

IPSI Case Study Summary Sheet

Basic Information

Title of case study			
Non-Timber Forest Products as Drivers of Sustainable Livelihoods and Biodiversity Conservation: A Case Study from the Gond and Baiga Tribal Communities of Central India			
Submitting IPSI member organization(s)			
Integrated Development Organisation, Bhopal, Madhya Pradesh, India			
Other contributing organization(s) (IPSI members and/or non-members)			
Indian Institute of Forest Management, Bhopal Madhya Pradesh			
Author(s) and affiliation(s)			
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Format of case study (manuscript or audiovisual)	Manuscript	Language	English
Keywords (3-5 key concepts included in the case study)			
NTFP, Tribes, Traditional Knowledge, Baiga livelihood			
Date of submission (or update, if this is an update of an existing case study)			
Web link (of the case study or lead organization if available for more information)			

Geographical Information

Country (where site(s) or activities described in the case study are located – can be multiple, or even “global”)							
India							
Location(s) (within the country or countries – leave blank if specific location(s) cannot be identified)							
Balaghat, Madhya Pradesh, India							
Longitude/latitude or Google Maps link (if location is identified)							
Latitude and longitude coordinates are: 21.812876, 80.183830.							
Ecosystem(s) (please place an “x” in all appropriate boxes)							
Forest	x	Grassland		Agricultural		In-land water	
Dryland		Mountain		Urban/peri-urban		Other (Please specify)	
Socioeconomic and environmental characteristics of the area							
Balaghat district in southeastern Madhya Pradesh spans 9,229 km ² with about 85% rural population [1]. It is home to Baiga, Gond, and Korku tribes, and is characterized by the Maikal hill ranges and fertile lowlands. The region’s forests are extensive and diverse [1], providing timber, medicinal plants, and a wealth of non-timber forest products (NTFPs) that are crucial for local subsistence, income, and cultural heritage. Baherakhar village (Bhimlat block) lies adjacent to these forest areas, where NTFPs provide important economic support for the community.							
Description of human-nature interactions in the area (land-use, traditional resource management practices etc. –							
Local tribal communities have a deep interdependence with the forest ecosystem. They traditionally collect a wide range of NTFPs – fruits, tubers, wild vegetables, nuts, honey, gum, medicinal herbs, bamboo, etc. – for food, health remedies, and income [2]. NTFPs act as a safety net during lean agricultural seasons or droughts, buffering livelihoods against crop failures. Indigenous knowledge of							

the forest has been passed down through generations, guiding sustainable harvesting practices that allow natural regeneration and help maintain biodiversity. Forests also hold spiritual significance; many cultural rituals and festivals revolve around seasonal cycles of flowering and harvest. However, modern pressures such as increased market demand for NTFPs, restricted access due to conservation laws, and the influence of urban culture are now straining these traditional practices and the human-nature balance in the area.

Contents

Note: The following fields are used for information about activities described in the case study or the production of the case study itself, and contents may vary depending on the nature of the case study. For example, a case study about on-the-ground activities may include the rationale, objectives etc. for the activities; a case study about a SEPLS-related policy may describe the policymaking process; or a case study describing a SEPLS may address particular practices used there. Please make an effort to fill as many fields as possible.

Status ("ongoing" or "completed")	Completed (05/22 – 07/23)	Period (MM/YY to MM/YY)	05/22 – 07/23
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Rationale (why activities or policies described, or information shared in the case study are needed)

The Baiga tribe – classified as a Particularly Vulnerable Tribal Group – relies heavily on NTFPs for daily subsistence and livelihood needs. External pressures (restricted forest access, shifting agricultural practices, and erosion of traditional knowledge) are significantly undermining this forest-dependent way of life. NTFPs are a critical safety net for forest communities across India (an estimated 275 million rural people depend on them for subsistence and cash income^[3]). Thus, addressing these challenges is vital to both improve tribal livelihoods and conserve biodiversity. A comprehensive intervention was initiated to support sustainable NTFP use, strengthen community resilience, and halt the decline of traditional ecological knowledge.

Objectives (goals of activities or policies described, or of producing the case study)

- 1) **Assess village profile:** Evaluate the socio-economic and demographic profile of Baherakhar village (community composition, land use, etc.).
- 2) **Document indigenous knowledge:** Record and preserve traditional knowledge related to NTFPs (e.g. medicinal uses, harvesting methods).
- 3) **Evaluate NTFP dietary role:** Analyze the contribution of NTFPs to dietary diversity and nutrition in the Baiga community's day-to-day life.

Activities and/or practices employed

- **Sustainable NTFP harvesting:** Promotion of traditional, sustainable collection practices (e.g. seasonal timing and selective harvesting) to avoid over-exploitation of resources.
- **Traditional agriculture:** Support for indigenous farming practices like shifting cultivation (bewar) complemented by cultivation of nutritious minor millets and tubers to reduce pressure on forests.
- **Community enterprises (Van Dhan Centers):** Establishment of *Van Dhan* Centers (government-supported community hubs) for value-addition, processing, and marketing of forest products such as mushrooms and wild mango pulp, thereby increasing income from NTFPs.
- **Knowledge-sharing workshops:** Conduct participatory workshops and inter-generational knowledge exchanges to foster the transmission of indigenous knowledge, build community capacity in sustainable resource use, and encourage youth engagement in NTFP-based activities.

Monitoring methodology (e.g. GIS-based monitoring, citizen science, Resilience Indicators in SEPLS, survey)

Satellite-based NDVI vegetation cover map (Aug 2023) used as a GIS monitoring tool to assess forest health in and around Baherakhar. To monitor the effectiveness of interventions, baseline and endline surveys were conducted to assess NTFP use, household livelihoods, and forest conditions. Key indicators

(NTFP availability, harvesting volumes, household income from NTFPs, dietary diversity) were tracked through regular surveys and market price monitoring. The Baiga community was involved in participatory monitoring – through focus group discussions, household interviews, and “forest walks” – to ensure local perspectives and traditional criteria (e.g. observations of flowering/fruitle cycles) inform the evaluation. Socio-economic impact assessments were carried out to gauge changes in income and well-being. In addition, GIS-based tools (such as analysis of Normalized Difference Vegetation Index imagery) were used to remotely monitor forest cover and vegetation health over time, providing quantitative evidence of ecological outcomes.

Results

The case study highlights both the importance of NTFPs and the challenges faced by the Baiga of Baherakhar. Traditional ecological knowledge is fading – only about 55% of surveyed households reported having substantial indigenous knowledge of forest products, with the rest admitting little or none (attributed to restricted youth engagement, migration, and weakened knowledge transmission). Despite the community cultivating four types of millets, NTFPs remain a vital component of their livelihood and diet. However, access and commercialization of NTFPs are fraught with difficulties. Survey results indicate several key barriers hindering sustainable NTFP-based livelihoods: poor market conditions (cited by ~78% of respondents as a major issue, due to limited buyers and remote location), restrictive forest regulations (Forest Department limits on collection inside protected areas), low prices for raw products, and significant post-harvest losses (spoilage due to inadequate storage and processing) were among the top challenges. Consequently, average household income from NTFPs has declined sharply – previously around ₹20,000–30,000 per year, now nearly negligible [4]. This loss of forest income underscores the need for improving resource management and value addition. On a positive note, the introduction of community-led initiatives is showing promise: for example, the new Van Dhan Center has begun to bolster sustainable livelihoods by training villagers in processing NTFPs (such as drying mushrooms and producing mango powder), which has opened up alternative income streams. These early successes suggest that with better market linkages, capacity building, and supportive policies, NTFPs could once again become drivers of improved income and food security for the tribe.

Lessons learned *(factors in success or failure, challenges and opportunities)*

Several important lessons emerged regarding factors in success and ongoing challenges. First, community engagement and leveraging of indigenous knowledge are *essential* for the success of any intervention – when the Baiga are active partners, conservation and livelihood initiatives are more culturally appropriate and effective. The establishment of Van Dhan Centers has illustrated the value of adding local processing: NTFP value-addition (e.g. making mushroom powder or herbal products) can significantly boost incomes and has been well-received, demonstrating a viable path for NTFP-based micro-enterprises. However, persistent challenges temper these successes. Access restrictions (e.g. expanded protected areas and enforcement patrols) and the loss of traditional knowledge (due to youth migration and waning interest) continue to impede NTFP use. Market conditions remain unfavorable – weak rural infrastructure and lack of buyers result in low pricing that undermines the economic viability of NTFP collection. These factors, coupled with limited storage and processing facilities, mean a large portion of harvests is lost or sold at minimal value. To overcome these hurdles, capacity building and stronger partnerships are needed. For instance, training programs can improve product quality and diversification, and forging partnerships with government agencies and NGOs can facilitate better market access (fair pricing, transportation) and supportive policies (e.g. co-management of forests with local

communities). In summary, empowering the community through knowledge, organizational support, and policy linkages is crucial to sustain and scale the benefits of NTFP-based livelihoods.

Funding (any relevant information about funding of activities or projects described in the case study)

The study was funded by the **Integrated Development Organisation (IDO)**, which supported field surveys and community training programs as part of its rural livelihoods initiative.

Contributions to Global Agendas

CBD Kunming-Montreal Global Biodiversity Framework (<https://www.cbd.int/gbf/targets/>)

Please place an "x" under a number to rate how much this case study contributes to each CBD Target.

Note 1: The number scale goes from 1, the lowest rating, to 5, the highest rating. N/A indicates "not applicable".

Note 2: Please only mark those to which the case study has or will actually contribute, not those to which it could potentially contribute in the future.

This case study contributes to several targets of the *CBD Kunming–Montreal Global Biodiversity Framework* by linking sustainable use of biodiversity with community well-being. It advances **Target 5** (sustainable use, harvesting and trade of wild species) through the promotion of regulated NTFP harvesting that respects ecological limits. By involving indigenous people in conservation and benefit-sharing, it supports **Target 3** (equitable management of protected areas and other effective area-based conservation measures, recognizing indigenous territories) and **Target 1** (participatory integrated land-use planning to reduce biodiversity loss). The focus on restoring degraded lands and traditional agroforestry practices touches on **Target 2** (ecosystem restoration and connectivity), while the reduction of forest product waste and promotion of organic alternatives aligns with **Target 7** (reducing pollution and harmful resource use). Importantly, by improving local livelihoods and fostering fair trade of forest products, the project addresses **Target 9** (ensuring benefits from wild resources are sustainable and equitably shared, thereby supporting local needs). Overall, the initiative demonstrates a practical model for achieving biodiversity conservation alongside sustainable development for indigenous communities – a priority emphasized in global biodiversity and sustainable livelihood agendas.

Target		Description	Contribution					
			1	2	3	4	5	N/A
1. Reducing threats to biodiversity	1	Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.					x	
	2	Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.						x
	3	Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably					x	

2. Meeting		governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.						
	4	Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.					X	
	5	Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.					X	
	6	Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites, such as islands.						X
	7	Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) by reducing excess nutrients lost to the environment by at least half, including through more efficient nutrient cycling and use; (b) by reducing the overall risk from pesticides and highly hazardous chemicals by at least 8half, including through integrated pest management, based on science, taking into account food security and livelihoods; and (c) by preventing, reducing, and working towards eliminating plastic pollution.						X
	8	Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solution and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.					X	
2. Meeting	9	Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services					X	

3. Tools and solutions for implementation and		that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.						
	10	Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.					X	
	11	Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.					X	
	12	Significantly increase the area and quality, and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature, and contributing to inclusive and sustainable urbanization and to the provision of ecosystem functions and services.					X	
	13	Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.					X	
	14	Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of this framework.					X	
	15	Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains, and portfolios;					X	

	(b) Provide information needed to consumers to promote sustainable consumption patterns; (c) Report on compliance with access and benefit-sharing regulations and measures, as applicable; in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.						
16	Ensure that people are encouraged and enabled to make sustainable consumption choices, including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation, in order for all people to live well in harmony with Mother Earth.					X	
17	Establish, strengthen capacity for, and implement in all countries, biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.					X	
18	Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least \$500 billion per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.						X
19	Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, mobilizing at least \$200 billion per year by 2030, including by: (a) Increasing total biodiversity related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed country Parties, to developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, to at least \$20 billion per year by 2025, and to at least \$30 billion per year by 2030; (b) Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance plans or similar instruments according to national needs, priorities and circumstances; (c) Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments;						X

	(d) Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms, with environmental and social safeguards; (e) Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises; (f) Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions[1] and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity; (g) Enhancing the effectiveness, efficiency and transparency of resource provision and use;						
20	Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework.						X
21	Ensure that the best available data, information and knowledge are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent,[2] in accordance with national legislation.						X
22	Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.						X
23	Ensure gender equality in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.						X

UN Sustainable Development Goals (SDGs) (<https://sustainabledevelopment.un.org/sdgs>)

Please place an "x" in the "direct" or "indirect" boxes next to any of the UN Sustainable Development Goals to which the work described in this case study contributes as appropriate. Note: please mark only those that the case actually has made or is making a contribution, not those to which it could make a potential contribution in the future.

SDG	Description	Direct	Indirect
	End poverty in all its forms everywhere	X	
	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	X	
	Ensure healthy lives and promote wellbeing for all at all ages	X	
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all		X
	Achieve gender equality and empower all women and girls	X	
	Ensure availability and sustainable management of water and sanitation for all		X
	Ensure access to affordable, reliable, sustainable and modern energy for all		
	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all	X	
	Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation		X
	Reduce inequality within and among countries	X	
	Make cities and human settlements inclusive, safe, resilient and sustainable		X
	Ensure sustainable consumption and production patterns	X	
	Take urgent action to combat climate change and its impacts	X	

	Conserve and sustainably use the oceans, seas and marine resources for sustainable development		X
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss	X	
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	X	
	Strengthen the means of implementation and revitalise the global partnership for sustainable development	X	

[\[1\]](#) [\[2\]](#) [\[3\]](#) IPSI Case Study - NTFP 08-08-25.pdf

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[\[4\]](#) IPSI Case Study - NTFP Case Study_ Updated Tables and Figures - AI.docx

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