growth with a productive economy for such forest dependent communities. While the potential of 'green jobs' in

the sector is explored, there is a strong argument to improve inclusion in the sector and scale up the rate of women's participation via skill enhancement and policy level interventions. This would certainly require a concentrated effort in research and policy advocacy by bringing in existing policies or provisions as well as facilitating a coherent effort of relevant stakeholders with optimum utilization of available resources.

## BACKGROUND OF THE STUDY

This scoping study on Green Jobs and Eco-entrepreneurship opportunities for women in select states, draws its strength and learning from the UNDP-IKEA Foundation project 'Creating Employment and Entrepreneurship Opportunities for Women in India (Disha)'. This project focused on enhancing opportunities for marginalized women in jobs and entrepreneurship and enabled development of models and curriculum like the Biz Sakhi and Women Sourcing Managers. Though some of the pilots under Disha did include components of green initiatives, but a full pledged pilot/programme could not be developed majorly because of lack of information and the potential for growth. But as the conversations around jobs/entrepreneurship - climate change nexus gathered attention, a need was felt to design a study to fill this gap in data/information and develop sector specific pathways with a focus on marginalised women.

While the discourse on Green Economy/Green Growth is huge and covers a range of sectors, the study focuses on addressing the following two-fold objectives:

- Gap assessment of existing and potential green jobs and mapping the availability of skilled workforce for the identified job roles in the RE sector; and
- Development of an implementation roadmap and provision of recommendations to enable women to leverage the existing and potential opportunities.

Given the limitation and the acceptance that many of the Green Jobs sector is still evolving and maybe in nascent stage, the geographic scope of the study was limited to the states of Delhi NCR, Haryana, Maharashtra, Karnataka, Telangana, Uttarakhnad and Odisha

<sup>2</sup> <https://www.worldbank.org/en/topic/forests>

<sup>3</sup> Schmincke, K.H., FAO, *Forest Industries: crucial for overall socio-economic development.*

## APPROACH AND METHODOLOGY

The scope of the study includes the following five phases: finalization of methodology and assessment framework, secondary research and assessment, purposive sampling study, primary stakeholder consultation, analysis and report writing. In each phase, various tasks as suggested in the scope were performed to ensure completion.

### SCOPE OF THE STUDY

The focus of our study is on **NTFPs and agro-forestry**. In India, approximately 100 million forest dwellers, mostly marginalized women, in roughly around in 170,000 villages, depend directly on NTFPs for their livelihood and subsistence. Additionally, NTFPs, as a major source of livelihood, are primarily collected and sold by women<sup>4</sup>.

The key focus of the National Agro-forestry Policy, 2014 has been on supplementing the production of agro-forestry products such as fodder, fuel wood and NTFPs for tribal and forest dependent communities, thereby reducing the pressure on forests. Agro-forestry plays a vital role in climate

moderation, soil conservation and improving land fertility. Furthermore, the importance of growing trees on farmlands can be observed in bio-amelioration as well. Existing challenges pertaining to environment security, energy, nutrition and food security can be controlled by adopting of agro-forestry systems. Additionally, agro-forestry has immense potential to generate rural employment opportunities via value addition and industrial applications.

### LIMITATIONS OF THE STUDY

The uniqueness of this assignment is an opportunity to explore and find a way forward, but it also presents its own set of challenges, particularly in terms of paucity of data. The analysis conducted in the study is adversely affected by the following limitations:

- Lack of sector-specific data on women currently engaged in unskilled and semi-skilled job roles in the select states;
- Estimation of the growth forecast for semi-skilled and unskilled job roles in the sector is a challenge;

Figure 1: Approach and Methodology



<sup>4</sup> MFP Development, Tribal Co-operative Marketing Development Federation of India Limited, Ministry of Tribal Affairs, Government of India.

- Lack of information on different types of green jobs in forest sector in India;
- Limited data available on forest-based jobs categorized as unskilled, semi-skilled and skilled; and
- No data available on the percentage of women's population dependent on forest-based jobs.

## 1.2 INTRODUCTION TO THE SECTOR

India's total forest cover spread across 712,249 square kilometre, accounts for nearly 21.67 percent of its total geographical area<sup>5</sup>. As a signatory to the Paris Agreement, India has committed to creating an additional carbon sink of 2.5-3 billion tonnes of carbon-dioxide equivalent (CO<sub>2</sub>e) by 2030<sup>6</sup>. India's Intended Nationally Determined Contribution submission clearly outlines the focus on planned afforestation to increase forest cover to 33 percent of the total geographical area<sup>7</sup>. As the government gears up its efforts in developing forest landscapes, the sector provides significant opportunities for 'green' employment.

Additionally, nearly 68 percent of the country's population is rural and primarily engaged in traditional livelihoods. With 170,000 forest fringe villages (of 650,000), the dependence on forest ecosystems for sustenance is rather high. The pressure on forests has further increased over the last few decades due to urbanization and industrial development leading to large-scale deforestation.

The Ministry of Environment, Forest and Climate Change (MoEFCC) is the apex agency within the administrative structure of the Government of India for promoting, planning and overseeing the execution of the various forestry and environmental policies in India. The ministry focuses on conservation and protection of India's flora and fauna, afforestation, regeneration of degraded lands, and controlling environmental pollution. Some of the national policies on the forest sector include the Forest Conservation Act 1980; the National Forest Policy 1988; the Indian Forest Act 1927; and, the most recent, Forest Rights Act 2006. While the Government of India has consistently increased focus on developing forests both as 'carbon sinks' and providers of sustainable livelihoods, the sector needs a greater

push to enable workforce participation. This highlights the significance of green jobs in the forest sector that will ensure economic development while also protecting the environment and forest resources.

## DEFINING GREEN JOBS

International Labour Organization (ILO) defines green jobs as, "Green jobs are decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency."

According to ILO, decent work involves "opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men"<sup>8</sup>.

### For the purpose of this study:

#### 'Green' implies:

- Limiting or preventing negative environmental impacts, such as pollution, of ecosystem components such as air, water and soil;
- Being climate friendly via minimization of resource wastage;
- Maximizing resource efficiency; and
- Focusing on resource conservation.

'Green jobs' include social considerations such as improvement of working conditions, promotion of health and well-being, better livelihood generation, community development, etc. Green jobs can be existing or may require, reskilling, upskilling or developing new skills.

## DEFINING GREEN JOBS THE FOREST SECTOR

A forest-based job can be classified as "green" when it leads to minimal negative environmental impact and socially, economically as well as environmentally sustainable enterprises. Under the gambit of green

<sup>5</sup> Forest Survey of India, MoEFCC, Government of India, 2019. India State of Forest Report.

<sup>6</sup> <https://www.nrdc.org/sites/default/files/paris-climate-conference-India-IB.pdf>

<sup>7</sup> <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf>

<sup>8</sup> <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>



jobs, various studies attempt to define green jobs in the forest sector. One such study by a team of specialists from the Food and Agriculture Organization (FAO) defines a 'green forest job' as *"one that complies with the principles of sustainable forest management, contributes to a green economy, and is involved in the manufacture of forest products and/or in the performance of forest services"*<sup>9</sup>.

In India, the forest sector primarily sees engagement from the rural population, with significant gender disparity among the workforce. While women and men have differentiated uses and access to forests, women are the primary engagers with forest ecosystems. It is thus imperative to increase their participation through necessary interventions in the sector for long-term sustainable benefits.

In the context of the forest sector, a green job involves production of forest-based products or services that simultaneously ensure sustainable forest management and contribute to the green economy. Given the scope of our study, it would be worthwhile to first get an understanding of the NTFP and agro-forestry landscape in India. CIFOR defines NTFPs as "any product or service other than timber that is produced in forests"<sup>10</sup>.

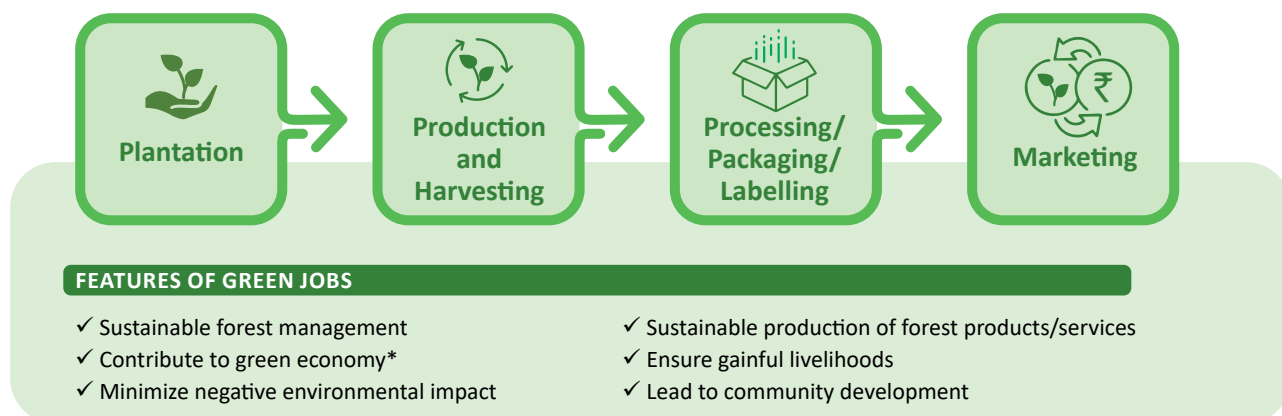
The Ministry of Tribal Affairs, Government of India, defines NTFPs or Minor Forest Produce (MFP) as "non-

timber forest produce of plant origin"<sup>11</sup>. NTFPs are a source of income and subsistence for forest fringe and rural communities. Examples of NTFPs are bamboo, wild fruits, vegetables, dyes, waxes, honey, lac, Tussar, gums, leaves, resins, nuts, mushrooms, fibres, barks and medicinal plants, among others. The most impoverished and poorest sections of society such as tribal and forest fringe communities derive economic and social value from NTFPs. Around 20 to 40 percent of the annual income earned by the tribal population in India is from NTFPs. India's NTFP sector has the potential to generate nearly 10 million workdays every year<sup>12</sup>.

According to National Agro-forestry Policy 2014, agro-forestry is defined as "a land use system which integrates trees and shrubs on farmlands and rural landscapes to enhance productivity, profitability, diversity and ecosystem sustainability"<sup>13</sup>. Besides meeting the demand for fuel wood, paper pulp, small timber and green fodder, agro-forestry also plays a major role in meeting the demand for food, fibres, medicinal plants, fruits, and green manure, among others. A host of agro-forestry systems are being practiced in India such as agri-silvi-horticulture (fruit trees, crops and trees), horti-apiculture (fruit trees and honeybees), agri-horticulture (crops and fruit trees) and others.

The study explores the forest sector value chain and lists key features of green jobs in it.

**Figure 2:** Defining green jobs in the forest sector value chain



\* The process of reconfiguring business and infrastructure to deliver better returns on investments of natural, human and economic capital, while at the same time reducing greenhouse gas emissions, extracting and using fewer natural resources, creating less waste and reducing social disparities (UNEP, ILO, IOE and ITUC, 2008; European Commission, 2012) (Green Jobs in the Forest Sector, UNECE, FAO 2018).

<sup>9</sup> UNECE, FAO, 2018. Green Jobs in the Forest Sector.

<sup>10</sup> CIFOR,..... Forests and non-timber forest products.

<sup>11</sup> MFP Development, TRIFED, Government of India.

<sup>12</sup> Ibid.

<sup>13</sup> Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, 2014 (document). National Agroforestry Policy.

The first stage of the forest sector value chain can either be “plantation” or “production and harvesting” as the case may be. Forest produce can either be gathered from existing forests or can be planted and then harvested after a point of time. For example, the **plantation** of NTFPs such as bamboo, spices, arecanut and coconut is a common activity in India.

Plantation is that activity in the value chain that involves preparing the soil, planting saplings and tending to them on a regular basis. Some of the activities include mulching, weeding, watering and treating the soil with manures and fertilizers. This entails regular irrigation, application of manures and fertilizers, weeding and pruning. Once the trees grow, they are ready for the next step which is harvesting. After that come production and harvesting wherein the produce is harvested, cut or plucked from trees, gathered, cleaned, separated, stacked and piled. Processing, packaging or labelling is the third step wherein the pre-processed produce is converted to the finished product and packaged. The final stage is marketing wherein finished products are distributed for final consumption. There are two types of NTFPs: food-based and non-food based. The value chains for these two types have been

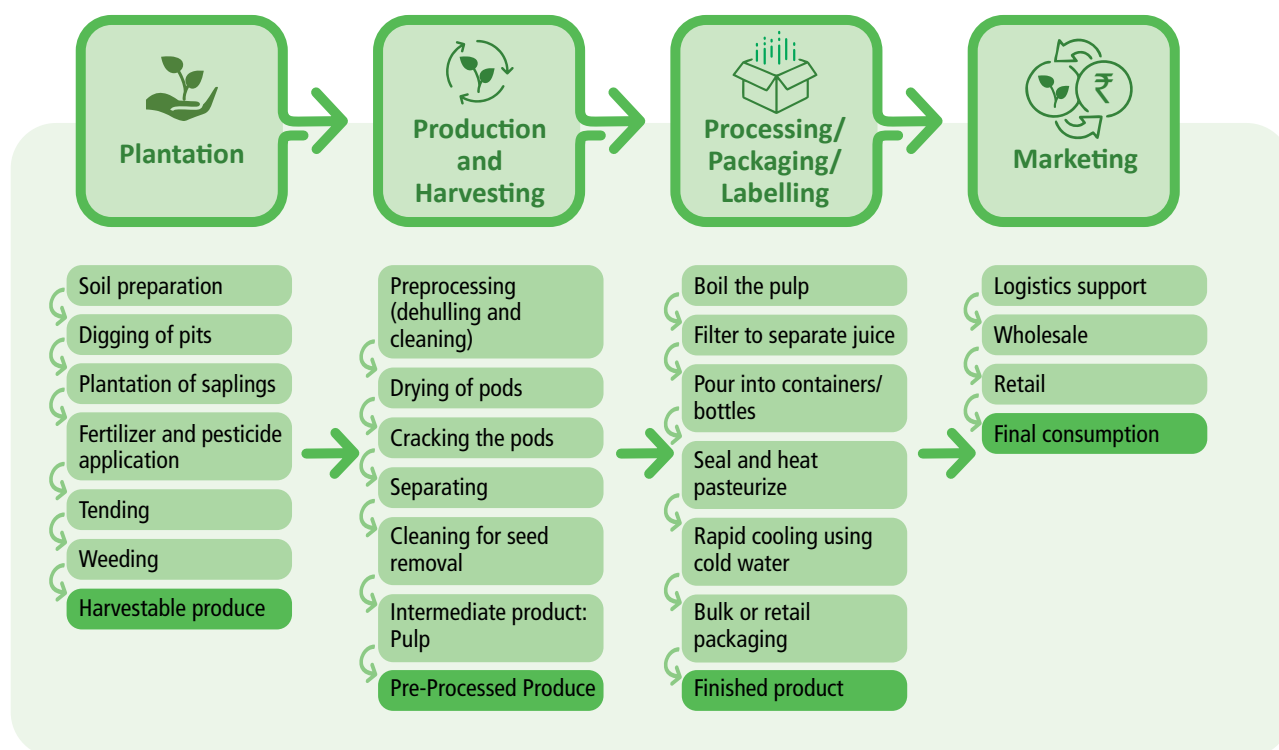
illustrated in Figures 3 and 4 with the types of activities carried out under each stage of the value chain.

Examples of food-based NTFPs are bael, chironji, tamarind, wild honey, amla, mushroom, among others.

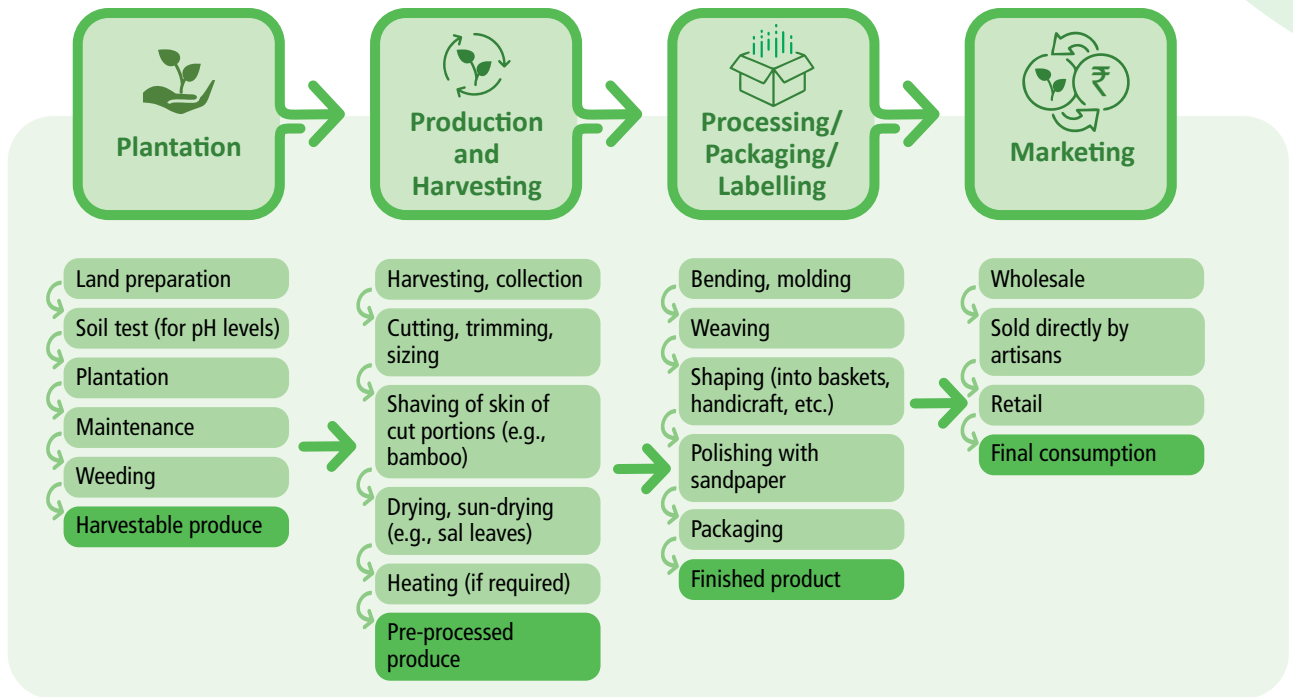
Examples of non-food NTFPs are baheda, shikakai, guggul (a type of gum used for making incense), hill broom grass, kusum seeds, mahua (seeds and flowers), sal leaves, neem seeds, among others.

The types of jobs that exist in India’s forest sector mainly pertain to plantation, production and harvesting, processing and ultimately marketing. While women’s engagement is mostly seen in the first three categories, they have least control over the last category, i.e., marketing. In marketing, mostly men dominate due to patriarchal control in matters related to finance and social interaction as marketing demands them to step out from their home grounds. A deeper insight would also reveal that family commitments and patriarchy have thwarted women’s participation in decision making roles in the first three categories of the value chain. In fact, in these first three stages, a significant portion of the decision making is done by men, while women are preferred mostly as labour force.

**Figure 3:** Value chain for food-based forest produce



**Figure 4:** Value chain for non-food-based forest produce



**Figure 5:** Value chain for agro-forestry

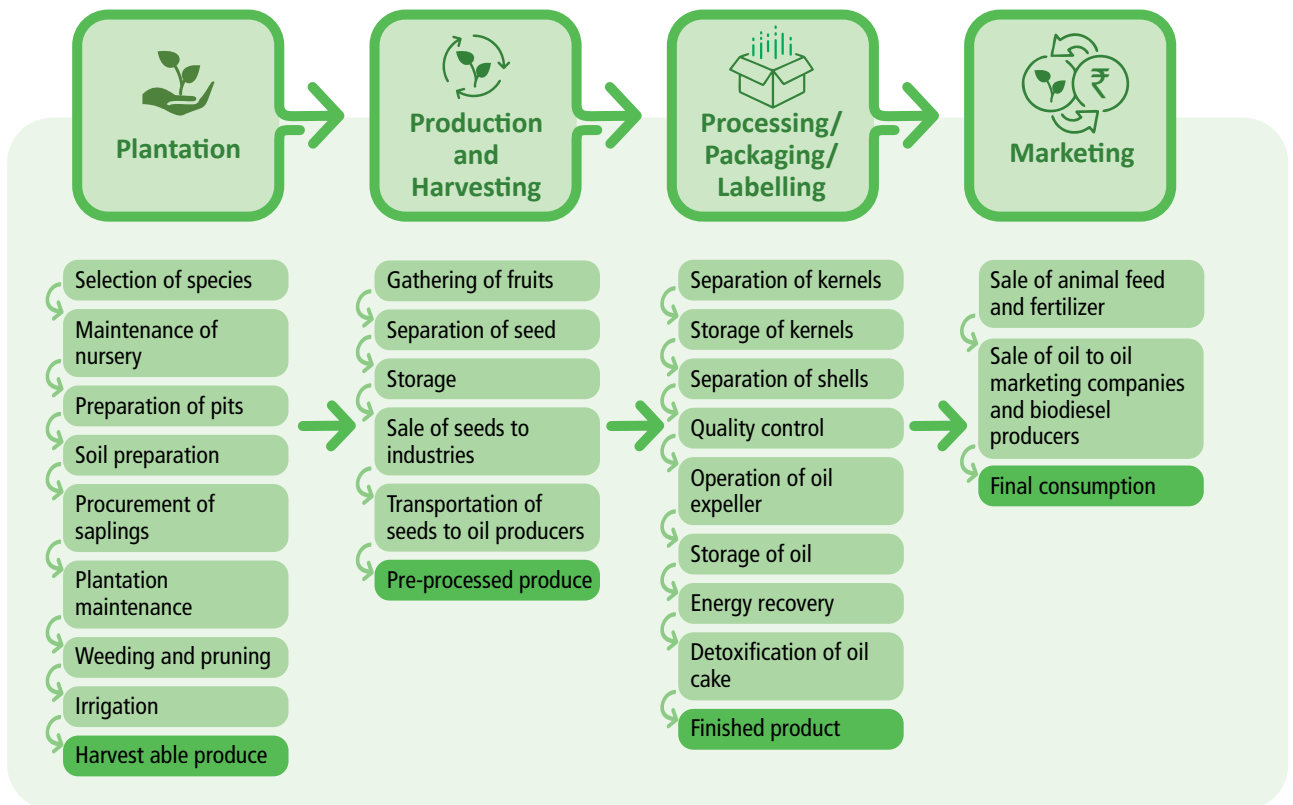


Figure 5 illustrates the value chain for agro-forestry taking the example Tree-Borne Oilseeds (TBOs). While agro-forestry is essentially a farm-based activity, its relevance in our study comes from the fact that there are several NTFPs that are also derived from agro-forestry systems. Some of these products are gums, resins, bamboo, neem, jatropha, fruits and medicinal and aromatic plants, among others.

### **1.3 IMPLICATIONS OF COVID-19 ON THE FOREST VALUE CHAIN**

According to FAO, it is possible that the COVID-19 pandemic may lead to an increase in deforestation and associated biodiversity loss. As household incomes decrease and food is less available, people in some rural areas will turn to forests and forest products for subsistence, including plants and wildlife for food, which can result in an overharvesting of natural resources. In addition, people and businesses seeking income in times of duress will likely put even more pressure on forest resources through charcoal production, conversion of forests to agriculture and other informal and at times illegal economic activities. There is also a risk that stimulus programmes prioritize quick financial returns and employment over longer term climate and sustainability objectives, which may exacerbate deforestation or forest degradation. Deforestation and associated biodiversity loss are meanwhile recognised as contributing factors to the risk of spreading diseases. Production and trade disruptions affect entire value-chains and will put livelihoods and businesses at risk. However, day labourers or part-time workers and small, informal business operators risk being the worst hit as they often have no social safety net to fall back on.

Similarly, micro, small and medium enterprises (MSMEs) and forest and farm producer organizations (FFPOs) have very low capacity to delay their spendings without earnings. MSMEs account for over 50 percent of total forest-related employment, and employ approximately 40 million people worldwide in the formal and informal sectors.<sup>14</sup>

Forests and forest produce provide income, livelihoods and well-being for rural populations, particularly indigenous peoples, small farm holders, and other forest-dependent communities across the globe. Forests have been recognised and the carbon sinks of the world and mitigate climate change by removing about a third of the global greenhouse gas emissions each year (IPCC, 2013).

The global vision and plan of action for forests and people are already enshrined in the UN Strategic Plan for Forests 2030. India is addressing COVID-related reverse migration by creating new jobs for afforestation, reforestation and agroforestry. India recently announced funding of INR 60 billion (about USD 790 million), to be approved under its Compensatory Afforestation Fund Management and Planning Authority (CAMPA) to generate employment through afforestation and forest restoration activities in urban, semi-urban and rural areas (Government of India, Press Information Bureau, 2020). At the state level, Jharkhand (which aptly translates as the “Land of Forests”) in eastern India has created a new afforestation-based income-generation programme to provide jobs for migrant workers (Mukesh, 2020). As part of the programme, 500,000 families will each be provided with 100 fruit-bearing trees, saplings and plants over the next five years.<sup>15</sup>

<sup>14</sup> Q&A: The impacts of COVID-19 on the forest sector, <http://www.fao.org/2019-ncov/q-and-a/impacts-on-the-forest-sector/en/>

<sup>15</sup> UN/DESA Policy Brief #80: Forests at the heart of a green recovery from the COVID-19 pandemic, 11 June 2020, <https://www.un.org/development/desa/dpad/publication/un-des-policy-brief-80-forests-at-the-heart-of-a-green-recovery-from-the-COVID-19-pandemic/>

2.

# Sectoral Analysis

A photograph of a person in a forest, viewed from behind. The person is wearing a light-colored cap and a dark jacket. Their right hand is resting on the trunk of a large tree. The entire image is overlaid with a green tint and a white diagonal shape that cuts across the top left corner.

While there are no specific jobs in the forest sector that can be categorized as green, this study tries to explore potential green jobs for women. For this, the various jobs under each stage of the NTFP value chain have been listed and potential green jobs for women highlighted. Additionally, this section also identifies some existing skill gaps and areas that require skilling.

### Gap assessment

As an input to the required policy and regulatory interventions for enhancing women’s participation, it is important to identify the ‘opportunity’ gaps in the forest sector value chain and potential areas of development of green jobs within them. Figure 6 lists existing job roles in the sector.

Gender inclusion combined with ‘green’ growth is imperative for the sustainable development of the forest sector.

A significant proportion of the existing job roles may be tailored to become ‘green’ in nature. Further, while women primarily engage in plantation and post-harvesting stages, there is a huge potential for skilling them in various green job roles such as plantation workers, NTFP collectors and labour for processing of the harvested produce. Additionally, they can also be trained to assume roles such as that of post-harvest specialist wherein their expertise in processing activities coupled with sustainable practices can be leveraged. Categorically, men have dominated the space of marketing or market linkages whereas women possess

**Figure 6:** Existing job roles in the forest sector value chain



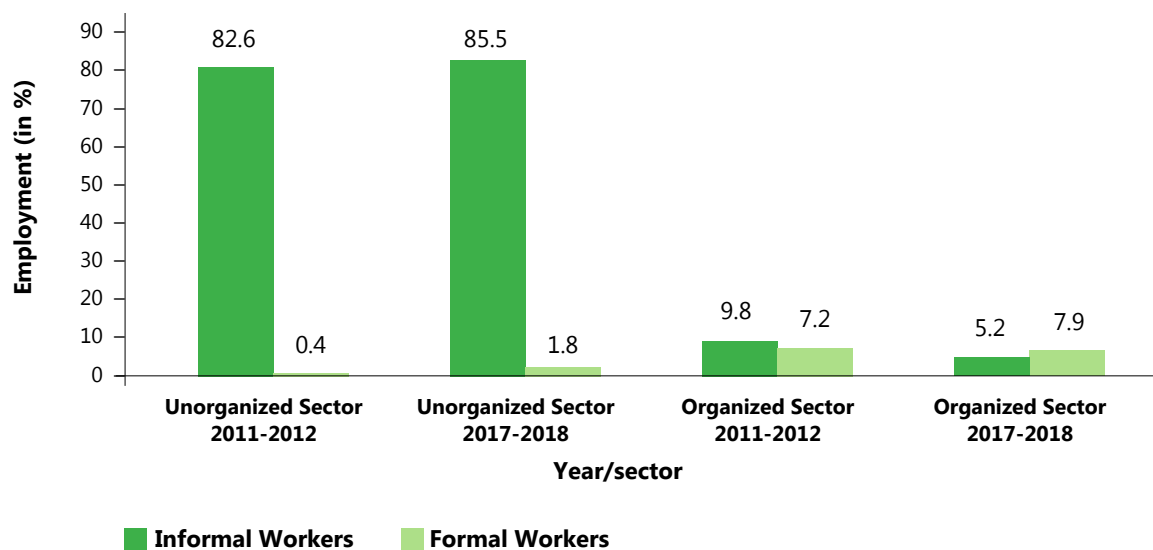
adequate perseverance and aptitude to be trained as efficient marketing managers with capacity building and skill development facilities.

While there is significant potential for women’s participation in green jobs in the sector, engagement remains relatively low due to lack of adequate skills. The issue is not gender-specific however; in conjunction with low representation in decision-making roles and male-dominated societal set up, it manifests as low productivity and participation of women.

### Skill assessment

Nearly 83 percent of the country’s workforce is engaged in the unorganized sector with only 17 percent working in the organized sector. The percentage of informal workers in the economy is 92.4 percent. An informal worker is one who works in a system that offers no paid leave, has no written contract and no social security or health benefits. Marginalized women engaged in forest-based activities form a part of the informal working population in India. Figure 7 shows the percentage

**Figure 7:** Distribution of total employment (in %) from 2011 to 2018



**Table 1:** Skills required for NTFP and agro-forestry job roles

Job Roles	Skills Requirements
<b>Quality control supervisor</b>	To check whether the produce meets quality standards
<b>Warehouse executive/worker</b>	Receive, sort, keep a record of and store the agriculture produce, help in documentation tasks, ensure safety of the stored products, and responsible for the transportation of product to customer locations
<b>Harvest quality inspector</b>	To check harvesting practices and also quality of harvest
<b>Agri-warehouse supervisor</b>	Supervision and coordination of tasks carried out by warehouse workers, monitoring safety and hygiene standards in the warehouse and also monitoring the levels of stock
<b>Primary sellers</b>	Identifying markets and selling the produce to intermediaries, selling directly to final consumers
<b>Wholesaler</b>	Collecting produce from primary producers and selling it to retailers
<b>Commission agents (arthiyas or mashokars)</b>	Act as sale agents for the primary producer and facilitate the sale of the produce
<b>Packer/worker/helper/operator/loaders/sorter/graders in processing</b>	Extend logistical support
<b>Supervisors in processing</b>	Supervising and coordinating production activities, application of knowledge, skills, machines, production methods and guiding workers engaged in production
Green Jobs	
<b>Nursery manager</b>	Recruit people to work in nurseries, provide training on plant care, delegation of tasks to nursery workers, raisers and other employees working in the nursery, supervision of the tasks being carried out by employees in the nursery
<b>Nursery entrepreneur</b>	Recruit people to work in nurseries, provide training on plant care, delegation and supervision of tasks to nursery workers and other employees working in the nursery, care and maintenance of nurseries
<b>Bamboo grower</b>	Pre-cultivation, growing and managing crops, harvesting, post harvest processing, market identification
<b>Harvest worker/NTFP collector</b>	Identification of plant species, nationalized and non-nationalized NTFPs, sustainable harvesting practices
<b>Forest nursery raiser/worker</b>	Nursery chores, maintenance of nursery, maintain health and safety in the workplace, preparation of root stocks, cutting, layering, grafting
<b>Plantation nursery raiser/worker</b>	Nursery chores, maintenance of nursery, maintain health and safety in the workplace, preparation of root stocks, cutting, layering, grafting
<b>Post-harvest specialist</b>	Expertise in post-harvest handling practices, ability to provide technical training on post harvest handling of produce, expertise to identify and minimize microbiological contamination, ensure quality of water used in post harvest handling of the produce
<b>Seed processing worker</b>	Cleaning seeds by removing undesirable materials, drying of seeds to the desired moisture levels, taking samples of testing, treating, packaging and storing seeds in appropriate manner for the purpose of distribution
<b>Machine operators and checkers in processing</b>	Checkers require knowledge on grading and separation, have to adhere to quality requirements. Machine operators require knowledge of operating machines in the process line



distribution of total employment across organized and unorganized sectors of our economy for the period 2011-18<sup>16</sup>.

The involvement of marginalized women in the forest sector is primarily in unorganized jobs such as cultivation, harvesting and processing, among others. The sector typically witnesses low level of skills and hence low efficiency. Table 1 lists the major job roles in the NTFP sector as well as potential job roles and some of the corresponding key skills required.

While the main tasks for the existing and potential job roles are outlined in Table 1, most of these require specific skills and training. A majority of these job roles cover cultivation, harvesting and processing; there is scope for involving women in the following types of job roles:

- Auctioneer of NTFP and agro-forestry produce;
- Accounting assistant for forest-based products;
- Monitoring field assistant (for supervision of forest areas);
- Operators and repairers of NTFP processing machines; and
- Seed suppliers to processing industries.

Besides skill gaps, the forest sector in India is a difficult terrain due to several other challenges including seasonality of occupation and male domination.

## **CHALLENGES TO THE GROWTH OF GREEN JOBS IN THE FOREST SECTOR**

The potential of agro-forestry and NTFP development as contributors to sustainable development has received emphasis from the Intergovernmental Panel on Climate Change and United Nations' Framework Convention on Climate Change as elements of climate-smart and sustainable agriculture. Additionally, the Nationally Appropriate Mitigation Actions and the United Nations Convention to Combat Desertification also discuss the role of agro-forestry in agriculture, among other aspects.

However, mainstreaming gender into forest sector in India is fraught with several challenges. These include:

sector-specific challenges, challenges to the women participation in the sector as well as major skill gaps.

### **a) Challenges identified in the sector**

Sector-specific challenges mainly look at the macro issues that act as hindrances in the growth of the sector and are applicable to every stage of the value chain involving both men and women engaged in forest-based activities.

#### **a. Seasonal nature**

- Women need alternate livelihood options because forest-based activities are primarily seasonal in nature. For certain parts of the year, women remain unemployed because of sluggish demand or seasonal fluctuations. Women need training on other alternative livelihoods that are not affected by seasonal fluctuations so that they have a steady flow of income.

#### **b. Over-utilization of forest resources**

- Excessive dependency of forest fringe populations on forests is leading to dwindling forest resources. There are no alternative livelihood options that could either act as an additional income source.

#### **c. Unsustainable farming practices**

- Unsustainable farming and harvesting practices such as harvesting of the produce pre-maturely lead to wastage and low volumes of marketable produce. Many forest fringe communities still practice obsolete methods of cultivation and harvesting.

#### **d. Remote locations**

- Many forest-based livelihoods are located deep in the jungles and in remote areas. Policy interventions introduced at the national or state levels can seldom reach the forest fringe communities that reside in such remote locations.

#### **e. Lack of Infrastructure and market Information**

- Underdeveloped infrastructure (roads, communication systems and warehouses) acts as a major hindrance in market access. Also,

<sup>16</sup> Murthy, S.V. Ramana, ----- Measuring Informal Economy in India, the Indian Experience.

forest fringe communities do not have access to market information so that they can identify potential markets and demand patterns.

**f. Lack of organized markets**

- Excessive intervention of intermediaries and middlemen leads to marginal incomes for the primary sellers. The middlemen often exploit primary sellers and deduct huge margins from the revenue generated. Primary sellers depend on middlemen because they have limited access to organized markets.

**g. Limited financing options**

- Forest fringe populations and forest dependent communities often obtain credit and financing services from informal lenders or from the unorganized sector at exorbitant rates which becomes an added financial liability on them. In most cases, repayment of the credit becomes the biggest challenge.

**h. Limited role of the state**

- The state holds a pivotal role in fostering the holistic development of a green economy. However, due to bureaucratic apathy, institutional gaps, inadequate resource utilization and lack of adequate infrastructure, there are several gaps in the targeted performance.

**i. Lack of ownership**

- Ownership of forest produce holds utmost importance in the entire framework of the green economy coupled with green jobs. As community ownership over forest produce is yet to be established, it is subject to contention and contestations between the administration and community, irrespective of enactment of several laws to establish community ownership in India.

**b) Women-specific challenges**

These challenges cover skill and knowledge related issues, socio-cultural issues and structural issues.

**a. Low level of skilling in processing and marketing**

- There are very few women at the grassroot level who are engaged in trading, retail and

marketing activities of forest-based products. They lack the necessary skills in marketing and retail activities.

**b. Patriarchal set up**

- While women play a vital role in forest-based activities, their contribution to the sector is seldom recognized. They are not encouraged to participate in the decision-making process. The role of women becomes minimal as we move up the value chain. This is because the more specialized job roles are taken up by men. Greater the mechanization and specialization, lesser the participation of women in industrial processing activities of forest-based resources. Even though women engaged in forest-based activities are gradually being allowed to participate in Community Forest Management Committees, the ultimate decision-making power rests in the hands of their male counterparts.

**c. Limited market access**

- Women engaged in forest-based activities, especially marginalized women, have limited or no market access. One of the biggest challenges for such women is to identify and tap into potential markets for their products.

**d. Lack of accounting skills**

- Women in forest-based activities lack accounting skills, and are often cheated by the middlemen. To address this issue, several non-governmental organizations (NGOs) focus on equipping their women beneficiaries with skills in basic business transactions as well as keeping records of transactions and funds.

**c) Skill gaps**

Skills-related challenges encompass skills not only pertaining to the tasks to be performed for a specific job role but also to knowledge and awareness:

**a. Lack of knowledge on newer methods of cultivation**

- Limited knowledge on the best practices in cultivation acts as a major skill gap that has several economic and environmental implications. Sustainable collection of NTFPs continues to be a challenge because of over-

exploitation of certain landscapes due to population pressures. However, an opportunity lies within this limited sphere by bringing in indigenous knowledge and productive scientific approaches on sustainable harvesting practices.

- b. Lack of marketing and retail skills
  - Most forest-dependent communities do not know how to market their produce. They find it challenging to tap into potential markets and reach out to the final consumers.
- c. Limited knowledge in preservation and storage measures
  - Primary processing of forest-based resources and NTFPs can be improved. However, those engaged in this activity lack the necessary infrastructure and skills for primary processing. For instance, storage and preservation of the produce is a major challenge. This can be attributed to lack of awareness and skills and limited financial resources. The absence of proper storage and preservation mechanisms leads to wastage and spoilage of produce which ultimately is a loss borne by the producers.
- d. Limited knowledge on methods of acquiring credit
  - Even though there are organizations such as the National Bank for Agriculture and Rural Development (NABARD), commercial banks and regional rural banks that extend credit to people engaged in agriculture and allied activities, the lack of awareness among the targeted beneficiaries about such provisions is a major problem. Their lack of awareness leads them to acquire credit from informal sources and moneylenders.

While several measures have been taken at the individual and community levels to address the challenges described above, they have been limited in their reach to foster the kind of change desired at a broader scale.

## TRAINING PROGRAMMES IN THE FOREST SECTOR VALUE CHAIN

Transitioning to a green economy would necessarily create demand for skilled workers and professionals. This requires large-scale training of people in various areas of specialization. Within the forest sector, several skill gaps have been reported and various institutions at the national and sub-national levels are organizing training in various parts of the value chain to increase meaningful participation. Some of these training programmes are specifically women-focused, targeted to improve their skills and give them with a sense of independence.

TRIFED organizes capacity building and skill upgradation training programmes for NTFP gatherers and collectors. The training covers aspects such as value addition, non-destructive/sustainable harvesting and primary processing of NTFPs. Over the past couple of years, TRIFED has successfully organized intensive training sessions on bamboo cultivation, tamarind, lac, marketing of honey, *donna pattal*<sup>17</sup> making, value addition and marketing of mahua flower and gum karay, among others. TRIFED extends two types of trainings: one that focuses on developing marketable NTFP-based products for setting up a viable enterprise and the other on developing skills of those who are already engaged in NTFP-based livelihoods. The former requires active support and assistance from the respective state governments. The state governments extend support to help expand the beneficiary pool and assist in securing grants, working capital loans and subsidies. Additionally, they also provide infrastructure support. This involves measures to improve the quality of NTFPs via the adoption of scientific methods in the cultivation and harvest of NTFPs. The objective of this type of training is to improve income levels of the marginalized communities that depend on NTFPs for their livelihoods.

There similar training programmes offered by other ministries, government departments and NGOs that focus on enhancing the skills of marginalized women engaged in forest-based livelihoods.

---

<sup>17</sup> Leaf plates made of sal leaves. These are mainly made by tribal women.

## **Value Addition and Marketing of Natural Resource-based Produce from Invasive Species (Plant Origin): Lantana Furniture and Crafts**

Creating furniture from lantana weed is proving to be a gainful economic activity in rural areas of the country. There are several NGOs and similar societies that organize training on lantana-based furniture. These training programmes enable tribal and backward communities to find sustainable livelihoods and income security. The courses focus on the sustainable utilization of lantana weed for making furniture.



## **Value Addition and Marketing (Plant Origin): Bamboo Crafts**

There are a host of initiatives such as Swaniti that partner with government agencies and training institutes. They organize training on bamboo crafts to empower underprivileged women and allow them to find better livelihoods and income security. The training sessions cover different types of bamboos and their characteristics and how to create bamboo-based products such as baskets, vases, ashtrays and sitting stools, etc.



## **Value Addition and Marketing (Plant Origin): NTFP Products/Medicinal Plants**

This training organized by the Green Skill Development Programme of MoEFCC focuses on capacity-building measures, imparting skills on value addition of NTFPs and medicinal plants. The training covers aspects such as identification of medicinal plants, their uses, increasing their shelf life, and establishing market linkages for them.



## **Value Addition and Marketing of NTFPs (Animal Origin): Wild Beekeeping and Processing**

Training programmes on beekeeping and honey production are conducted by NGOs and SHGs with support of funding agencies and government departments. There are beekeeping and honey-making training sessions organized particularly for women belonging to marginalized communities and rural areas. Jeevika Trust, with funding support received from the Department for International Development (DFID), UK, has conducted such training for women to promote sustainable livelihoods and financial independence.



## **Value Addition and Marketing of NTFPs (Animal Origin): Lac and Tassar Cultivation**

This training mainly pertains to scientific cultivation of lac on trees such as palas, kusum and ber. Training is extended to underprivileged women, especially to those belonging to tribal communities, on commercial lac cultivation thereby creating forward and backward linkages.



## **Nature Conservation and Livelihood: Ecotourism**

There are NGOs that partner with government departments and the travel and tourism industry to design training courses on ecotourism and their practical implementation as an economic activity. These workshops/training programmes focus on capacity building and information sharing.



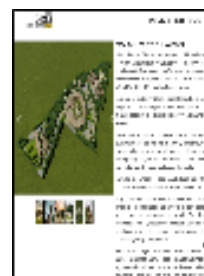
## Quality Planting Material Producer

Organized by the Institute of Forest Genetics and Tree Breeding, Coimbatore, the Quality Planting Material Producer training programme aims to cover the basics of forestry and understand categories of trees such as elite trees, plus trees and candidate plus trees. It also covers various techniques of vegetative propagation.



## Propagation and Management of Bamboo

Training conducted by organizations and institutes on bamboo propagation and management aim at acquainting trainees with various species and uses of bamboo. These workshops cover marketing of bamboo and bamboo-based products, and conservation of bamboo genetic resources. The Bamboo Research and Training Institute, Chandrapur, is one such institute that focuses on building the skills of tribal communities in bamboo cultivation, propagation and creating finished and useful products from bamboo.



While most training and skill development workshops cover every activity in the NTFP value chain, the two main areas that are extensively covered are: value addition and marketing. It is through value addition and the right kind of skills in marketing that a consumer base can be tapped into.



## WHAT THIS MEANS FOR THE FOREST SECTOR VALUE CHAIN

As is evident from the earlier sections, most policy frameworks, budgetary allocations, funding schemes and training programmes focus on the “value addition” aspect in the forest sector value chain. It can therefore be stated that production, harvesting and processing are the value chain stages that are anticipated to receive a boost through policy interventions. This also necessitates skill enhancement measures for marginalized women engaged in the business.

Production and processing are those stages that entail converting the forest produce into marketable finished products. Training and skill development

should essentially focus on these two areas. These stages require NTFP gatherers to be adept at using the appropriate techniques, tools and machines.

Let us take the example of neem seeds<sup>18</sup>; its value chain depicted in Figure 9 illustrates how the production, harvesting and processing stages require specific skills and machines.

In the production and harvesting stage, the NTFP gatherers require knowledge on:

- The color of the neem fruit at the time of harvest;
- Time of plucking (preferably morning);
- The method of harvesting, either plucking or shaking the branches;
- Identification of semi-dried fruits from the harvest; and

Figure 8: Focus areas in the forest sector value chain

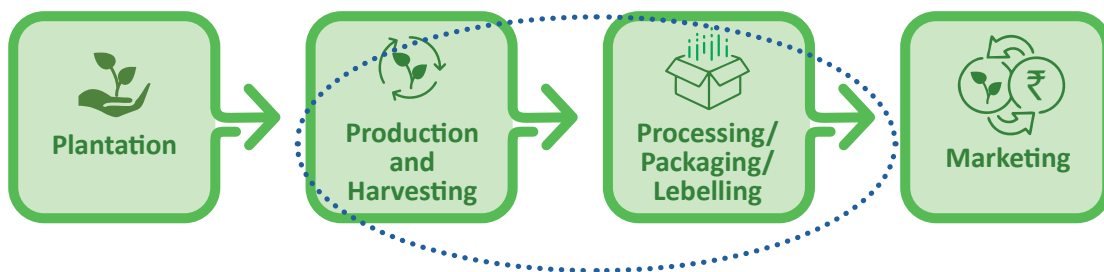
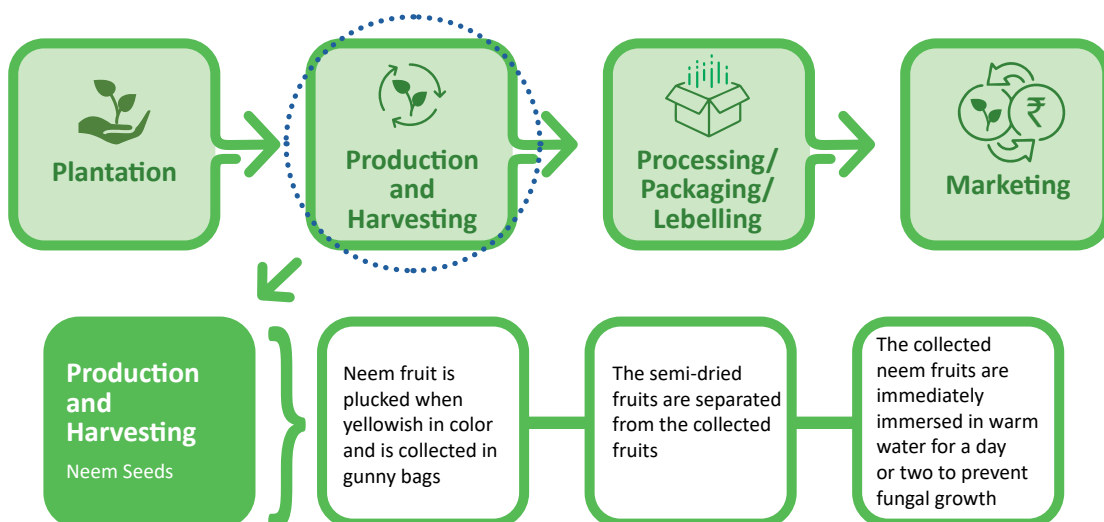


Figure 9: Neem seed (Azadirachta Indica) value chain – production and harvesting explained



<sup>18</sup> PMVDY, TRIFED, ----. Value Addition and Processing of Minor Forest Produce.

- The types of bags and baskets to be used for collecting the fruits.

The tools and equipment used in the processing/packaging/labeling stage are:

- Decorticator;
- Macerator;
- Hot air blower;
- Tray drier; and
- Automatic packaging machine.

Also, in the processing/packaging/labeling stage, the NTFP gatherers require skills on:

- How to use decorticators, macerators, hot air blowers, tray driers and automatic packaging machines;
- Layering of the seeds while drying; and
- Ability to identify the acceptable moisture levels in the seeds.

Value added products created from processing of neem seeds are neem cake, neem seed powder and neem oil. Neem cake is the by-product of neem oil production

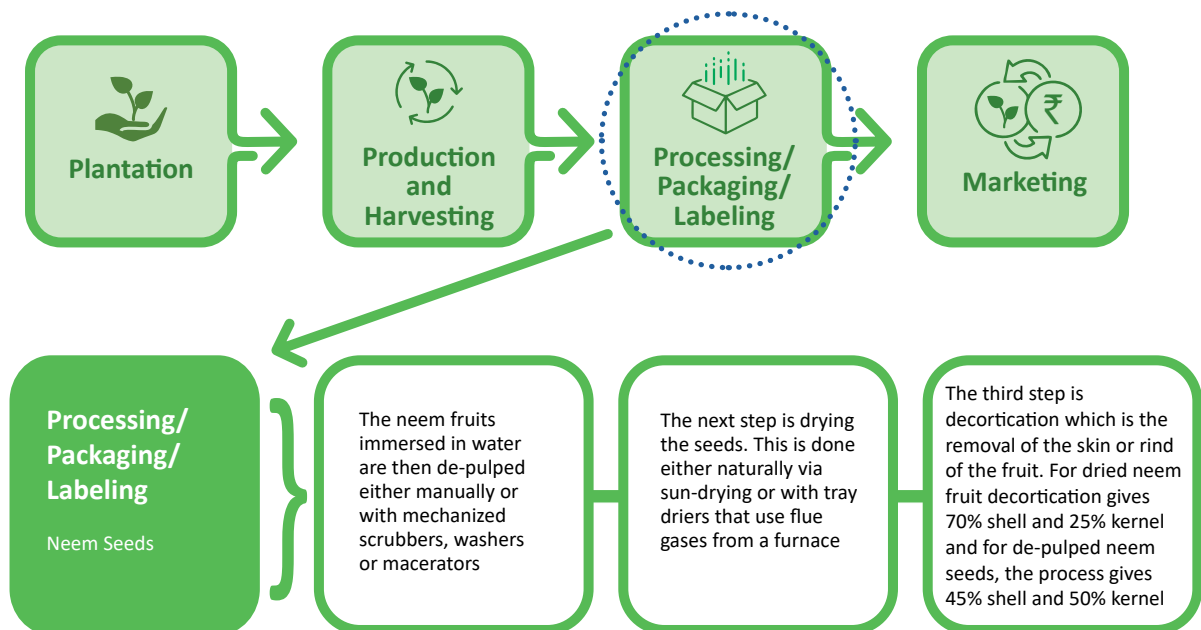
which involves cold pressing of the neem seed kernels and fruits. Neem cakes are used as organic manure.

Figures 9 and 10 explain why skill development is important in production and processing stages of the value chain. These two stages involve the conversion of raw produce into the finished products. Various methods for reducing wastage and increasing productivity can be embedded in these two stages. The finished products are then sold by the gatherers to state government agencies or private traders.

While training also covers marketing skills in addition to value addition and processing, the latter involves a higher degree of skilling.

Though several training programmes are being conducted and there is an enhanced push from the government to promote gender inclusivity in green jobs, huge gaps continue to persist. Women’s representation in the workforce is far from adequate and mass reskilling as well as upskilling of workers is required.

Figure 10: Neem seed value chain — processing/packaging/labelling explained







3.



## Policy and Regulatory Frameworks

The Government of India and various state governments have been focusing on enhancing the productivity, efficacy and sustainability of livelihoods in the forest sector. Several policy and regulatory interventions have been undertaken to augment income of dependent communities and increase the presence of women in the forest sector workforce. Some recent initiatives have further been focused on 'greening' the sectoral value chain resulting in a sustainable ecosystem.

In India, the importance of agro-forestry and NTFPs has particularly been underscored in policies such as the National Forest Policy, 1988, the National Agriculture Policy 2000, National Bamboo Mission 2002, and the Task Force on Greening India 2001. However, it was the National Agro-forestry Policy launched in 2014 that focused on agro-forestry as a measure to protect ecosystems, generate rural employment and ensure long-term food security.

## POLICIES AT THE NATIONAL LEVEL

The Government of India has undertaken several measures to foster a more conducive environment for workforce engagement in the forest sector. Some of these national policies are discussed here.

### National Forest Policy, 1988

The National Forest Policy focuses on maintaining and restoring ecological balance while also laying emphasis on the role of communities in achieving these goals.

#### **Key features of the policy are:**

- Highlights the importance of afforestation;
- Encourages participation of rural/tribal communities including women; and
- Highlights the importance of minor forest produce in sustaining forest fringe communities.

### National Agro-forestry Policy, 2014

The objective of this policy is to generate gainful employment and livelihood opportunities for rural households, enhancing productivity and meeting the demand for timber and non-timber products sustainably.

#### **Key features of this policy are:**

- Promote resilient farming practices and tree plantations;

- Extend training to people through Krishi Vigyan Kendras;
- Educate farmers on agro-forestry and silviculture; and
- Focus on sustainable agro-forestry.

### National Policy on Biofuels, 2018

The National Biofuels Policy 2018 aims to achieve the indicative target of 20 percent blending of biofuels in fossil fuels by 2030 and thus focuses on energy efficiency and greater domestic production of biofuels.

#### **Key features of the policy are:**

- Generation of employment opportunities through adoption of biofuels as an alternative energy source;
- Focus on achieving energy security; and
- Improve the production of biodiesel and ethanol.

### National Bamboo Mission, 2006

The policy aims at the holistic development of the bamboo sector through a highly focused and strategic approach to increase bamboo cultivation and better marketing of bamboo.

#### **Key features of the policy are:**

- Bring greater land under bamboo cultivation;
- Focus on establishing primary processing units for better post-harvest management of bamboo;
- Focus on research and development for greater bamboo productivity; and
- Extend skill development and capacity-building training to farmers, entrepreneurs, officials and field functionaries.

### National Afforestation Programme

The rationale of the National Afforestation Programme (NAP) is to extend support to forest development agencies to institutionalize the concept of joint forest management.

#### **Key features of this programme are:**

- Focus on capacity building at the grassroot level;
- Promote ecological restoration of degraded forest land through afforestation activities; and
- Improve livelihoods of marginalized forest fringe communities.

## National Mission for Green Mission, 2015

This mission focuses on enhancing carbon sinks, protecting vulnerable ecosystems and enabling forest dependent populations to adapt to climate change through climate change adaptation and mitigation measures.

### **Key features of the mission are:**

- Increasing yearly carbon dioxide sequestration by 50-60 million tonnes by 2020;
- Strengthening forest development agencies;
- Extending support to community-driven NTFP enterprises;
- Enhancing NTFP-based livelihood opportunities to reduce vulnerability; and
- Increasing participation of local communities in village administrative groups such as Joint Forest Management Committees (JFMCs) and Van Panchayats.

## Vanbandhu Kalyan Yojana, 2014

The main objective of this scheme is to improve the lives of the tribal population and focus on their overall development.

### **Key features of the policy are:**

- Creating greater employment opportunities in the agriculture sector;
- Increasing dairy-based activities and animal husbandry;
- Extending skill training to the tribal youth; and
- Focusing on areas such as irrigation, economic development, quality education, housing, universal electrification, urban development, health and economic opportunities.

## Van Dhan Scheme, 2018

This is a flagship programme of the Ministry of Tribal Affairs and Tribal Cooperative Marketing Development

Federation (TRIFED) with the objective of improving incomes of the tribal communities through value addition of tribal products.

### **Key features of this programme are:**

- Provision for the required building/infrastructure support to be established in one of the beneficiary's house/part of house or government/Gram Panchayat building;
- Equipment/ tool kit comprising equipment such as small cutting and sieving tools, decorticator, dryer, packaging tool, etc., based on MFPs available in the area;
- Fully equipped training facilities for a batch of 30 trainees with provision for raw material for training and trainee kits (comprising bag, scribbling pad, pen, brochures, training manual, booklet, etc.)
- Provisioning of working capital for local Self Help Groups (SHGs) through tie ups with financial institutions, banks, National Scheduled Tribes Finance and Development Corporation (NSTFDC), etc.
  - A cluster of 10 such SHGs in the same village will form a Van Dhan Vikas Kendra. Subject to successful operations of the SHGs in a Kendra, common infrastructure facilities (pucca Kendra) may be provided to the Kendra in the next phase in terms of building, warehouse, etc., for use of SHG members; and
- An illustrative list of major MFPs which may be covered under the initiative are tamarind, mahua flower, mahua seed, hill broom, chironjee, honey, sal seed, sal leaves, bamboo split, myrobalan, mango (amchur), aonla (churan/candy), seed lac, tez patta, cardamom, black pepper, turmeric, dry ginger, cinnamon, coffee, tea, sea buckthorn tea, etc.

While the Government of India has laid out several policies for regulating and incentivizing the forest sector, only some have been analysed in the outcome-output framework shown in Table 2.

**Table 2: Outcome-output framework for national level policies in the forest sector**

Name of Scheme	Activities	Output	Outcome	Impact
National Forest Policy, 1988	<ul style="list-style-type: none"> <li>Organize time-bound initiatives for afforestation</li> <li>Extend technical assistance to stakeholders such as tribal populations and forest fringe communities</li> <li>Undertake measures to keep a check on felling of trees</li> <li>Strengthen the network of biosphere reserves, national parks, sanctuaries and protected areas</li> <li>Encourage the forest-dependent population to utilize MFP in a sustainable manner</li> <li>Direct efforts to restore and conserve forest resources</li> <li>Preserve natural forests, maintain environmental stability</li> <li>Meet the forest-based requirements of rural and tribal communities</li> <li>Involve underprivileged communities and underprivileged women to reduce pressure on existing forests</li> <li>Prevent the utilization of healthy agriculture land for growing forests</li> </ul>	<ul style="list-style-type: none"> <li>Greater land under forest cover</li> <li>Optimum production of forest-based produce, and fodder and fuel wood</li> <li>Greater employment opportunities for forest dependent population</li> </ul>	<ul style="list-style-type: none"> <li>Restoration of denuded land</li> <li>Diversified income sources for forest fringe communities</li> <li>Efficient utilization of forest produce</li> </ul>	<ul style="list-style-type: none"> <li>Ecological balance, food security, alternative income sources</li> </ul> 
National Agro-forestry Policy, 2014	<ul style="list-style-type: none"> <li>Create an enabling regulatory and legal environment</li> <li>Develop a strong marketing infrastructure</li> <li>Provide training to farmers and NTFP producers on sustainable &amp; resilient farming practices and post-harvest technologies</li> <li>Capacity building</li> <li>Organize short-term intensive training programmes</li> <li>Develop proper irrigation systems</li> <li>Foster employment generation and livelihood opportunities</li> <li>Encourage agro-forestry and sustainable agriculture practices</li> <li>Develop institutional support mechanism</li> <li>Improve vegetation cover</li> </ul>	<ul style="list-style-type: none"> <li>Greater land under agro-forestry</li> <li>Greater number of farmers and marginalized communities practicing sustainable and resilient farming practices</li> <li>Better irrigation infrastructure</li> <li>Enhanced market access</li> </ul>	<ul style="list-style-type: none"> <li>Popularity and significance of agro-forestry silviculture and agri-silviculture</li> <li>Better quality of forest produce</li> <li>Better livelihood opportunities for forest fringe communities, healthier ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>Ecological balance, alternative income sources, sustainable utilization of forest resources</li> </ul> 

Name of Scheme	Activities	Output	Outcome	Impact
National Policy on Biofuels, 2018	<ul style="list-style-type: none"> <li>Improve production of biodiesel and ethanol</li> <li>Establish second generation bio-refineries</li> <li>Develop new feedstock</li> <li>Introduce new technologies</li> <li>Facilitate the blending of biofuels with regular fuels</li> <li>Employ energy efficiency norms</li> <li>Promote demand substitution</li> <li>Augment domestic production of biofuels</li> <li>Work on the principle of waste to wealth creation</li> </ul>	<ul style="list-style-type: none"> <li>20% blending of biofuels in fossil fuels</li> </ul>	<ul style="list-style-type: none"> <li>Improved biofuels production</li> <li>High demand for feedstocks</li> <li>Enhanced farmer incomes</li> <li>Better utilization of biomass and agri-waste</li> <li>Greater employment opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Lower dependency on fuel imports, minimization of waste, lesser dependency on fossil fuels</li> </ul>  
National Bamboo Mission, 2006	<ul style="list-style-type: none"> <li>Establish eco-entrepreneurial models</li> <li>Provide technical and financial assistance to micro and small enterprises dealing in bamboo and bamboo products</li> <li>Develop an end-to-end solution starting from the bamboo grower to the final consumer</li> <li>Promote new product development</li> <li>Train bamboo cultivators on post-harvest activities</li> <li>Increase bamboo cultivation</li> <li>Bring greater area under bamboo cultivation</li> <li>Make efforts to meet market demand for bamboo</li> </ul>	<ul style="list-style-type: none"> <li>Greater area under bamboo cultivation</li> <li>Greater bamboo cultivation in arable wastelands, community lands, homesteads farmer fields and along riverbanks</li> <li>Increase in the number of farmer producer organizations and cooperatives</li> <li>Greater variety of bamboo products</li> </ul>	<ul style="list-style-type: none"> <li>Better bamboo processing technologies</li> <li>Skill development of bamboo growers</li> <li>Greater entrepreneurial ventures</li> <li>Better post-harvest preservation and processing of bamboo</li> <li>Better marketing of bamboo and bamboo products</li> </ul>	<ul style="list-style-type: none"> <li>New employment opportunities, greater area acting as carbon sink</li> </ul>  
NAP	<ul style="list-style-type: none"> <li>Undertake afforestation initiatives</li> <li>Train forest dependent communities on the importance of afforestation and how they can contribute to it</li> <li>Promote greater participation of rural/tribal/forest dependent communities in community forest management committees</li> <li>Promote capacity-building at the grassroot level</li> <li>Carry out soil and moisture conservation activities</li> <li>Organize awareness drives</li> <li>Restore degraded forest land</li> <li>Create livelihood opportunities for forest fringe communities</li> <li>Institutionalize the concept of joint forest management</li> </ul>	<ul style="list-style-type: none"> <li>Greater land under forests</li> <li>Increase in the participation of marginalized communities in afforestation initiatives and JFMCS</li> <li>Lower incidence of forest fires</li> <li>Participation of forest fringe communities in the decision-making process</li> <li>Greater employment opportunities for forest fringe communities</li> </ul>	<ul style="list-style-type: none"> <li>Ecological restoration of degraded forest lands</li> <li>Better ecosystem services</li> <li>Better quality of soil</li> <li>Income generation</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced carbon dioxide sequestration, new employment opportunities</li> </ul>  

Name of Scheme	Activities	Output	Outcome	Impact
National Mission for Green Mission (GIM), 2015	<ul style="list-style-type: none"> <li>Extend assistance to Forest Development Agencies</li> <li>Extend support to NTFP enterprises</li> <li>Carry out plantation of those trees that are best suited to an area's weather and soil type</li> <li>Employ modern technology such as remote sensing and GPS to plot boundaries and monitor output</li> <li>Develop climate adaptation and mitigation measures</li> <li>Focus on increasing forest cover and afforestation</li> <li>Promote wellbeing of the masses dependent on forests</li> </ul>	<ul style="list-style-type: none"> <li>Greater number of forest-based livelihoods</li> <li>Achieve the desired carbon dioxide sequestration target an additional 30 million hectares of land brought under forests</li> <li>Greater number of persons belonging to forest fringe communities participating in forest-based livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>Creation of carbon sinks, protection of vulnerable ecosystems and species from the adverse impacts of climate change and enhanced ability of forest dependent population to adapt to the changing conditions caused by climate change</li> <li>Holistic development of tribal people</li> <li>Better livelihoods of tribal people</li> <li>Sustainable utilization of forest-based resources</li> </ul>	<ul style="list-style-type: none"> <li>Increased green cover, enhanced carbon dioxide sequestration, new employment opportunities</li> <li>Better quality of life of the tribal population, income generation and improved livelihoods of tribal communities</li> </ul>   
Vanbandhu Kalyan Yojana, 2014	<ul style="list-style-type: none"> <li>Gender responsiveness</li> <li>Conservation of tribal cultures</li> <li>Develop better road connectivity</li> <li>Provide healthcare services</li> <li>Provide safe drinking water</li> <li>Focus on resources and activities that aim at tribal welfare</li> <li>Accelerate economic development of tribal zones</li> <li>Ensure better fund allocation as regards tribal welfare</li> <li>Bridge infrastructural gaps</li> <li>Focus on creating a better quality of life of tribals</li> <li>Promote skill development and promote employment</li> </ul>	<ul style="list-style-type: none"> <li>Number of persons belonging to tribal communities benefitting from the programme</li> </ul>	<ul style="list-style-type: none"> <li>Holistic development of tribal people</li> <li>Better livelihoods of tribal people</li> <li>sustainable utilization of forest-based resources</li> </ul>	<ul style="list-style-type: none"> <li>Better quality of life of the tribal population, income generation and improved livelihoods of the tribal communities</li> </ul>   

Name of Scheme	Activities	Output	Outcome	Impact
Van Dhan Scheme, 2018	<ul style="list-style-type: none"> <li>• Gender responsiveness</li> <li>• Conservation of tribal cultures</li> <li>• Building infrastructure for income augmentation</li> <li>• Provisioning institutional credit linkage for better financial management and output</li> <li>• Focus on creating a better quality of life for tribal communities</li> <li>• Promote skill development and promote employment</li> <li>• Extend support to NTFP based enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Income augmentation of the tribal communities/groups through various income generation activities, restoration of tribal arts and culture and potential utilization NTFP produces</li> </ul>	<ul style="list-style-type: none"> <li>• Preserving tribal art, knowledge and culture</li> <li>• Better livelihoods of tribal people</li> <li>• Sustainable utilization of forest-based resources</li> </ul>	<ul style="list-style-type: none"> <li>• Better quality of life of the tribal population, income generation and improved livelihoods of tribal communities</li> </ul>  

## **POLICIES AND INITIATIVES AT THE STATE LEVEL**

While there are national policies that focus on the forest sector, there are several state level policies also that have been developed keeping in view the state-specific requirements. Given the scope of our study, the following states have been covered: Karnataka, Maharashtra, Odisha, Telangana and Uttarakhand. In addition to the state level policies, the report also provides a brief overview of the existing trends in each state and future projections on employment and skilling opportunities in the forest sector.

### **Karnataka**

Since 2008-09, skill development has been a major area of focus in Karnataka. It was in 2008 that the Karnataka Vocational Training and Skill Development Corporation was established. Given the rising demand for horticulture products, both domestically and internationally, horticulture and allied activities are projected to get a major boost in the years to come. The Department of Horticulture, Karnataka, conducts annual training programmes particularly on post-harvest management of produce. Training is also conducted by district rural development agencies on honey-making, beekeeping, soap-making and seasonal fibre-making, among other NTFP based activities.

#### **Future projections (Pre-Covid projections)**

- Demand for skilled labour is expected to surge in the area of horticulture;
- Between 2012 and 2022, there will be demand for around 8.47 million persons in Karnataka in agriculture and allied activities, tourism, construction, travel and hospitality;
- Greater employment opportunities in agriculture and allied activities such as agricultural marketing, rainwater harvesting, multi-cropping, integrated pest management, preservation of fruits and vegetables, and mushroom cultivation are expected over the next five years;
- The focus is projected to be on processing and post-harvest activities of horticulture crops and NTFPs;
- Between 2012 and 2022, it is estimated that 8.16

million people will join the workforce in Karnataka, of which 43 percent will belong to the minimally skilled category, 40 percent to the semi-skilled category and 17 percent to the skilled category<sup>19</sup>; and

- Gum, wild honey and tamarind are some extensively grown NTFPs in Karnataka.

Various policies that exist in the state of Karnataka are:

#### **Krishi Aranya Protsaha Yojane 2011**

This programme focuses on undertaking afforestation initiatives in the state keeping in view the objectives of the National Forest Policy of maintaining 33 percent of the country's geographical area under forests.

##### **Key features of the programme are:**

- The scheme lays great emphasis on the role of the public, NGOs and farmers;
- It aims to increase the green cover in non-forest zones in the state; and
- Some key stakeholders involved in the implementation of this programme are the Village Forest Committees (VFCs), NGOs, NAP forest development agency, federation of NGOs, and forest promoters and volunteers.

#### **Joint Forest Planning and Management Scheme**

This scheme aims at partnering with local rural and village communities in order to promote the sustainable management of forests.

##### **Key features of the scheme are:**

- The scheme entails the formation of VFCs that collaborate closely with forest departments to plan and implement measures to ensure the conservation and protection of forests;
- It focuses on degraded forests that have a canopy density of 0.25 hectare and less; and
- With special focus on tribal communities living around forest areas and forest fringe communities, the scheme considers reserved forests so that their livelihoods and well-being do not get adversely impacted by external factors.

<sup>19</sup> National Skill Development Corporation, District-wise skill gap study for the state of Karnataka.



## Tree Patta Scheme

The objective of this scheme is to undertake measures to protect, develop and manage trees along canals, riverbanks and roads.

### Key features of the scheme are:

- Under this scheme, anyone who is interested in planting saplings will take full ownership of the tree and use it without cutting it down. The tree can only be cut down if it is affected by some disease or gets uprooted; and
- The owners of trees under the scheme can derive monetary benefits from the trees by selling NTFPs and fruits. However, if for some unavoidable factor the trees are cut, the owner will have to share the proceeds of sale with the forest department.

## Karnataka State Action Plan on Climate Change

The Karnataka Forest Policy focuses greatly on undertaking measures to protect and manage forest resources and biodiversity. Some key areas that are earmarked for tree plantation are roadsides, urban areas, degraded forest lands, and non-forest areas.

### Key provisions of the policy are:

- Massive scale afforestation activities involving the participation of villagers and forest dependent communities;
- Development of carbon sinks as well as enhancement of income earning capacities of local communities thereby ensuring their sustainable development;
- Reforestation of degraded forest lands;
- Inventory and protection of medicinal plants; and
- Generation of forest-based employment opportunities.

## Maharashtra

The Maharashtra State Skill Development Society is a single nodal agency that extends support to district and division committees. There are 11 high demand trades identified by the sectoral skill development committees, including agro-processing. The state has institutions imparting higher education in areas such as forestry, agriculture, food technology, horticulture and fishery science. The Maharashtra government is actively

engaged in developing an education infrastructure to ensure a steady supply of skilled manpower in the state.

## Future projections (Pre-Covid projections)

- Self-employment opportunities for the youth in the areas of agriculture and allied activities and forest-based activities are anticipated to rise soon;
- Owing to ample supply of raw materials, employment opportunities in the food processing industry could rise significantly in the years to come;
- There would be a high demand for skilled manpower for operating machinery in the food packaging industry;
- While demand for semi-skilled and skilled labour is expected to rise, the supply of minimally skilled labour is expected to remain high in the years to come;
- Industry is a preferred area of employment for the youth but their inclination toward joining the food processing sector is also expected to surge in the forthcoming years;
- Nagpur, Aurangabad, Nashik, Pune and Nagpur are the main hubs of employment in the food and food processing industry;
- With the focus of the state government on skill development in tourism and hospitality, eco-tourism holds good promise for employment opportunities; and
- NTFPs such as *sonapatha*, neem seeds, *jamun* and *chironjee* hold good promise as these are widely grown in the state.

### State level policies in Maharashtra include:

#### Maharashtra New Industrial Policy, 2019

The policy aims at generating employment for around 40 lakh people by 2023-24. Additionally, it also encourages women's entrepreneurship through its Women Entrepreneur Policy.

### Key objectives of the policy are:

- Increase the growth rate of the manufacturing sector from 12 percent to 13 percent by 2023-24; and
- Direct efforts toward key thrust areas that include forest-based industries, agro- and food-processing units, biofuels and green energy.

### Maharashtra State Action Plan on Climate Change

Maharashtra's State Action Plan on Climate Change lays emphasis on the most vulnerable communities. Vulnerable communities comprise indigenous people, tribal communities, the landless, women and small farmers who depend greatly on natural and forest-based resources for their livelihood and survival.

#### Key objectives of the policy are:

- Increase forest cover and improve ecosystem services in the Western Ghats;
- Focus on regenerating NTFP species in areas such as Gondia, Yavatmal and Buldhana;
- Restore grasslands in Washim and Akola;
- Encourage local community participation in conserving forest areas;
- Provide value addition opportunities to communities in NTFP-based livelihoods; and
- Develop social forestry models and promote agro-forestry for coconut, bamboo and mango in Vidarbha and Konkan regions.

### Maharashtra Bamboo Development Board

The primary objective of the Maharashtra Bamboo Development Board is to oversee all activities pertaining to bamboo plantations in the state.

#### Key objectives of the board are:

- Promote skill development, create awareness and conduct capacity-building programmes for the development of the bamboo sector in the state;
- Improve and develop newer ways of post-harvest management by establishing primary processing units near the main production source;
- Develop market infrastructure and introduce preservation technologies;
- Increase income-generating capacity of primary producers by boosting bamboo production domestically and reducing dependency on imports; and
- Promote new product development and entrepreneurship models at the grassroot level and at the small, medium and large industry levels.

### Odisha

The agriculture policy of Odisha focuses greatly on investing in areas such as post-harvest management, agro-processing, value addition, modern farming and agriculture-based marketing. While there is a shift toward alternate employment options, 65 percent of Odisha's workforce is engaged in the primary sector which includes animal husbandry, forestry, fisheries and agriculture. With a view to attract private players, the state has also been investing in marine-based, tourism



and handicrafts industries. The state government is also undertaking robust measures to increase literacy levels among the Scheduled Caste and Tribe communities with a special focus on women.

### Future projections (Pre-Covid projections)

- According to the National Skill Development Corporation, incremental manpower requirements in 2022 in sectors such as food processing and tourism and hospitality are 927,000 and 364,2000, respectively<sup>20</sup>;
- Demand for skilled manpower in marketing and post-harvest-based activities in agro-forestry, NTFPs and agriculture is anticipated to surge over the next three to five years;
- Eco-tourism is a promising sector since tourism is being promoted in a major way in Odisha. This trend is expected to drive demand for skilled people in tourism and hospitality;
- Demand for skilled persons in floriculture, bamboo craft, lacquer toys, oilseeds, and horticulture (guava, mangoes and litchis) is expected to surge in the forthcoming years;
- Demand for mushroom has resulted in marginal farmers and unemployed youth starting their own small-scale ventures. This trend is expected to continue over the next five years; and
- Development of scientific processing and technological advancements in processing and storage will drive demand for skilled manpower in fruit processing industries; and
- *Bael, kutaj, noni, nagarmotha* and *salai* (or *sal*) are widely grown NTFPs in the state.

### State policies in Odisha include:

#### Ama Jungal Yojana (2016-17 and 2021-22)

Odisha introduced the Ama Jungal Yojana in June 2014 with the objective of developing forest areas in the state and creating better livelihood opportunities for tribal and forest fringe communities.

### Key provisions of the scheme are:

- Developing and bettering the lives of tribal people while also focusing on protecting and increasing forest resources;

- Conservation of forest areas in the face of rapid industrialization and urbanization; and
- Optimum utilization of forest resources to ensure alternate livelihood options for the tribal population.

### Forest Sector Development Project – II

The focus of this project is on enhancing forest ecosystems while also ensuring sustainable livelihoods of local communities. This is done through biodiversity conservation, sustainable management of forest areas, community development and conservation of forest-based resources.

### Key project details are:

- The introduction of Vana Suraksha Samitees and micro-planning has created the desired impact as intended by the project;
- Restoration of degraded forest areas is another key area of focus of this project; and
- Initially, the project was implemented for the period of 2006-07 to 2012-13 and then extended up to 2014-15.

### Green Mahanadi Mission

The key objective of this scheme is to carry out the plantation of 20 million saplings along the banks of the river Mahanadi and its tributaries. While the mission focuses on restoring and protecting the river, the other objective is to prevent soil erosion along the river banks and create conditions for groundwater recharge.

### Key project highlights are:

- The project aims to cover an area of 41,000 hectare and plant more than 20 million saplings;
- The plantation drive would be implemented along the banks of the rivers Mahanadi;
- Volunteers engaged in this project will plant fruit trees such as jamun, jackfruit and mango within one-kilometre radius of the river banks; and
- With a fund allocation of INR 50,000 million, the plantation drive will be carried out on both banks of key rivers in the state over a period of five years.

<sup>20</sup> National Skill Development Corporation, Skill Gap Assessment for the state of Odisha, A district-wise analysis.

## Telangana

The Telangana government is committed to promoting rapid industrialization and extending incentives to potential investors in the market. Currently, promising sectors for gainful job opportunities are tourism, textile, IT and IT-enabled services, construction, automobiles, food processing, banking and financial services, among others. Existing trends suggest that demand for labour will decrease in sectors such as agriculture and allied services, mining and quarrying, and wood and paper products. The Telangana State Skill Development Mission (TSSDM) aims at extending skill training to the state's workforce for better employability and enhanced competence. The policy focuses on re-skilling and up-skilling measures through recognition of prior learning.

Additionally, TSSDM encourages and promotes entrepreneurship and strengthening of vocational education. The target groups include new entrants and existing workforce. In these target groups, the policy considers men, women, unemployed, migrants, self-employed persons in agriculture, unorganized sector workers and the educated unemployed.

### Future projections (Pre-Covid projections)

- It is anticipated that incremental demand for skilled manpower in Telangana for the period 2012-2022 will be 5 million<sup>21</sup>;
- In the skilled category, while the demand for manpower is 29 million, the availability is merely roughly 2 million. However, in the minimally skilled category, manpower availability is 26 million, while demand for the same is 10 million;
- Even though demand for labour in agriculture and allied activities is expected to decline, demand for skilled manpower in food processing is expected to surge in the years to come;
- With state policy focusing on promoting entrepreneurship, an influx of skilled labour in the area of entrepreneurship is projected over the next decade;
- According to India State of Forest Report 2019, the Telangana Ku Haritha Haram initiative encourages community participation through eco-development committees and Vana Samrakshna Samithis. This is expected to drive demand for labour (both men and women) in forest-based activities;

- Afforestation activities and rejuvenation of degraded forest lands are expected to drive employment among the marginalized and rural populations in the state; and
- Measures under the Forest-PLUS 2.0 initiative aim at addressing some of the main barriers that hinder women's participation in forest-based activities and forest management. This would increase the participation of women in viable economic opportunities in the area.

### State level policies in Telangana include:

#### Forest-PLUS 2.0

This initiative, funded by the United States Agency for International Development, aims to take forward the objectives of Telangana Ku Haritha Haram by extending technical support for forest and landscape management in the state. It highlights the importance of forest landscape planning and forest ecosystem services and calls for the active involvement of various stakeholders such as the local communities and forest departments.

### Key features of the project are:

- Focus on the role of gender in forestry and the forest economy by highlighting the need for sustainable economic employment for the forest dependent marginalized communities; and
- Focus on addressing the challenges and barriers to women's active participation in forest-based activities and forest management. This also includes increasing their access to financially feasible economic activities.

#### Telangana Ku Haritha Haram Programme

Keeping in view the objective of the National Forest Policy of India of maintaining a 33 percent forest cover, the Haritha Haram Programme focuses on increasing the forest cover in the state from 24 percent to 33 percent. This involves the implementation of initiatives in notified forest areas and in areas outside the notified forest areas.

### Key project features are:

- Plant around 2,300 million saplings over a period of five years;

<sup>21</sup> National Skill Development Corporation, Skill Scenario in Telangana.

- However, the programme is yet to reach its full potential considering that, until 2019, only 1,770 million saplings were planted;
- Shift the onus of the plantation drives onto the Gram Panchayats; and
- The main task of the Forest Department would be to extend technical assistance to the new nurseries that will be established in around 12,741 Gram Panchayats. The department intends to introduce 37 new fruit-bearing species on the degraded forest lands.

## Uttarakhand

More than 75 percent of the state's population depends directly on agriculture and allied activities for its livelihood and sustenance<sup>22</sup>. Due to favourable climatic conditions, there is immense scope for the development of floriculture and horticulture industries. The state's Agriculture Policy aims to develop the primary sector by establishing agriculture economic zones. The Micro, Small and Medium Enterprises Development Institute in Haldwani promotes and develops small-scale industries and one of its key focus areas is imparting entrepreneurship skill development and management/entrepreneurship training. The organization also explores employment generation potential in far flung and rural areas in the state. The State Industrial Policy focuses on public private partnerships to manage tourist destinations and special economic zones. It also promotes small-scale industries, village and cottage industries, handicrafts, khadi, and handloom industries. Tourism has immense potential and has therefore been given an industry status in the state. Uttarakhand's tourism policy encourages eco-tourism involving the participation of local communities and the private sector.

### Future projections (Pre-Covid projections)

- The State Industrial Policy 2003 and 2008, through its focus on technological upgradation, better product design, better marketing support and modernization of common infrastructure, is anticipated to generate greater employment opportunities in village and cottage industries, handicrafts, khadi and handloom sector, and small-scale industries;
- There are 115 Industrial Training Institutes in the state that extend training on trades such as food production, horticulture, weaving, and plumbing;
- It is expected that demand for skilled manpower in tourism and hospitality sector will increase; eco-tourism too is anticipated to get a major boost in the years to come;
- The state's biotechnology policy aims to promote aromatic herbs/plants and medicinal plants and driving the market for nutraceuticals and pharmaceuticals. This is expected to create job opportunities for men and women at the marginalized/grassroot levels;
- It is expected that demand for skilled workforce in organic farming will increase substantially in the years to come. This can be attributed to a surging demand for organic products in the international market; and
- NTFPs such as *chirata*, *talispatra*, *giloe* and *sonapatha* are grown extensively in Uttarakhand.

### State policies in Uttarakhand include

#### Uttarakhand Forest Policy 2001

The state's forest policy essentially focuses on expanding forest cover, rehabilitating degraded forest lands and judiciously using forest resources including medicinal plants, etc.

#### Key objectives of the policy are:

- Create conditions for ensuring environmental stability while deriving economic benefit from forests and forest-based resources;
- Develop a strategy for promoting biodiversity and protecting wildlife;
- Promote the sustainable utilization of medicinal plants and keep a check on their rampant harvest;
- Keep a check on illegal trade of forest resources, unsustainable harvesting practices and loss of traditional skills and knowledge; and
- Emphasis on the importance of developing a robust market mechanism.

<sup>22</sup> National Skill Development Corporation, District-wise skill gap study for the state of Uttarakhand.

## Uttarakhand State Action Plan on Climate Change

The Uttarakhand State Action Plan on Climate Change focuses on inclusive growth and development through strategies that are sustainable and pose least harm to the environment.

### Key policy objectives are:

- Reduce labour and drudgery for men and women;
- Create employment opportunities leading to sustainable income generation with a special focus on increasing the participation of women in such economic activities;
- Create assets such as lease on forest lands, ownership of livestock, rainwater harvesting tanks, land titles and biogas plants; and
- Encourage the participation of women in mainstream decision making and align the visions of institutions to promote this goal through policies, laws and other interventions.

## POLICY PROVISIONS: GOING FORWARD

While there are existing policy frameworks and comprehensive state-specific provisions for India's forest sector, there are certain key objectives set by the government that would impact the NTFP-based value chain in the years to come. In fact, these objectives highlight those areas of the value chain that are expected to get a boost in the future and consequently impact livelihoods. Provisions of the National Agro-forestry Policy, 2014, NITI Aayog's three-year Action Agenda, and budgetary allocations to drive rural entrepreneurship are anticipated to generate employment in the NTFP and agro-forestry sectors.

Other national policy interventions are: National Mission for Green Mission, 2015; Vanbandhu Kalyan Yojana, 2014; NAP; National Policy on Biofuels, 2018; and the Pradhan Mantri Van Dhan Yojana (PMVDY).

## Budgetary allocation to drive rural entrepreneurship

The Union Budget 2019-20, through the Scheme of Fund for Upgradation and Regeneration of Traditional Industries focuses on providing a boost to honey and

bamboo making. The objective is to establish 100 clusters thereby enabling 50,000<sup>23</sup> artisans engaged in these areas to hone their skills and enhance their livelihood opportunities. Funds have been allocated to establish business incubators for encouraging rural entrepreneurship under A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship which aims to promote innovation, rural entrepreneurship and rural industries.

## NITI Aayog's Three-year Action Agenda

- One of the many objectives of NITI Aayog's Three-year Action Agenda is to provide a boost to India's food processing sector. The Ministry of Food Processing Industries (MoFPI) had introduced a cold chain scheme to provide preservation and cold storage infrastructure in the supply chain. It is anticipated that, by 2020, around 180 projects would have been covered under the scheme. MoFPI also has a scheme for developing Mega Food Parks that aim at bringing together primary producers, retailers and processors. MoFPI plans to have added 30 additional Mega Food Parks by 2020<sup>24</sup>; and
- While the Deen Dayal Antyodaya Yojana–National Rural Livelihoods Mission has been successful in enhancing the SHG-bank linkages, greater focus on strengthening producer companies and groups for NTFP and sustainable agriculture is recommended under NITI Aayog's Three-year Action Agenda. It is further suggested that measures can be taken to engage State Rural Livelihood Missions with national sector specialists.

## Food Processing: A Key Focus Area

- According to MoFPI, given the fact that India is the second largest producer of fruits and vegetables in the world, India's food processing sector holds promise. MoFPI lays emphasis on the need for establishing backward linkages to give a boost to food processing in the value chain. This would not only contribute to national food security but also foster income security;
- In 2014, NABARD set aside a special fund worth INR 20,000 million to extend loans at affordable rates to food processing units of designated food

<sup>23</sup> Key features of Budget 2019-20.

<sup>24</sup> NITI Aayog Three-year Action Agenda 2017-2020.

parks<sup>25</sup>. The fund aims to boost the food processing sector in India and generate employment opportunities, especially in rural areas; and

- The Scheme for Creation of Backward and Forward Linkages launched by MoFPI aims to extend financial assistance for establishing collection centres and primary processing centres at farm gates. The objective is to establish forward and backward linkages in the food processing supply chain. It is applicable to horticulture produce such as fruits and vegetables and NTFP such as honey, spices, coconut and mushroom.

### **TRIFED's Research and Development Efforts on NTFPs**

TRIFED has initiated a Research and Development (R&D) project covering NTFPs, to identify and develop low-cost and innovative methods for the optimal utilization of NTFPs and introduce processes, implements and tools that result in sustainable collection and harvesting of NTFPs. The R&D project also aims to develop appropriate technologies for efficient post-harvest management and primary-level processing of NTFPs including steps such as cleaning, sorting, grading, and dusting<sup>26</sup>.

### **Pradhan Mantri Van Dhan Yojana**

Launched in 2018 by the Ministry of Tribal Affairs, Government of India, the PMVDY aims to improve employment and incomes of tribal communities through value addition of forest produce. Additionally, the scheme focuses on skill development of tribal communities, women's empowerment, NTFP processing and value addition, and forest conservation, among other objectives. It endeavours to generate employment for 4.5 million tribal households over the next five years by establishing Van Dhan Vikas Kendras (VDVKs). Situated in tribal districts, VDVKs are facility centres that are engaged in procuring NTFPs, value adding to NTFPs, and extending NTFP-based skill training to the local tribal households. Each VDVK consists of 10 to 15 SHGs covering nearly 300 tribal gatherers<sup>27</sup>.

## **Significance of Forest Products in Ayurveda, Herbal Medicine and Cosmetics**

Forests have been a key source of raw materials to produce Ayurveda, Unani and Siddha medicines. Nearly 90 percent of medicinal plants utilized by manufacturing units are procured from natural forests, with little or no regard for social and environmental considerations. This has resulted in excessive harvesting of medicinal plants thereby leading to their unsustainable utilization. The National Medicinal Plants Board (NMPB), Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Government of India, has laid down key points on the sustainable collection and harvesting of medicinal plants. These points have been covered under its document titled Good Agriculture Practices. These guidelines have been established keeping in view the provisions of the Forest (Conservation) Act, 1980, Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Forest Act, 1927 and the Wildlife (Protection) Act 1972.

NMPB has developed provisions pertaining to several aspects. Some which are relevant to our study are:

**Harvest/collection management:** This covers quality considerations including botanical authenticity of species and new plants, field collection protocols, harvesting at the right phenological stage, the right weather conditions for harvesting and collection, sorting of produce, toxic weeds, sensitive species, regeneration of species, frequency of collection and habitat management, among others.

**Post-harvest management:** NMPB emphasizes the need for establishing primary processing centres of medicinal NTFPs near the source of collection. Post-harvest management mainly covers aspects such as cleaning, sorting, drying, packaging and storage and use of machinery and equipment.

**Training and monitoring:** NMPB focuses greatly on training and capacity building and emphasizes the

<sup>25</sup> NABARD.

<sup>26</sup> TRIFED, Government of India.

<sup>27</sup> PMVDY, TRIFED.

significance of good and hygienic collection methods, identification of species, internal and external structures (such as sap wood, heart wood, rhytidome), in-depth understanding of natural processes such as regeneration and pollination, understanding phenological stages of the plant, and awareness among the NTFP collectors on the significance of sustainable harvest of medicinal plants.

**Conservation:** As a part of conservation, NMPB is actively engaged in channelizing production and fostering sustainable supply through capacity building of JFMCs, Panchayats, biodiversity management committees, Van Panchayats, SHGs, etc., to promote livelihoods of forest dependent communities. Key activities carried out are:

- Establish marketing linkages for forest dwellers to procure stable livelihoods. To facilitate the collectors' livelihoods, the NMPB extends support to them during the period between collection and marketing;
- Organize capacity-building workshops for women's SHGs, primary collectors, tribal welfare department and public sector corporation functionaries dealing with NTFPs;
- Extend support to individual testing, handling,

and packaging facilities in forest management committees or to pooled facilities that cater to multiple Village Panchayats or forest management committees; and

- Provide support to organizations that conduct buyer/seller meets through forest development agencies at the district or division levels and entrepreneurship training and development for micro and small enterprises.

**Marketing platform:** NMPB has also developed an online platform called E-Charak which is a marketing portal for medicinal plants as well as a mobile application. NTFP collectors and primary producers can access this platform to display their produce and to get an idea about the market price for their produce. They can connect with potential traders, buyers and large manufacturers to sell their produce.

NMPB and the Rural Development and Self Employment Training Institute are actively engaged in providing training under the Entrepreneurship Development Programme. NMPB receives financial support from the Ministry of AYUSH and commercial banks. The latter also receives much of its funding from commercial banks such the Indian Bank, Bank of India, Dena Bank, ICICI Bank, State Bank of India, etc.



4.



Potential Pathways

Forests are vital ecosystems serving as a source of sustenance for a significant proportion of the marginal population, specifically women. This section of society requires multi-dimensional support to thrive and secure sustainable livelihoods in the forest sector. Legislations such as the Forest Rights Act (FRA) and Community Forest Rights (CFR) aim to legally safeguard the rights of forest dependent and tribal communities over forests and its resources. FRA extends legal recognition to the rights of forest fringe communities on forest resources and gives them a voice on issues such as the conservation of wildlife and forests. Recognized by FRA, CFR<sup>28</sup> helps secure the livelihoods of forest dependent communities and enables them to establish a strong local self-governance system pertaining to natural resources and forests. Gender mainstreaming is a key area of focus under FRA and CRA. ‘Greening’ of jobs along with mainstreaming gender requires comprehensive measures that include policy support, localized training and strong legal framework, among others.

## DEVELOP GENDER-DISAGGREGATED DATABASES PERTAINING TO THE FOREST SECTOR

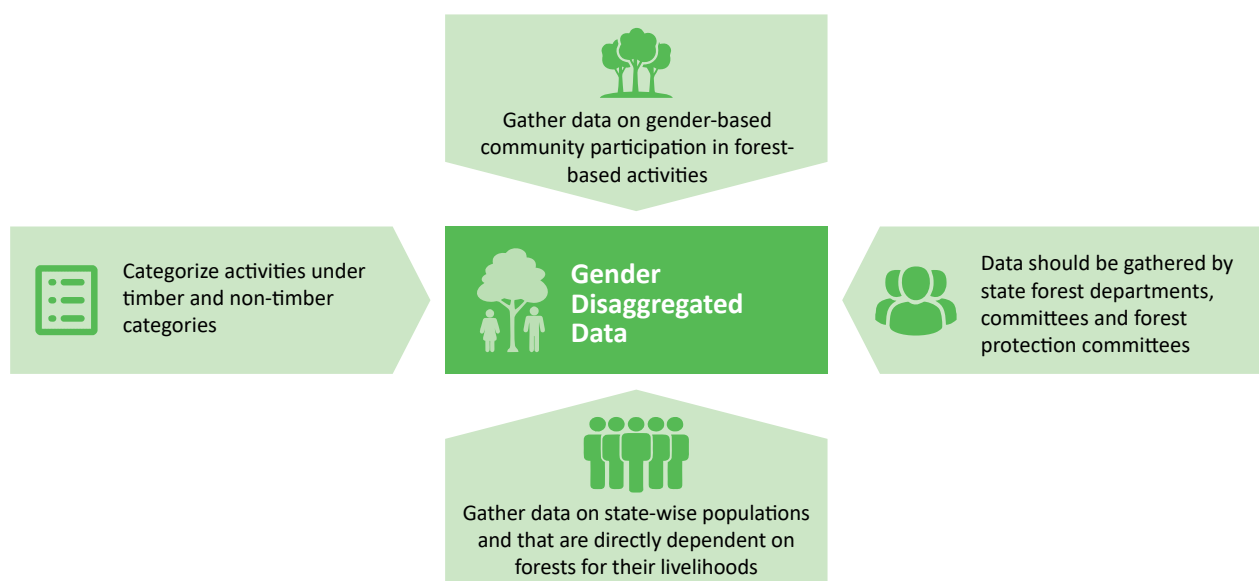
It is essential to establish an evidence repository supported by relevant data for decision-making. State

forest departments should keep a record of gender-disaggregated information pertaining to the rural, marginalized population engaged in forest-based activities.

**Challenge:** One of the biggest challenges in formulation of policies to enhance women’s participation in the forest sector is the unavailability of evidence and sex-disaggregated data. Insufficient data and lack of information impede sound empirical conclusions and reduce effectiveness of policy interventions. This information includes gender-disaggregated information on aspects<sup>29</sup> such as percentage of women/men engaged included in local decision-making bodies, area of property (such as land and livestock) owned and managed by women/men considering factors such as age and ethnicity, and percentage of women/men who receive technical and financial support for forest based activities, etc.

**Addressing the challenge:** Key solutions to address such a challenge would be to create a comprehensive database at the state level that would focus on aspects such as percentage of women engaged in NTFP-based activities and their contribution to the NTFP sector and the potential to scale up women’s participation in the NTFP sector.

Figure 11: Gender disaggregated data



<sup>28</sup> FRA.

<sup>29</sup> FAO, 2016. How to mainstream gender in forestry: A practical field guide.

**Justification:** Case Study<sup>30</sup>

*Gender-disaggregated data highlight the gender-differentiated impact caused by climate change variability*

Conventional agricultural censuses have generally not been able to provide details on gender-disaggregated information/data. To address this, the World Bank has developed a Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) system with primary focuses on Sub-Saharan Africa. This survey system covers individual-level data pertaining to agricultural production, holdings, management and even household-level socio-economic and demographic characteristics. It also provides data on infrastructure and assets that are accessible to men and women. In 2016, in Malawi, the results of LSMS-ISA were utilized to understand the impact of weather shocks on consumption and nutritional outcomes. On in-depth analysis, it was observed that there was a significant drop in consumption and nutritional outcomes in areas where land was mainly owned by women. It was thus concluded that women involved in agriculture are more vulnerable to climate change variability.

### **Enhanced Participation of Women in Consultative Processes**

Meaningful participation of women necessitates proactive measures to increase their representation in policy consultations. These measures should focus essentially on conducting consultations at the Panchayat level so that the strategic needs and opinions of women at the grassroots levels can be identified and acted

upon. Past experience suggests that obtaining such inputs from women on a decision involving community benefits has led to long-term sustainable and positive impacts on the entire community.

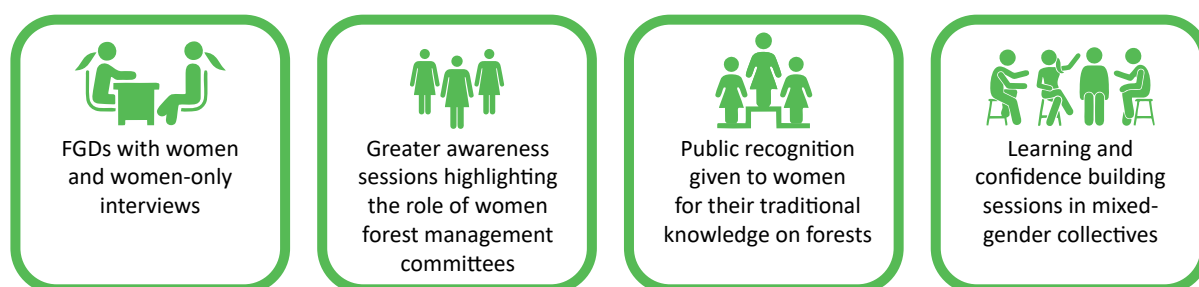
**Challenge:** The reliance of women on forests for sustenance requiring them to work longer hours and obsolete social structures often leads to a 'gender-blind' approach in the consultative process.

**Addressing the challenge:** Gender-responsive participatory activities including focus group discussions (FGDs) and interviews with women are essential tools to enhance women's representation in the consultative process for policy designing and implementation. Since women must attend to domestic responsibilities and look after their families, it is suggested that such interactions be scheduled as per their convenience. The purpose of conducting women-only interviews and similar one-on-one discussions is to understand their thoughts and opinions on a matter that concerns the community.

**Justification:** Case Study<sup>31</sup>

Focus on community forestry to fight against poverty in Cameroon resulted in greater involvement of women in decision-making and planning roles<sup>32</sup>. As a part of the initiative, women were engaged in leadership roles in forest management committees. This was done by ensuring greater collaboration, and information flow and transparency among the various stakeholders of the forest dependent community. Women were gathered in groups and encouraged to speak up on the challenges that they faced and the improvements that they hoped

**Figure 12:** Women's participation in the consultative process



<sup>30</sup> FAO, 2019. Sex-aggregated data in agriculture and sustainable resource management, New approaches for data collection and analysis.

<sup>31</sup> <https://www.forestpeoples.org/sites/default/files/documents/Community%20Forestry%20in%20Cameroon%20%E2%80%93%20WEB.pdf>

<sup>32</sup> Minang P.A., Tita, D.F., Essougong, U.P.K., 2019. Addressing equity in community forestry: lessons from 20 years of implementation in Cameroon.

for. They were also asked to suggest measures that would benefit the entire community including the children and youth. This gave them an opportunity to voice their opinions, ideas and suggestions for better management of community forests. The activity resulted in better management of forest resources and improved village infrastructure through due consideration to strategic requirements of the community.

### **Enhanced Women Representation in Managerial and Decision-making Roles**

Sustainable forest management practices require greater representation of women in decision-making roles.

**Challenge:** Stakeholder engagement does not necessarily mean that women are getting an opportunity to have a say in the decision-making process. Women must be given a chance to express their strategic needs and these needs must be addressed. In most cases, while women are a part of stakeholder engagement activities, their needs and concerns are rarely accounted for in decision making.

**Addressing the challenge:** Solving issues related to women's strategic needs is crucial to the development of green jobs that generate gainful livelihoods. Measures undertaken towards capacity building can lead to gender sensitization, gender mainstreaming and fostering impactful political participation of women in key community-based projects. Issues of climate change and gender and their subsequent implications on each other should ideally be studied together to develop solutions that would benefit the community.

**Justification:** Case Study<sup>33</sup>

In a pre-operation project document of a bridge construction project in Sri Lanka, the need for considering the community women's views was mentioned. While the project officer didn't think it important to consider that point, little was it known that aspect itself would lead to the construction of a well-thought-of bridge for the community. The project officer mentioned that gender issues need not be considered for planning the bridge to be constructed. It was then that the instructor highlighted the fact that the bridge was not only for vehicular movement but also for pedestrians including women and children. After

consulting with the women of the community, it was decided that the bridge would also have a pedestrian zone.

### **Strengthening the Legal Framework for Women's Rights over Land and Property**

Enhancing women's participation necessitates providing them ownership rights to land and forest resources.

**Challenge:** The prevalence of complexities that arise from creating a distinction between men's and women's access and rights over property has always been a debilitating feature. This has led to differences in their rights over access to forest resources, trees and other species. This can be solved through legal constructs that cover statutory and customary laws and international laws.

**Addressing the challenge:** While it is the national governments that own forests, it has been seen that community management of forests by involving customary tenure rights can lead to better livelihoods and better forest management. Women should be ensured of tenurial security through suitable policy interventions. Gender differences and other structural differences should not prevent women from assuming decision-making roles in the forest sector. It is therefore vital to empower marginalized communities, especially women, to understand and exercise their rights over forests and their resources. And this entails the involvement of the government machinery in formulating legal and policy-based interventions.

**Justification:** Case Study<sup>34</sup>

EspacoFeminista, a community organization based in Brazil, employs participatory methods for educating women leaders at the grassroots level to participate in arenas of social policy and to acquire control over and access to property and land. The organization also conducts awareness sessions for women covering areas such as gender inequality and women's role in decision making. Through these measures, Brazilian women at the grassroots levels have been able to impact government policy on land regularization favouring impoverished women and slum upgradation. Today the beneficiaries of EspacoFeminista have greater legal rights over land and property which has helped them to gain confidence and secure people's respect in society.

<sup>33</sup> Briefing Note: On Gender, Peace, Security and Development.

<sup>34</sup> <https://blogs.worldbank.org/latinamerica/what-do-land-rights-mean-women-five-insights-brazil>

## Widening the Coverage of Formal Sources of Financing for Promotion of Eco-entrepreneurship

Access to formal sources of financing facilitates entrepreneurial initiatives. Specifically, extending finance to women-based enterprises has a multiplier effect on employment creation and gender inclusive growth.

**Challenge:** Inequitable distribution and access to resources such as financial benefits, decision-making structures and knowledge is detrimental to the effective participation of women in community forestry initiatives. If underprivileged women are the recipients of insignificant benefits arising from forest management actions, it could adversely impact participatory forest management efforts.

**Addressing the challenge:** There should be formal systems that ensure required financial resources and benefits reach underprivileged women at the right time. This entails extending financial literacy and adopting systems of cash transfers that directly reach the targeted beneficiaries. Underprivileged women must be made aware of the various ways in which they can acquire credit and financial assistance from formal lending institutions such as banks and cooperative credit societies instead of informal money lenders. A study by DFID has shown that when there are direct cash transfers to underprivileged women, not only does their

bargaining power on the domestic front increase but it also prevents them from engaging in adverse coping mechanisms such as transactional sex.

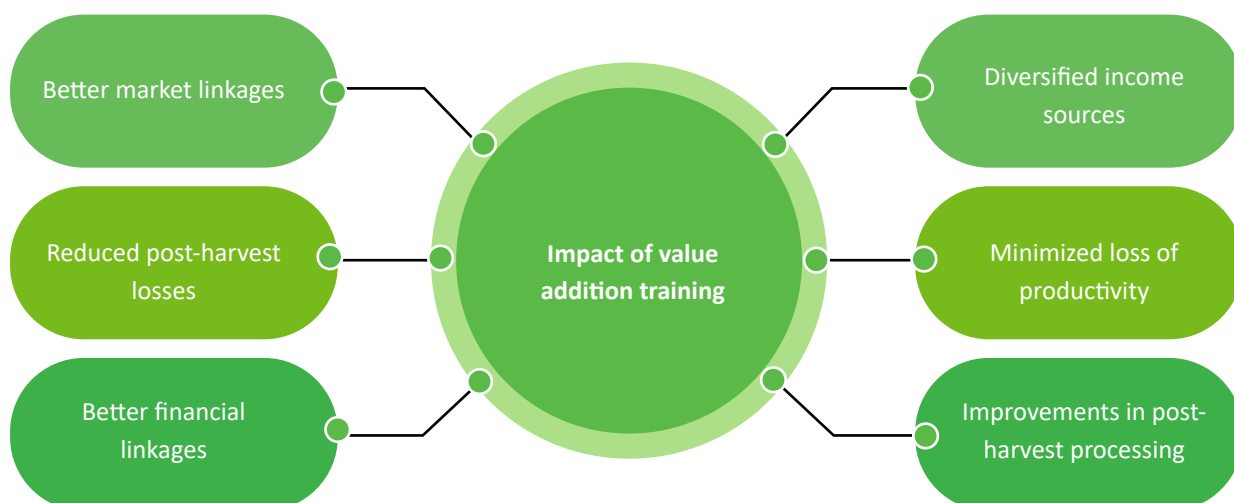
### Justification: Case Study<sup>35</sup>

Launched in 2003, Bolsa Familia, a social welfare initiative undertaken by the Government of Brazil that extends cash transfers to poor families, has resulted in greater domestic status of the women in such families. These cash transfers are primarily based on conditions such as families sending their children to school and ensuring that their children receive timely vaccination against common ailments. There are similar conditions that the targeted beneficiary families must fulfil in order to receive cash transfers under this scheme. The outcome of this scheme has been praiseworthy and highly effective. It has been observed that not only have the socio-economic conditions of the marginalized families improved significantly, but labour market participation of women from such families has increased remarkably. Additionally, women, being the main members managing the money received under the scheme, gained a sense of confidence and security over domestic matters and particularly in managing finance.

## Women-focused Training and Skill Development Sessions for Existing and Potential Green Jobs

Large-scale training sessions focused on skill development across various parts of the value chain are

Figure 13: Impact of value addition training



<sup>35</sup> Centre for Public Impact, September 2019. Bolsa Familia in Brazil.

essential for sustainable growth of the sector. Women-centric training is crucial to equip them with the right skills and enhance their role in green development.

**Challenge:** Inclusive growth aims at sustaining and ensuring economic, social and environmental development together. However, despite policy imperatives that highlight the need for inclusive and sustainable development, there are several loopholes that prevent it from taking shape.

**Addressing the challenge:** While there are a host of national and state policies whose objective is to strengthen the role of women at the community level, there are areas that need to be to ensure implementation. Underprivileged women need support at all levels. In providing them access to technical information required for community forestry initiatives, activities could range from basic data collection to holding brainstorming sessions with relevant committee members on pertinent areas in forest-based livelihoods. Additionally, they need training on climate resilient alternative livelihoods in case of uncertainties that adversely impact their main livelihoods.

**Justification:** Case Study<sup>36</sup>

Owing to erratic rainfall, a drastic decline was observed in the production of NTFPs in Raisen district of Madhya Pradesh. The impact was particularly felt in the village of Bamnai whose tribal residents depend greatly on forest-based produce for their livelihood. It also increased the drudgery of women in the village who were actively engaged in collecting and selling NTFPs to earn their livelihood. However, under the guidance of the state's forest department, an initiative was launched to equip women with skills in alternative sustenance. One such alternative that proved successful was papier mache crafts. The tribal women were taught how to make handicrafts and toys with papier mache. This was done by a group of NGOs and similar organizations. In fact, the forest department employed a buy-back arrangement with the beneficiaries of the training; the department would purchase the handmade papier mache products from the tribal women and pay them. These handicrafts were then sold at herbal melas organized by the forest department and exhibited at the Delabadi Ecotourism centre. Each tribal woman who

made these papier mache products earned between INR 3,000-5,000 by selling the products.

Additionally, the role of women in ensuring and maintaining forest ecology can hardly be underestimated. They can be involved in activities such as restoration of degraded forest lands through measures such as:

- Women belonging to forest dependent communities should be given 'custodian rights' over degraded forest lands, areas under mangroves and even Panchayat lands for restoration activities to create bio-shields and efficient management of such areas;
- The responsibility of maintaining and looking after forest areas around temples can be allotted to women. This could help generate livelihood opportunities for them; and
- In hilly and mountainous regions with oak plantations and pine trees, women can lead and engage in activities that use pine needles for briquetting for cook stoves. This can be a potential entrepreneurial venture for women in such areas.

### **Extend Assistance in Establishing Market Linkages**

Marginalized women dependent on forest resources often have limited access to markets. They possess the required skills to produce NTFP-based products but due to their inability to identify and tap into a customer base, they often lose out on markets.

**Challenge:** Marginalized women's limited access to markets can be attributed to factors such as lack of education, lack of institutional support, gender biases and intervention by middlemen.

**Addressing the challenge:** Access to a fair market for NTFP products is challenging in some areas owing to lack of information and poor infrastructure such as roads and excessive intervention of middlemen. Forest fringe and tribal communities, especially women, find it challenging to reach markets to sell their produce. This issue can be resolved by government intervention and the formation of a network of agencies, NGOs and government departments that can come together and extend appropriate assistance.

<sup>36</sup> Sinha, B.K.P., Singh, S.P., Pradhan. Lolita, 2019. Women Mitigating Climate Change Impact through Forest-based Activities.

### Justification: Case Study<sup>37</sup>

Besides farming, making *dona pattal* (disposable plates from sal/siali leaves) is a popular economic activity for the tribal households of Kandhamal district in Odisha. TRIFED decided to extend training on value addition of sal leaves. Tribal women earlier sold their handmade sal leaf-plates in the local market and earned a monthly income ranging between INR 300-400. TRIFED identified a demand base at Tirumala Tirupati Devasthanam Trust and obtained an order from the Trust for regular supply *dona pattal*. This led to the establishment of the Kandhamal Women's Leafplate Cooperative Ltd. by an SHG formed by PRADAN. TRIFED conducted training for nearly 156 tribal women belonging to 14 SHGs. It also distributed *dona pattal* stitching machines and biomass fuel led moulding machines to these SHGs. Through the Kandhamal Women's Leafplate Cooperative, the tribal women were able to earn nearly INR 1,000-1,500 every month by producing sal leaf-plates<sup>38</sup>.

### Linking NTFP and Agro-forestry Produce with the Processing Industry and Enhancing Women's Participation in the Supply Chain

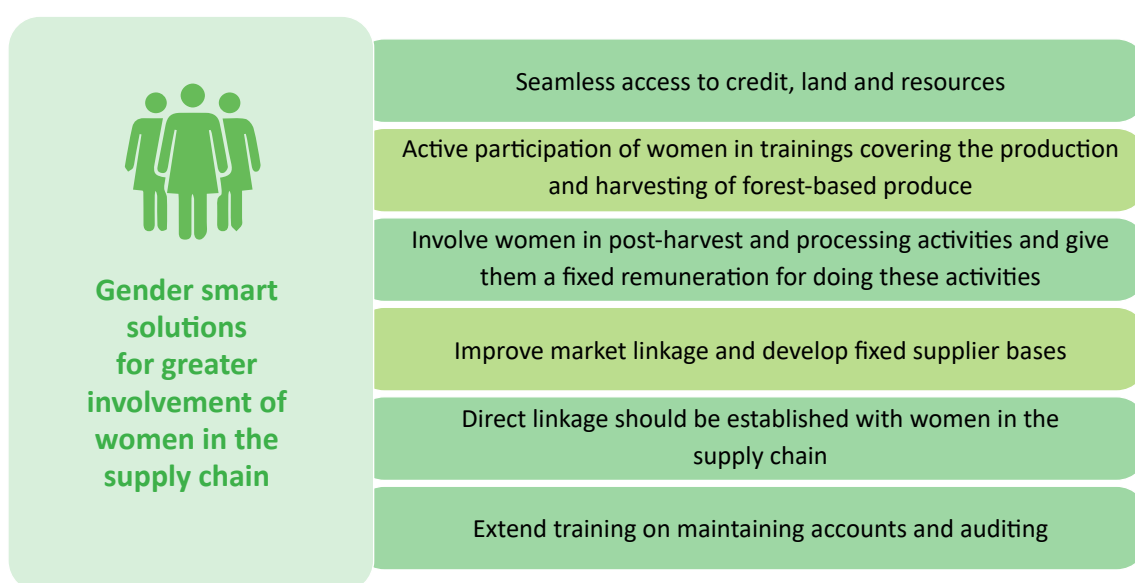
Commercial agro-forestry systems involving eucalyptus, leucaena, poplar and casuarina have potential in different states of India. In fact these can thrive

and flourish especially when industrial linkages are established for them. This is also applicable to fruit-based processing industries when women producers and suppliers of NTFPs and agro-forestry produce can be included in the food supply chain. This calls for gender-smart solutions that would increase the participation of women in the entire supply chain.

Direct linkages should be established with women in the supply chain. This will not only enable them to have greater control over their assets but also benefit them in other ways. For example, generally male farmers receive payments on behalf of the women. However, if women are equipped with skills in maintaining accounts and auditing in agro-forestry and NTFP-based activities, they themselves can directly interact with the buyers and thus ensure greater transparency in transactions. Such a measure can be introduced in existing women-based cooperatives, collectives and SHGs.

This also calls for investments in logistical support and cold storage facilities, particularly for marketing of fruits and aromatic and medicinal plants. Industries engaged in crop and wood-based products can also explore products that are derived from agro-forestry systems. The private sector can play a significant role in driving the market for biofuels and TBOs.

Figure 14: Gender-smart solutions for involvement of women in the supply chain



<sup>37</sup> <https://www.studyiq.com/image/media/TRIFED-SUCCESSSTORIESONMFP.pdf>

<sup>38</sup> Ministry of Tribal Affairs, -----A Successful MFP Initiative Dona Pattal Project, Kandhamal Odisha.

**Challenge:** Marginalized women engaged in forest-based livelihoods mainly earn their living by harvesting and processing at the household level. They need greater awareness and assistance on the processing aspect of NTFPs and agro-forestry produce.

**Addressing the challenge:** The focus of MoFPI and NITI Aayog on boosting the food processing sector in India offers several opportunities for establishing a food-based NTFP segment. It can be said that PMVDY coupled with other policy frameworks creates a conducive environment for generating employment opportunities in NTFP processing for the forest-dependent marginalized communities. Food-based NTFP processing is expected to gain momentum soon. Marginalized women can be trained to produce various products from fruits and vegetables such as sauces, jams, candies, preserves, jellies and purees. This type of processing is possible not only at the industrial but also at the household level.

**Justification:** Case Study

In 2017-18, two processing units for custard apple were established in Mahabubnagar and Narayanpet districts in Telangana. These two units mobilized women from SHGs of the Mandal Mahila Samakhya, a group awareness initiative that was organized in Maheshwaram, Telangana, in 2018. Mahila samakhya are village women's collectives. Each collective was given an initial capital of INR 500,000 with which basic infrastructure for the processing centres was purchased. This included deep freezers, processing machines and weighing machines, among others. Women working in these processing centres manually process custard apples that are procured from the village primary collectors. The fruit pulp is then sold to ice-cream makers. Sixty-five-year-old Anasuyama is a SHG member engaged in custard apple processing. Owing to health issues, she could not work as a daily wage earner which is why she started working at the processing centre. Her daily earning is around INR 200. With time, the demand for custard apple pulp at the Narayanpet processing centre surged to the extent that higher quantities of custard apples had to be procured from the neighbouring villages<sup>39</sup>.

## Other Recommendations

The role of agro-forestry holds promise in the area of environmental services through the ecosystem service pricing mechanism. This is basically a reward mechanism for the rural poor in providing services that lead to carbon sequestration, biodiversity conservation and watershed protection. By resorting to agro-forestry, marginalized women engaged in small-scale farming can supplement their farm-based incomes with additional earnings from agro-forestry produce, thereby also ensuring conservation of natural resources.

**Train women to become agro dealers:** Agro dealers are links between primary producers (NTFP collectors, agro-forestry cultivators), markets and traders. With the help of NGOs, women can be trained to become agro dealers. In fact this would enable companies to expand their presence in rural and remote areas. The direct link created between such agro dealers and companies would lead to greater brand loyalty, transparency of operations, greater access of women agro dealers to inputs, and greater access to organized markets.

**Strengthening institutional set-ups:** Training in agro-forestry and related practices should be provided to marginalized women through Krishi Vikas Kendras (KVKs). This calls for strengthening of such institutions so that capacity-building workshops and training can be provided to women belonging to forest-dependent communities. Agriculture, being a state subject, should also include agro-forestry as an important element. KVKs act as resource and knowledge centres covering agricultural technologies for initiatives undertaken by private and public bodies to improve agriculture productivity in the district. They also undertake capacity development initiatives for farmers and extension personnel. Similar such training and capacity-building initiatives can also be undertaken for marginalized women engaged in agro-forestry and forest-based activities.

**Extend financial literacy:** Owing to limited knowledge about credit offered by organized markets, most marginalized women in the forest sector obtain

<sup>39</sup> Telangana Today, 2019. Narayanpet plans to bring out "Naari Shakthi".



funds from private and local money lenders which, in turn, increases their debt and financial burden. It is therefore vital to establish financial linkages and help beneficiaries to avail of credit from banks, central and state government financial institutions and bodies such as NSTFDC.

## SCOPE FOR ECO-ENTREPRENEURIAL VENTURES

The report explores factors that create an enabling environment for eco-entrepreneurial ventures

in NTFPs. Three case studies highlight the scope for entrepreneurial ventures that can be used by marginalized women engaged in the NTFP sector. Given the prevailing conditions, the existing policy landscape and the skill levels, the following four areas elaborated on in Figure 15 should be considered.

**Figure 15:** Aspects considered for eco-entrepreneurial ventures

### Skill level

According to stakeholder consultations, the marginalized population engaged in forestry-based activities in the seven states is primarily unskilled/semi-skilled. The objective is thus to engage such labor force in green jobs that require skills that can be learnt easily and are best suited to their ability to learn.

### Available financial resources

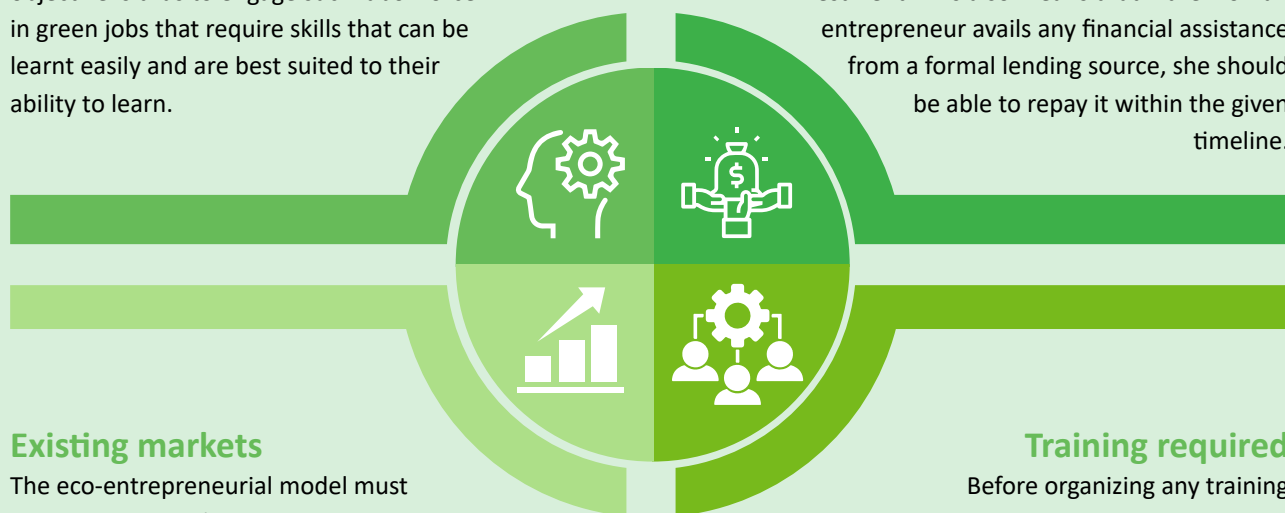
It is important that the eco-entrepreneurial model requires reasonable investment from the beneficiaries so as to not become a financial burden. Also, their business should be able to recover the initial investment. This also means that if the woman entrepreneur avails any financial assistance from a formal lending source, she should be able to repay it within the given timeline.

### Existing markets

The eco-entrepreneurial model must involve a product/service that is not just marketable but also promising in terms of demand, popularity, preference and has a strong consumer base.

### Training required

Before organizing any training programme, it is vital to first identify the skills that already exist among the target beneficiaries. They should then be trained on skills that they do not possess. For this, bridge training and recognition of prior learning should be undertaken.



40 [http://www.pacsindia.org/case\\_studies/lac-farming-kamlas-story](http://www.pacsindia.org/case_studies/lac-farming-kamlas-story)

## CASE STUDY 1. LAC CULTIVATION: A LUCRATIVE SOURCE OF LIVELIHOOD



Source: PACS India Case Studies

It was in 2013 when Kamala<sup>40</sup>, a school dropout from a backward tribal community, attended a workshop organized by Udyogini in collaboration with the Indian Institute of Natural Resins and Gums. Here she learnt about lac cultivation and the benefits of pruning and using different strains of lac. She was quick to learn the method of processing of lac and, in no time, she began earning a steady income and gradually this became a profitable activity for her. Kamala explains that while lac cultivation is essentially a male-dominated activity, her community had no knowledge of the commercial value of lac. It is basically a natural resin derived from an insect and lac is of commercial value in the food, pharmaceutical and cosmetics industries. Before Kamala attended the workshop, she had no idea that lac could be produced all year round and cultivated in various types of trees.

She says that lac cultivation is not a very time consuming nor a labour-intensive activity. In the very first season, Kamla earned a profit of INR 10,000 by selling lac scraps. In the second year, her total earnings rose to INR 31,000. In her community, Kamla is the only lac cultivator in her village and other women aspire to become financially independent like her. She also says

that the participation of women in NTFP activities has increased significantly over the years.

### Key Takeaways

- Even though women are actively engaged in various stages of the value chain of a certain product, they specifically require is focused training on gaining expertise in a certain aspect – be it processing, harvesting or even marketing. A key highlight of this case study is the formal training that made the beneficiary an expert in lac cultivation. Imparting short-term training to women on key specific areas such as sustainable harvesting practices and efficient processing techniques that generate minimal waste can help women to apply their skills commercially and turn them into a gainful source of income; and
- While the case study discusses the benefits accrued by a single village woman engaged in lac cultivation, it can be replicated on a larger scale. Bringing together a larger group of women for such an activity can lead to economies of scale and higher production. Group involvement of this type will increase the women's bargaining power thereby helping them to create a dent in the market.

## CASE STUDY 2. MUSHROOM FARMING: A COST-EFFECTIVE SOURCE OF INCOME GENERATION



Source: Nirman Odisha, An Initiative for Sustainable Development

Nishamani Pradhan<sup>41</sup>, a 55-year-old resident of a village in Nayagarh district of Odisha, is reaping the benefits of having attended a training session organized by Nirman Odisha, an NGO engaged in promoting sustainable livelihoods. Nishamani owns 4 acres of agricultural land which she is utilizing most effectively for mushroom cultivation. This is her only source of livelihood which, according to her, is good enough for her to fend for herself. While she also has her daughter-in-law helping her in this business, Nishamani does not have to depend on her sons for financial support of any kind. Mushroom cultivation can be started by anyone with even limited financial resources, as Nishamani opines. She has around 140 mushroom beds, each with a harvest capacity of 700 grams. By selling 700 grams of mushroom, she earns INR 112 per mushroom bed. The raw materials that she needs for each mushroom bed are polythene sheets, churned pulses (dal) and spawn, which cumulatively cost INR 52. According to Nishamani, unlike other farm products which generally take a minimum of two months to generate returns, mushrooms generate returns within a fortnight. This makes mushroom cultivation a cost-effective and gainful source of earning a living. Additionally, being a superfood, demand for mushrooms continues to be

high owing to people's inclination toward healthier food options.

### Key Takeaways

- This is an example of a highly self-sustaining model of income generation for a product that has high demand. This case study underscores the significance of access to markets and financial literacy. It shows how minimum investment can generate high returns within a short time. It creates a multiplier effect, since a certain amount of initial investment generates a proportionately higher income. And from those returns, one can again invest in the business and continue generating revenue that will increase with time; and
- Financial literacy on deriving a high return on minimal investment is the type of training that marginalized women need to be familiarized with. This also includes informing them about the sources of finance and access to them. It is vital to identify low investment-high yielding products such as mushrooms that can be cultivated with very basic raw materials and consecutively organize training programmes for women engaged in cultivation of such products.

<sup>41</sup> <https://nirmanodisha.org/pdf/Income%20from%20Mushroom%20farming%20Meets%20Household%20Expenses.pdf>

## CASE STUDY 3. WOMEN'S PARTICIPATION IN HONEY MAKING IN ZAMBIA

Honey hunting and collection is an activity that is predominantly carried out by men in Zambia. Since this activity is essentially time-consuming and requires physical strength, the participation of women has been quite low. The honey is collected from hives and wild colonies; traditional hives generally hang either 15 metres or more above the ground. Additionally, cultural stigmas prohibit women from climbing trees and procuring raw honey. However, despite all odds, tribal and rural women in Zambia are identifying ways of participating in the honey production activity. While seeking basic help from men, these women have also received assistance from external agencies that have created systems that enable women to produce honey independently. Thanks to modern beehives that are placed on stands 1 metre above the ground and are situated near the apiaries close to homesteads. This has led to increased women's participation in honey making as a gainful economic activity. Not only has it created a sense of financial independence but has also enabled the women to engage in risky activities to earn a living.

### Key Takeaways

- This case study highlights how a physical constraint can become a socio-cultural stigma that prevents women from participating in an economic activity which they are otherwise capable of performing. In Zambia, since it is a physically demanding activity, honey collection is mostly done by men. However, the study shows how the right kind of technology intervention and innovative solutions can enable women to become honey collectors as well; and
- Developing innovative solutions can increase the probability of women participating in male dominated jobs thereby thwarting gender biases. The right type of technology should be applied to enable marginalized women to earn a living and attain self-sufficiency. Creating conducive environments for women to work in leads to greater productivity, greater efficiency and enhanced visibility.

## FISCAL STIMULUS TO COMBAT THE DISASTROUS EFFECTS OF COVID-19

As COVID-19 hits the economy, an enhanced push is required from the government to provide stimulus to the sector. The pandemic has led to a major influx of people from urban areas to rural areas; this reverse migration could result in greater pressure on forest areas and resources.

While demand for timber- and non-timber-based products is projected to decline significantly, demand for products such as ethanol for sanitizers, sanitary and hygiene products and respirator paper is expected to surge. Since women constitute a major section of the workforce engaged in forest-based activities, their livelihoods will be severely impacted because of the pandemic. The government however is taking steps to check such problems. A few state governments have proposed that the Van Dhan Centres be declared as procurement units for NTFPs. This means that these

procurement centres would purchase NTFPs from the primary producers and pay them their dues.

Suitable measures would also be taken by the central and state governments to enable forest-dependent and tribal communities to sell their produce at the minimum support price. Additionally, state governments are also taking steps to protect the NTFP producers from exploitation by traders and middlemen. For example, the government of Madhya Pradesh has fixed the minimum support price of mahua flowers and seeds at INR 35 per kilogram.

Several public and private sector research studies show that strategies that focus on ensuring equal employment opportunities to men and women have a higher success rate and lead to better climate outcomes and greater development. Thus, mainstreaming gender coupled with the creation of green jobs is essential for sustainable growth of the forest sector.

## 4.1 SUGGESTED ACTION PLANS

In this section, the objective is to establish a step-by-step roadmap for establishing an enterprise for marginalized women and encourage entrepreneurship capabilities among them. This section presents two case studies, of which one has been taken forward as a model for establishing some key action plans. While in the first case study, women-based entrepreneurship is discussed with reference to biodegradable leaf plates and in the second to herbal medicines and cosmetics.

### **Case study A: Economic and environmental benefit derived from biodegradable tableware made from arecanut leaves**

Rijumoni Rabha is a resident of Baghmara village in Kamrup district, Assam. She makes tableware from the leaves of arecanut tree<sup>42</sup>. Her husband is a landless farmer and a wage worker on others' farms.

Earlier, the leaves of the arecanut tree used to be discarded. However, nearly 35 women in Baghmara village have started utilizing these leaves to make biodegradable plates. Rijumoni, who earlier did odd jobs to supplement her husband's paltry income, today finds making leaf plates not only an engaging activity but also a decent source of income. Rijumoni's average monthly income has increased from INR 5,000 to INR 10,000 and she believes that, by devoting more time to this activity, her income can increase to INR 20,000.

She received training under Project Pragati implemented by Dhriiti, a social enterprise that promotes the spirit of entrepreneurship to tackle the problem of unemployment. Funding for the project was received from InterGlobe Foundation. Under this project, the women beneficiaries have been taught to make 100 percent biodegradable leaf plates. Additionally, machines have been installed in their houses so that they can run these home-based microenterprises. Technical and marketing support has been provided by Tamul Plates Marketing Private Limited, Assam. The residents of this village are now more aware of the economic value of arecanut leaves and the significance of environment-friendly products. Project Dhriiti had organized multiple awareness sessions for the villagers

and these values have now been internalised by the women. Rita Rabha, another village entrepreneur engaged in making arecanut leaf plates, has also started making spoons from these leaves. Single-handedly, she produces nearly 300 plates daily.

### **Case study B: Women's enterprise boosts entrepreneurial prowess among vulnerable women dealing in herbal medicine and cosmetics**

Parvathy Nagarajan is a native and resident of Nallur village situated in Villupuram district, Tamil Nadu<sup>43</sup>. She is the founder-mentor of Kaluveli Sustainable Livelihood Women's Federation (KSLWF), which provides entrepreneurial skill training to marginalized women using local indigenous knowledge of herbs and medicinal plants. The key objective is to empower local village women with traditional knowledge of indigenous plants and herbs to enable them to acquire stable livelihoods. KSLWF's three enterprises train women on herbal medicines and cosmetics, herbal foods and plant nursery.

Parvathy Nagarajan began her career as a herbal health worker in Pitchandikulam Forest. Pitchandikulam Forest is a community-based environmental organization located in Auroville, Tamil Nadu. She had the opportunity to work with traditional healers and learn the finer nuances of healing through herbs. After recording nearly 40 traditional herbal formulations and gaining expertise in utilizing medicinal plants, she began mentoring other village women to start their own enterprises. In fact, several women gave up farming to become entrepreneurs under her guidance. The three enterprises under KSLWF are Amirtha Herbals, Meera Herbal Food and Plant Nursery. Marginalized women engaged in each of these enterprises have been entrusted with varied responsibilities, starting from foraging for herbs in close-by forest areas, preparing herbal cosmetics and medicines, to directly selling these to final consumers. Products prepared and sold by KSLWF include herbal ointments for insect bites, hair oils, skin creams, herbal medicines for digestion, chutneys and powders, spirulina products (such as idly podi), among others. The Plant Nursery grows nearly 81 types of tree species that are mostly purchased

<sup>42</sup> Rural Microenterprises, Village Square, June 2020. Women bring economic and environmental changes with leaf plates.

<sup>43</sup> <https://pitchandikulamblog.wordpress.com/2016/09/05/pitchandikulam-people-parvathy/>

for eco-restoration projects. The nursery also supplies seedlings of flowers, fruits, vegetables and medicinal plants.

While KSLWF's products are sold mainly in local markets, the state forest department is also a major buyer.

## Testimonials

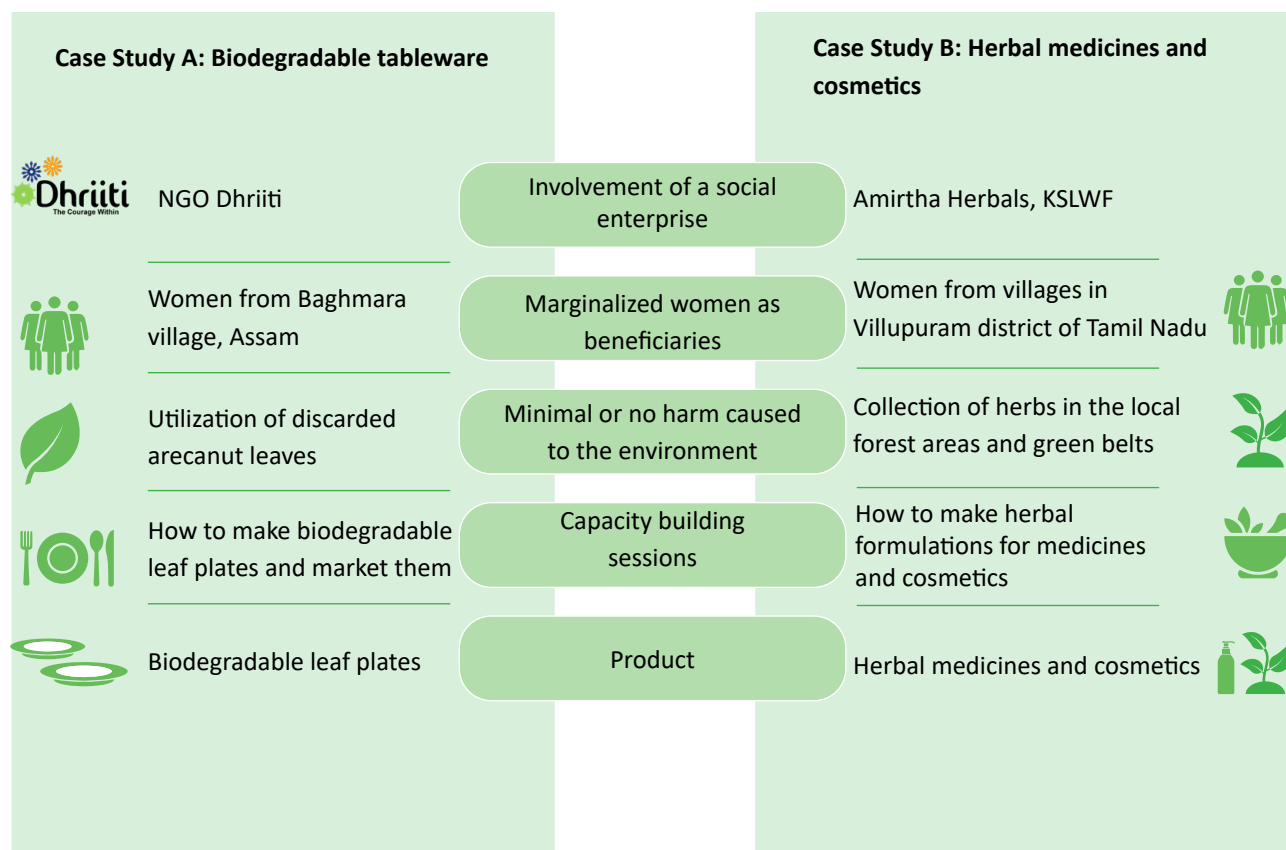
1. *Mallika<sup>44</sup>, who has been working in Amirtha Herbals for almost four years now, was a farm labourer. However, her earning from farming was not only insufficient but very irregular. It was then that she made a shift toward preparing herbal products under the guidance of KSLWF. Today, she has a fixed take-home salary of INR 3,000. She has not had an education and her self-run enterprise in her village has been one of Mallika's greatest achievements.*
2. *Selvi<sup>45</sup>, a resident of Vandipalayam village in Villupuram district of Tamil Nadu, has been*

*associated with Amirtha Herbals for nearly eight years. Given her good communication skills and amicable nature, she was allocated a sales role. Having studied till Class 8, Selvi's only option was to continue working on her family-owned agriculture land. After attending training at KSLWF, she developed skills in identifying and utilizing herbs for medicinal and cosmetic uses. Today, not only does she have a regular income but is also able to repay her loan.*

The two case studies meet the conditions shown in Figure 16 to qualify as entrepreneurial models for vulnerable women engaged in green jobs.

To understand the proposed action plan (Figure 17), the report uses the example of fostering entrepreneurship in the area of herbal medicines and cosmetics. Key stakeholders involved are herbal specialists who assume the roles of a master trainer, botanist, Ayurveda doctor, researcher of herbal medicine and a pharmacist of Ayurveda.

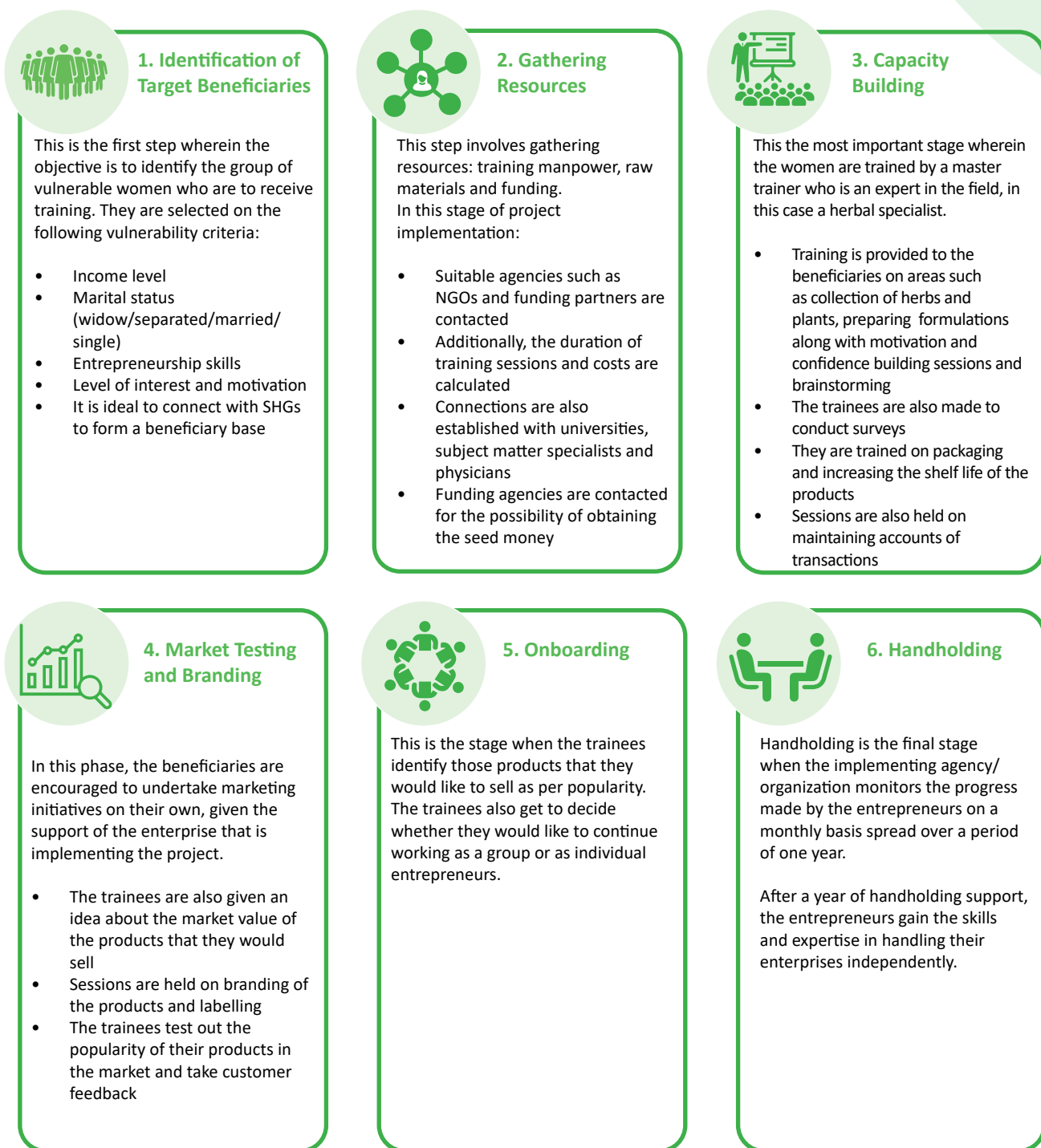
Figure 16: Key factors in case studies A and B



<sup>44</sup> <https://www.villagesquare.in/2019/03/20/tamil-women-bank-on-herbs-to-boost-income/>

<sup>45</sup> <https://www.villagesquare.in/2019/03/20/tamil-women-bank-on-herbs-to-boost-income/>

**Figure 17: Action plans for consideration**



The proposed action plan that has been explained in Figure 18 builds the case for establishing an entrepreneurial model in the area of herbal medicines and cosmetics.

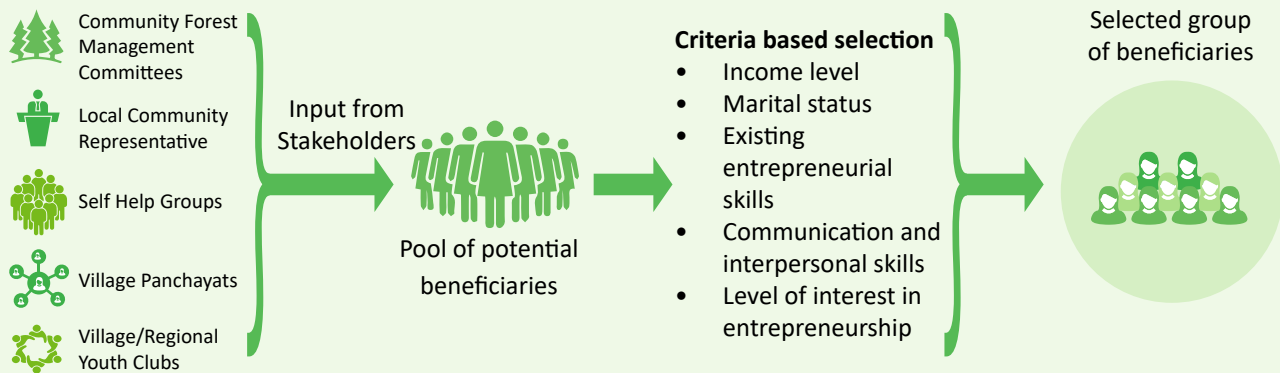
### **Identification of Target Beneficiaries**

In this stage, the target beneficiaries are selected from

villages in the chosen block. The best way to identify target beneficiaries is by connecting with the following stakeholders:

- Community forest management committees;
- A reliable local community representative;
- SHGs;
- Village Panchayats; and
- Village/regional youth clubs.

**Figure 18:** Identification of target beneficiaries



From among the stakeholders, it would be ideal to form a trainee group from women members in the existing SHGs. The target beneficiaries should be selected based on the following criteria<sup>46</sup>:

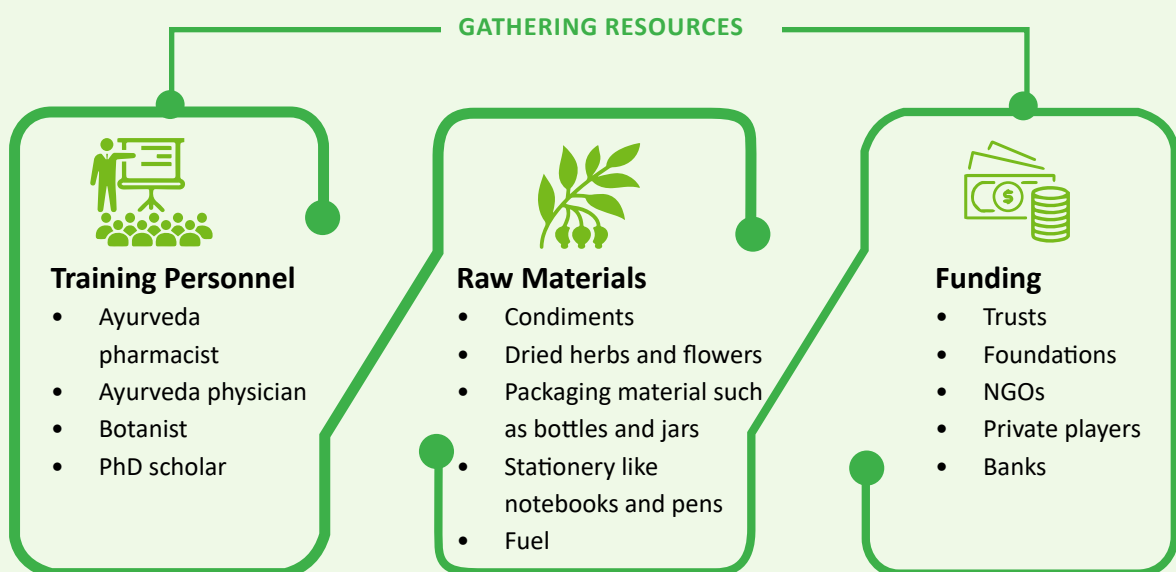
- Family income level;
- Marital status (single/married/widowed/separated);
- Existing entrepreneurial skills;
- Communication and interpersonal skills; and
- Level of interest in entrepreneurship.

Selection of candidates based on the above criteria can be done via word of mouth availability of information, FGDs and one-on-one interviews with potential candidates. The target should be to identify a batch of around 25 to 30 women for training.

### Gathering Resources

This stage involves gathering the following resources:

**Figure 19:** Types of resources required for the training



<sup>46</sup> Based on inputs from a stakeholder Parvathy Nagarajan, founder -mentor of KSLWF.



- A training team;
- Raw materials required for the training;
- Funds; and
- Training design.

The duration of the training should be around 45 days with an additional five days for market testing and branding. The first step is to identify a training team comprising a herbal specialist who would assume the role of the master trainer; an Ayurveda pharmacist; an Ayurveda physician; a botanist; and a researcher (preferably a PhD scholar in the area of herbal medicine). They can be asked to volunteer for such an initiative, or they can be paid on an hourly basis for their visits and sessions. Funding can be obtained from foundations and trusts that are actively engaged in community and women’s empowerment. In Case Study B, Amirtha Herbals received its funding from an organization called SEDAB<sup>47</sup> (Sustainable Enterprise Development in the Auroville Bioregion), which in turn was funded by the Auroville Foundation and Tamil Nadu State Rural Livelihoods Mission.

The total cost would include:

- Remuneration of the trainers;
- Costs of raw materials such as condiments, fuel, oils, dried herbs;
- Rent of the community hall or location where the training would be conducted for 45 days;
- Information and communication materials; and
- Other costs (such as food and snacks for the trainees, stationery such as notebooks and pens).

Since there is always resistance to change, the women may not want to attend the trainings. For this, they can be paid a small sum (preferably half of the state’s wage rate as a per day honorarium) as a motivating force to attend the sessions.

### Capacity Building

The third step is capacity building which is the most crucial stage in the action plan. The first two days are orientation sessions wherein the trainees are given information on:

- The growing importance of herbal formulations as alternative medicine; and
- The result of the training session when they themselves will have to establish their entrepreneurial ventures after initial handholding support provided by the implementation agency.

Figure 20: Topics covered in the training



47 <https://www.auroville.org/contents/1635>

Training sessions would include classroom sessions, practical sessions and field visits. The field visits would entail identifying different types of herbs for various ailments and skin care, collecting herbs, flowers and leaves in a sustainable manner, cleaning, sorting and then processing these to get the end products.

Areas covered in capacity-building sessions would be:

- Survey of plants and trees that are of medicinal and cosmetic value;
- Making products such as hair oils, skin creams, skin care ointments, pickles and powders. For instance, to cure digestive disorders, etc.;
- Ecological restoration;
- Processing the herbs and similar raw materials and developing formulations;
- Increasing the shelf life of the products;
- Packaging the products in different types of containers such as jars and bottles;
- Pricing (prices of similar products in the market are considered in addition to the cost of producing herbal products); and
- Maintaining accounts.

A very important aspect of the capacity building is confidence-building sessions for the women beneficiaries.

## Market Testing and Branding

After the 45-day<sup>48</sup> training period, the women should be divided into pairs and sent to conduct surveys in

villages within 5 kilometre radius of the training unit.

The objective of the survey is:

- Get an idea about common ailments suffered by the villagers; and
- Understand their response to the herbal products developed.

This activity should be done for around four to five days so that the trainees themselves reach out to potential local buyers in the region. This helps them to identify products that can have highest demand and the price that the potential customers are willing to pay.

Furthermore, the beneficiaries seek feedback from potential customers about products. During the period, customers are given time to try and test out the products and give their feedback. This feedback is useful for the beneficiaries to make changes to their products if required.

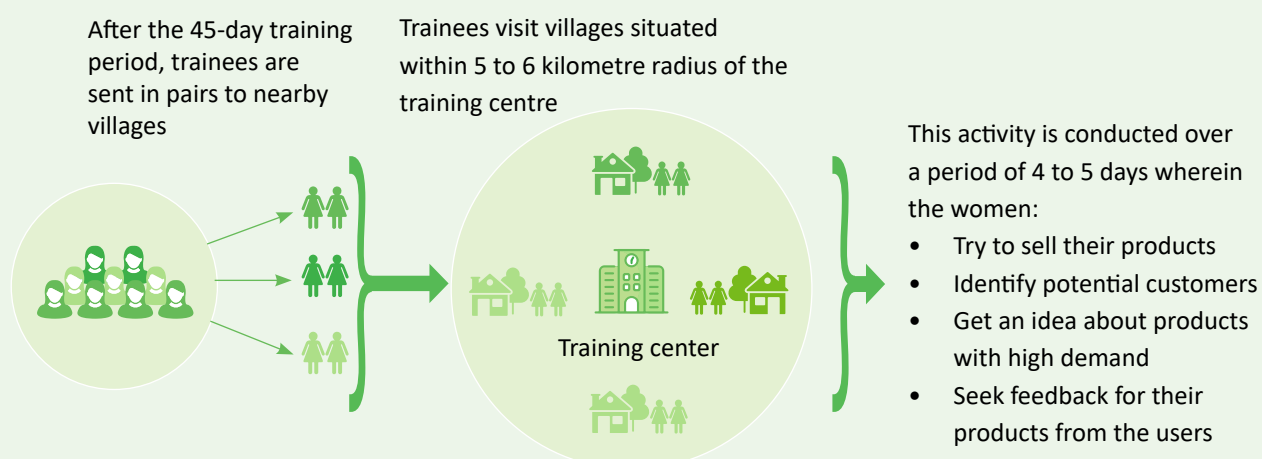
## Onboarding

After obtaining feedback from potential buyers, beneficiaries get a clear idea on products that they would like to sell to the customers. Also, they decide for themselves whether they would like to become sole entrepreneurs or work as a group of entrepreneurs (which entails shared ownership – be it of funds, resources, skills or even knowledge).

The women entrepreneurs can reach out to customers in the following ways:

- Door-to-door sale;

Figure 21: Market testing and branding



<sup>48</sup> Based on inputs from a stakeholder Parvathy Nagarajan, founder-mentor of KSLWF.

- Local retail shops;
- Local university and college fairs;
- Word of mouth; and
- Online portals such as “E-Charak”.<sup>49</sup>

While the women entrepreneurs are fully engaged in their ventures, they can seek additional guidance from the implementation agency.

### Handholding

Handholding support should be extended for a period of one year till the women entrepreneurs are fully confident about running their enterprises independently. There could be monthly meetings that would cover the following:

- Address grievances;
- Brainstorming sessions on ways of reaching out to a larger customer base;
- Trends in revenue generation;
- Keeping records of transactions and maintaining accounts; and
- Applying for bank loans if required. In case a bank linkage cannot be established, an alternative could be developing a “community revolving funds” system.

### Key Stakeholders for Capacity Building

The Agriculture Skill Council of India, Skill Council for Green Jobs, Food Industry Capacity and Skill Initiative, Pradhan Mantri MUDRA Yojana, self-employed women’s associations, producer organizations, state nodal agencies such as state forest departments, private traders, Gram Panchayats, NGOs, micro-credit institutions, funding organizations, civil society organizations and women’s SHGs are some of the key stakeholders for capacity building.

The following list of potential stakeholders could partner and collaborate in each of the following states:

### KARNATAKA

- Karnataka Forest Department
- Manuvikasa (NGO)
- Vrutti
- Association for Village Institutions, Social Health, Agriculture and Rural Development
- Sampark

### MAHARASHTRA

- Forest Development Corporation of Maharashtra Ltd.
- Kalpavriksha Environment Action Group
- Maharashtra Forest Department
- Vanashakti (NGO)

### ODISHA

- Odisha Forest Development Corporation
- Atma Sakti
- Mahila Shramjeebi Mancha (affiliated to Atma Sakti)
- Nirman Odisha
- Antaranga
- Udyama

### TELANGANA

- Telangana Forest Department
- Centre for People’s Forestry
- Aranya Agricultural Alternatives
- Nirmaan Organization
- Society for Elimination of Rural Poverty

### UTTARAKHAND

- Uttarakhand Rural Development Department
- G.B. Pant Institute of Himalayan Environment and Development
- Himalayan Institute for Environment Ecology and Development
- Central Himalayan Institute for Nature and Applied Research
- Uttarakhand Gramya Vikas Samiti

### Other Funding Organizations

- ActionAid India
- SEVA Charitable Trust
- Axis Bank Foundation
- Azim Premji Philanthropic Initiatives
- Coro India
- Letz Dream Foundation
- SBI Foundation
- Australian Aid
- Quaker Service Australia

<sup>49</sup> <https://www.nmpb.nic.in/content/e-charak-online-market-place-medicinal-plants>



5.

Annexures



## ANNEXURE

### 1. Peer Reviewers to the sectoral studies

Sectoral Chapters	Peer Reviewer
Renewable Energy	Dr. Srinivas Shroff Nagesha Rao, <i>Chief Executive Officer, REC Foundation</i>
Green Construction	Suneel Padale, <i>Director Programs, CARE India</i>
Green Transport	Hitesh Vaidya, <i>Director, NIUA</i>
Water Management	Moho Chaturvedi, <i>Consultant Water Resources and Environment</i>
Carbon Sinks- Forests	Vishaish Uppal, <i>WWF India</i>
Carbon Sinks- Marine Fisheries	Ramya Rajagopalan, <i>Independent Researcher</i>

### 2. Stakeholder Interaction

Name of Stakeholder	Designation	Organization
Mr. Pradeep Mohapatra	Team Leader	Udyama Odisha
Dr. Pradeep Mehta	Chairman	Central Himalayan Institute for Nature & Applied Research
Dr. T.R. Manoharan	International Member	Forest Stewardship Council
Prof. Prodyut Bhattacharya	Professor, Natural Resource Management	University School of Environment Management, GGS Indraprastha University
Mr. Narendra Mohan	Manager, Forest Commodities	Sustainable Business, WWF India
Dr. Parveen Dhamija	Advisor	Skill Council for Green Jobs
Dr. Vishaish Uppal	Director	Governance, Law & Policy at WWF India
Dr. Anupam Sarkar	Researcher	Agriculture Skill Council of India
Ms. Parvathy Nagarajan	Entrepreneur and Herbal Expert	Amirtha Herbals, Pitchandikulam Forest
Mr. Raja Ganesh	Director	Centre for Excellence in Sustainable Agriculture, Auroville

**Disclaimer:**

Due to COVID-19 pandemic and the travel restrictions, the report is purely based on secondary sources and information obtained by KPMG from organisations, experts and through stakeholder interactions. This report sets forth information based on the completeness and accuracy of the facts stated and any assumptions. The comments in the report are not intended, nor should they be interpreted to be legal advice or opinion.




UNDP works in about 170 countries and territories, helping to achieve the eradication of poverty, and the reduction of inequalities and exclusion. We help countries to develop policies, leadership skills, partnering abilities, institutional capabilities and build resilience in order to sustain development results.

**Follow us:**

 [www.in.undp.org](http://www.in.undp.org)

 [UNDP in India](#)

 [UNDP\\_India](#)

 [undpinindia](#)

 [UNDP in India](#)