

Transforming Livelihood of the Forest Communities in Uttarakhand



A Study of the UFRMP-JICA Livelihood Model



Sankala Foundation

Sankala Centre for Climate and Sustainability





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December 2024

**Project Advisor**

Amitabh Agnihotri, Distinguished Fellow

Research Team

Dr Pramod K. Yadav
Shivani Solanki
Disha Sandeep Joshi

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Designers: Anuradha Sen & Bipro Kumar Sen

Front cover & inside cover photographs: SHG members of UFRMP-JICA in Rohada, Gairsain of Ranikhet Forest Division

Inside back cover photograph: SHG members of UFRMP-JICA performing a folk dance after PRA

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Sankala Foundation

(Sankala Centre for Climate and Sustainability)
414 - 416, Block B, Somdutt Chambers 1,
Bhikaji Cama Place, New Delhi- 110 066, India

Email: admin@sankala.org

Website: www.sankala.org

Phone: +91-8800123344

Inspiration



Over a period of time,
Self-Help Groups turn into
Nation-Help Groups.

Shri Narendra Modi

Hon'ble Prime Minister of India

(Women Self-Help Groups Conference in Karahal,
Madhya Pradesh, 17 September, 2022)

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Abbreviations

ADS	Area Development Society	MIS	Monitoring Information System
BMMUs	Block Mission Management Units	MS	Marketing Specialists
CCL	Cash Credit Limit	NABARD	National Bank for Agriculture and Rural Development
CDS	Community Development Society	NGHs	Neighbourhood Groups
CEO	Chief Executive Officer	NGOs	Non-Governmental Organisations
CITH	Central Institute of Temperate Horticulture	NRLM	National Rural Livelihood Mission
CLFs	Cluster-level Federations	NTFPs	Non-Timber Forest Products
CPD	Chief Project Director	PAs	Protected Areas
CSA	Community Supported Agriculture	PMC	Public Management Committees
DAC	District Advisory Committee	PMU	Project Management Unit
DFO	Divisional Forest Officer	PRA	Public Rural Appraisal
DMMUs	District Mission Management Units	RF	Reserve Forest
DMU	Divisional Management Unit	RRA	Rapid Rural Assessment
EC	Executive Committee	SC	Scheduled Castes
FLCs	Field Level Coordinators	SGSY	Swarnjayanti Gram Swarozgar Yojana
FMU	Field Management Unit	SHG	Self-Help Group
FNGOs	Field-level Non-governmental Organisations	SLF	Sustainable Livelihood Framework
GPs	Gram Panchayats	SRLM	State Rural Livelihood Mission
HPC	High-Powered Committee	ST	Scheduled Tribes
IFS	Indian Forest Service	SWOT	Strength, Weakness, Opportunities and Threat
ILSP	Integrated Livelihood Support Project	UFRMP	Uttarakhand Forest Resource Management Project
ISC	Inter-Sectoral Convergence	UFRMS	Uttarakhand Forest Resource Management Society
JICA	Japan International Cooperation Agency	UGVS	Uttarakhand Gramya Vikas Samiti
LSGs	Local Self-governments	USRLM	Uttarakhand State Rural Livelihood Mission
MAPs	Medicinal and Aromatic Plants	UWF	Uttarakhand Women's Federation
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act		

Note on Study

With immense pride and enthusiasm, I present a study of the livelihood model of the Uttarakhand Forest Resources Management Project (UFRMP), which is financially supported by the Japan International Cooperation Agency (JICA). The UFRMP was conceived with the vision of effectively conserving and managing Uttarakhand's forest resources and empowering local communities through sustainable livelihood opportunities.

The UFRMP-JICA also recognises the intrinsic link between the sustainability of natural resources and economic stability and aims to create a harmonious balance where both can thrive.

The livelihood initiatives under the UFRMP-JICA are designed to be holistic, inclusive, and adaptive to Uttarakhand's rural communities' unique needs and strengths. These comprehensive initiatives include promoting a sustainable value chain approach to developing skills through capacity-building programmes and microfinance and facilitating market linkages for locally grown produce.

The local communities are beneficiaries and active and valued participants in the UFRMP-JICA livelihood model. Their role is integral to the development process. The UFRMP-JICA emphasises participatory planning and community engagement, fostering a sense of ownership and stewardship among the local populace. This approach is key to creating sustainable and resilient ecosystems and economies in the Himalayas, making the local communities feel valued and integral to the project.

This study, conducted by the Sankala Foundation, marks the beginning of a detailed exposition of UFRMP-JICA initiatives for alternative livelihood and natural resources management at Self-Help Groups (SHGs).

The Sankala Foundation is a non-profit organisation registered in 2022 under Section (8) of India's Companies Act, 2013. Its primary focus is on expanding the knowledge base and encouraging discourse among various stakeholders that contribute to addressing issues related to climate change and ensuring sustainability. Sankala is deeply committed

to minimising the effects of climate change and environmental disasters, particularly on vulnerable communities.

Sankala, a Hindi word that encapsulates the concept of 'all elemental units coming together as one', serves as the guiding force behind the foundation and offers a solid platform for synergy of information, ideas, and energy to contribute to making a climate-resilient and sustainable world.

The Sankala Foundation set out to study the implementation and governance process of the alternate livelihood improvement model under UFRMP-JICA. The foundation's expertise in research and evidence-based solutions has uniquely positioned it to evaluate the effectiveness of these models, ensuring they meet the evolving needs of transforming the livelihood of forest communities in Uttarakhand. Through this empirical research, the Sankala Foundation seeks to contribute to region's sustainable development, enhancing the local communities' well-being and economic stability.

This study's outcome provides insightful perspectives on how successful sustainable management practices can uplift rural communities, enhance economic opportunities, and contribute to the region's overall well-being. This report is a testament to the power of collaboration, innovation, and the unwavering spirit of the mountain dwellers of Uttarakhand, instilling a sense of optimism and hope for the future.

I would like to express my sincere appreciation to the team at Sankala Foundation for their invaluable contribution in assessing the impact and governance process of the UFRMP-JICA initiatives and providing recommendations. The study's outcome is insightful and instrumental for the UFRMP-JICA's strategic planning and interventions to ensure sustainable forest resources management and community empowerment at the grassroots level.

Amitabh Agnihotri
Distinguished Fellow

Executive Summary

Uttarakhand is located in the central Himalayas, with rich biological diversity and 45.8% of the forest cover. The state is home to around 1.1 crore (10.1 million) people, 69.4 % of which reside in rural areas and depend on forest resources for their subsistence. The unsustainable use of these resources has led to biodiversity loss and posed challenges to the livelihoods of forest fringe communities.

To address this, the Uttarakhand Forest Resources Management Project (UFRMP), in collaboration with the Japan International Cooperation Agency (JICA), Government of Japan, started an initiative in 2015 to ensure sustainable forest management that conserves biodiversity and improves the livelihoods of local communities.

To achieve these goals, the UFRMP-JICA has created 20 cluster federations to build a robust ecosystem that supports micro-enterprise growth through 1,503 Self-Help Groups (SHGs) within 839 Van Panchayats (VPs) across 13 state forest divisions. The cluster federation works with the Forest Department and SHGs with an integrated approach that addresses economic, social, and environmental dimensions by focusing on sustainable practices, capacity building, market access, and infrastructure development.

The UFRMP-JICA empowers SHGs to undertake sustainable forest management

activities and income-generating ventures (i.e., value chains), enhancing livelihood capital among forest communities at the household level.

The present study aims to evaluate the implementation process and understand the governance structure of the UFRMP-JICA initiatives in achieving their objectives. To accomplish this, a mixed-method conservation social science research methodology was employed. Primary quantitative data was collected through household surveys with forest-fringe communities and the UFRMP-JICA's project management units. Qualitative data was also sourced through Participatory Rural Appraisal (PRA) and key informant interviews. Furthermore, the Sustainable Livelihoods Framework (SLF) was applied to assess the impacts of the livelihood activities implemented through SHGs. Additionally, the study adapted the principles of good environmental governance (i.e., legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability, and adaptability) to evaluate the UFRMP-JICA's implementation process.

This study depicts the results and recommendations using large-scale survey and PRA data from 1,079 rural households in 166 SHGs within 95 VPs of Uttarakhand. The

results provide evidence of how project implementation has helped grow livelihood capitals (i.e., social, financial, human, physical, and natural capital) through adapting principles of environmental governance. For example, capacity-building programmes have been imparted to the local communities to encourage them to adopt various value chains initiated by the UFRMP-JICA. Therefore, more diverse local produce is produced on a large scale, including millet, spices, cow ghee, mushrooms, and processed fruits (i.e., apple, pear, peach, plum, apricot) and sold in the market.

The analysis suggests a significant boost in physical capital (i.e., the building of growth centres and value-addition facilities) has been evident in implementing various infrastructures that foster sustainable livelihood opportunities for local communities. There has been noticeable progress in enhancing the skills and capabilities of SHG members (human capital) to foster sustainable forest management and strengthen the livelihoods of the communities. Financially, households have experienced considerable improvement in income and capacity for expenditure, alongside the emergence and growth of diverse livelihood strategies. Socially, significant advancements have occurred, particularly women empowerment and government-community relations.

The SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis provides insights into the internal and external factors influencing the value chains and SHGs supported by the UFRMP-JICA. The outcome of the SWOT can be used by the UFRMP-JICA for strategic planning and interventions to capitalise on strengths, address weaknesses, seize opportunities, and mitigate threats to sustainable development and empowerment of communities at the grassroots level.

The study concludes that there is enormous potential among SHGs to participate in horticulture, apiculture, and livestock rearing to reduce the community's dependence on forests. Indeed, the UFRMP-JICA has led the successful implementation of activities to mitigate forest degradation in designated areas by fostering sustainable livelihoods for the local communities.

The governance of the SHGs and cluster-level federations is robust. The UFRMP-JICA also ensures that social programmes and microfinance initiatives, such as revolving funds, effectively reach the target SHGs, amplifying the project's impact on achieving sustainable forest management and alternative livelihoods. However, enhanced financial inclusion strategies, such as better access to microfinance and low-interest loans, are crucial to running the federation in the future.

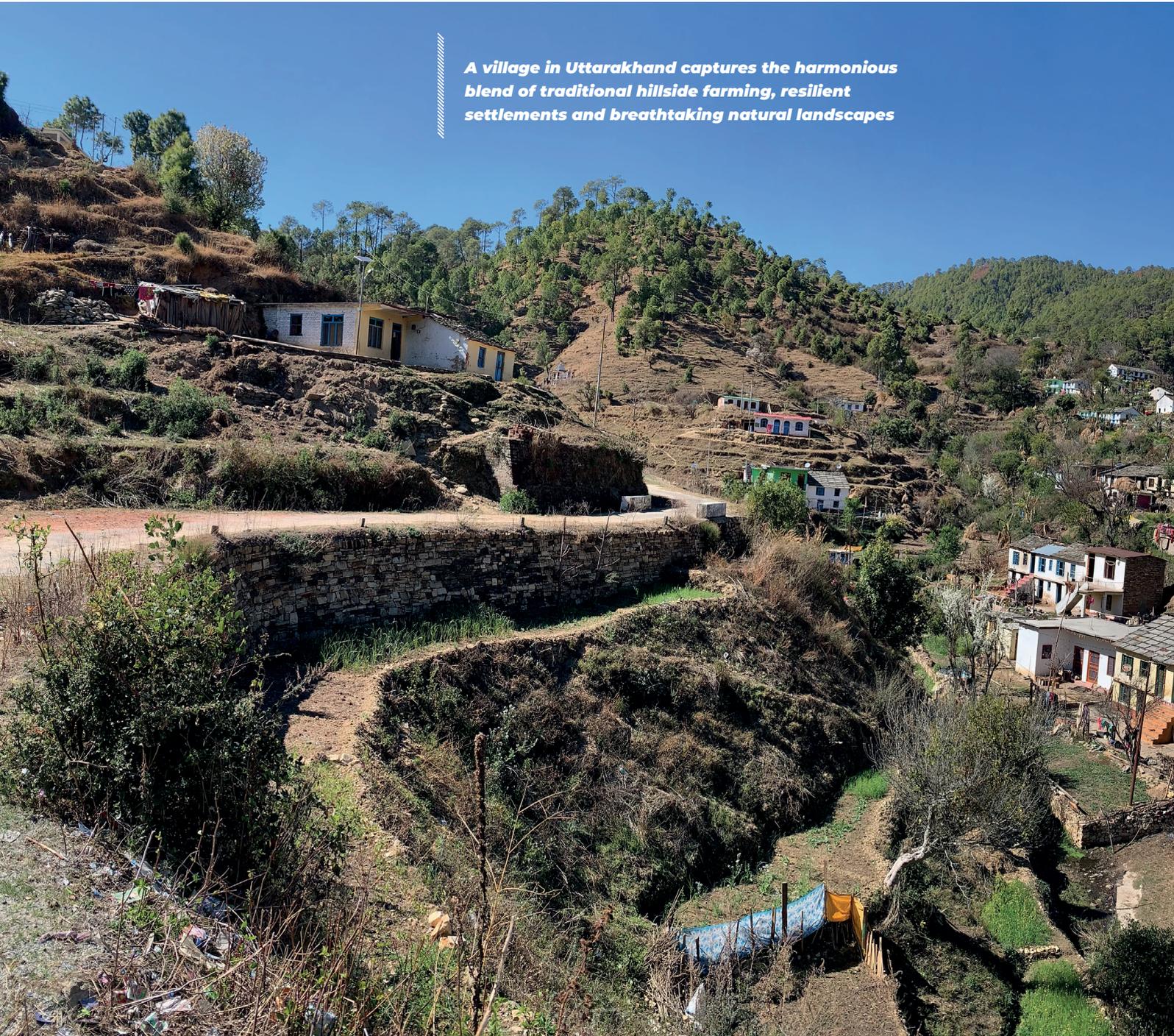
CHAPTER 01

Forest and Livelihoods

Uttarakhand is located in the central Himalayas with significant biodiversity hotspots and has about 46% of the forest cover. The state has various endangered species, including the Himalayan black bear, tigers, musk deer and pangolins. Its diverse ecosystems also support medicinal plant species, such as aconitum,

gentiana and nardostachys. Such biological diversity and forest resources enhance the region's ecological value and support local communities' livelihoods through agriculture, horticulture, ecotourism and other traditional practices. However, the state faces numerous challenges due to the high dependency of local communities on forest resources as

A village in Uttarakhand captures the harmonious blend of traditional hillside farming, resilient settlements and breathtaking natural landscapes



their source of subsistence income, leading to deforestation.

Therefore, there is a need to develop a sustainable livelihood that emphasises using local resources which are ecologically sound, economically viable, and socially acceptable to the community. Sustainable livelihood is an umbrella term that defines a systematic approach to improving local communities' resilience and capacity to adapt to climatic and economic shifts.

The sustainability of the forest communities' livelihoods, particularly in the forest fringe areas, is a primary concern. Sustainable practices

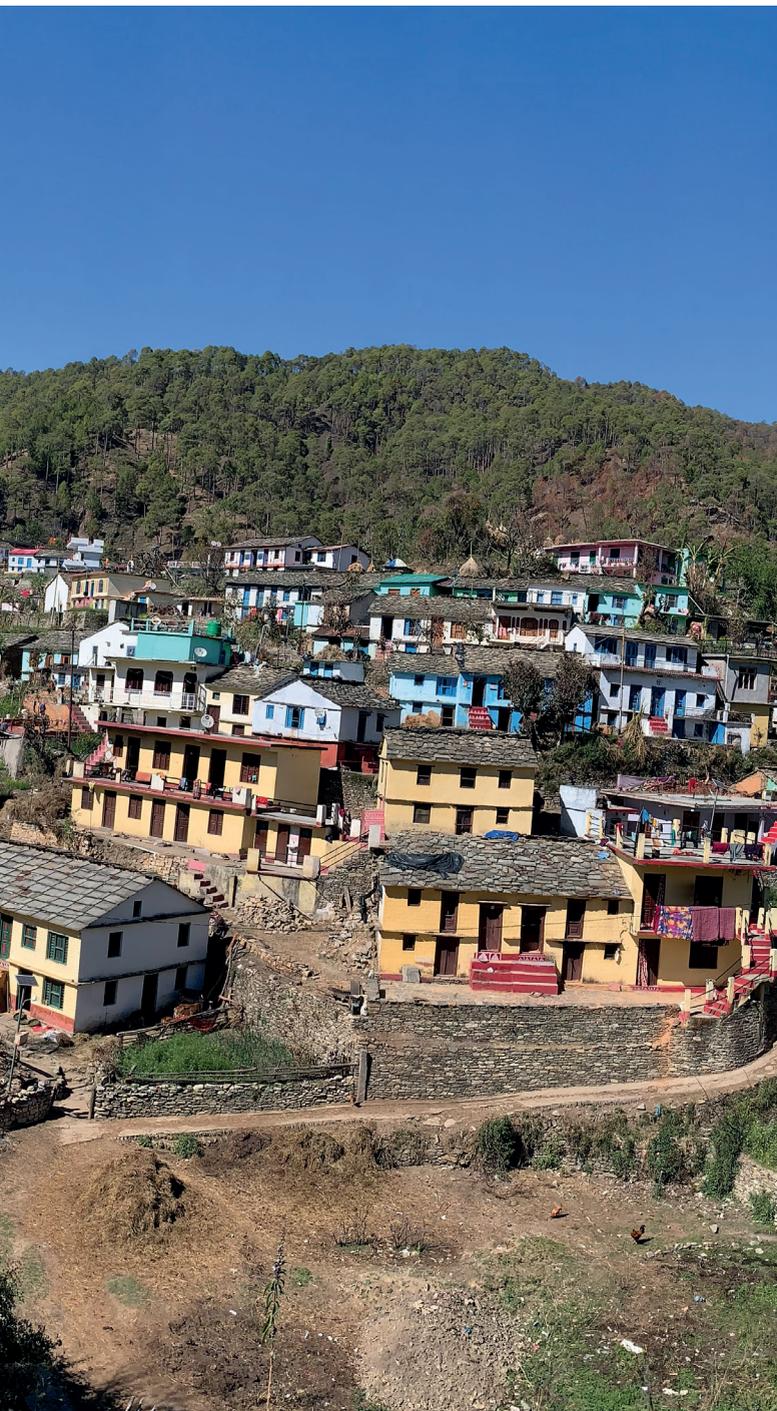
entail enhancing capability, promoting equity, and bolstering social sustainability. A livelihood or community is deemed sustainable when it can withstand and recover from stressors and shocks, maintain or improve its assets (i.e. social, physical, natural, human, and economic capitals) and capabilities, and provide viable livelihood opportunities for future generations (Chauhan et al. 2021).

The level of vulnerability varies based on the costs of coping mechanisms, mitigation measures, and communities' adaptive capacity, which may differ between affluent and impoverished communities. Sustainable livelihoods for forest communities in Uttarakhand represent a critical intersection of environmental conservation, financial stability, and social equity. Therefore, Uttarakhand, an eco-sensitive Indian Himalayan state with widespread rural poverty, has implemented medium- and long-term poverty alleviation programmes. The state has also formulated policies for remarkable poverty reduction and sustainable natural resource management to build resilient communities and the environment.

1. Livelihood Programmes in India

India's rural landscape has around 70% of the population, which is largely dependent on agriculture. It has been grappling with issues of poverty, unemployment, limited access to education and healthcare, and unsustainable use of natural resources. To address these challenges, the Indian government, in collaboration with NGOs and international agencies, has implemented a series of transformative rural livelihood programmes. These initiatives aimed to enhance the socio-economic conditions of rural communities, offering hope for a brighter future.

The primary objective of these programmes is to provide sustainable livelihood opportunities to rural communities, thereby reducing poverty and improving quality of life. These initiatives encompass various strategies, including agricultural development, skill enhancement, employment generation, financial inclusion,



and infrastructure development. Notable programmes in this regard are the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the National Rural Livelihoods Mission (NRLM), and various state schemes, including the Uttarakhand State Rural Livelihood Mission (USRLM) and Kerala's Kudumbashree. This literature review, drawing from a diverse range of scholarly articles, research reports, and policy analyses, offers a comprehensive understanding of the implemented objectives, impact, and challenges of MGNREGA, NRLM, USRLM, and Kudumbashree, providing a solid foundation for informed decision-making related to UFRMP-JICA.

1.1. Mahatma Gandhi National Rural Employment Guarantee Act

The MGNREGA, enacted in 2005, represents one of India's most significant social safety net programmes to address rural poverty and unemployment. It was designed to provide wage employment and create durable assets in rural areas of the country. Its core objective is to guarantee at least 100 days of wage employment in a financial year to every rural household whose adult members volunteer to do unskilled manual work. This legislative act enhances livelihood security, reduces rural distress, and empowers marginalised communities, particularly women and lower-caste individuals.

The implementation of MGNREGA is decentralised, involving multiple layers of governance from the central to the local level. Gram Panchayats play a pivotal role in the planning and executing projects under MGNREGA, ensuring that local needs and priorities are addressed. Research indicates that MGNREGA has significantly increased employment opportunities, particularly during the agricultural off-season, stabilising rural incomes and reducing seasonal migration (Das, 2016; Sahu et al., 2022). The programme has also contributed to poverty reduction by providing a stable source of income to rural households, leading to improved food security



A human settlement at the forest fringe

and increased household expenditure on education and health.

One of the critical aspects of MGNREGA is its focus on creating durable assets such as roads, irrigation facilities, and water conservation structures. Although these assets have positively impacted agricultural productivity and rural infrastructure development (Nalgire

& Chinnasamy, 2022; Natesan & Marathe, 2023), the quality and sustainability of these assets have been points of concern. Several studies (Parida, 2016; Patwardhan & Luca, 2023) point to better planning, monitoring, and maintenance to ensure that the assets created under MGNREGA serve their intended purposes effectively.

The MGNREGA has been instrumental in promoting social equity by providing employment opportunities to marginalised groups, including SCs, STs, and women. The programme mandates that at least one-third of the beneficiaries should be women, which has led to increased female labour force participation and empowerment. Women's involvement in MGNREGA has also increased household financial independence and decision-making power.

Despite its achievements, MGNREGA faces several challenges, such as delayed wage payments, underutilisation of allocated funds, and mismanagement, which have been widely documented (Narayanan et al., 2017). Furthermore, there is evidence of corruption and irregularities in the implementation process, including falsifying job cards and muster rolls (Mathur, 2017). Moreover, issues such as bureaucratic delays, corruption, and inadequate capacity at the local level often hinder efficient implementation. These systemic issues undermine the programme's effectiveness and call for more robust oversight mechanisms and policy reforms to address these challenges.

The literature has emerged with several policy recommendations to enhance the effectiveness of MGNREGA (Sahu et al., 2022; Patwardhan & Luca, 2023). These include improving the efficiency of fund flow and wage payment systems, strengthening the capacity of local governance institutions, and ensuring better planning and execution of asset creation projects. Additionally, leveraging technology for better monitoring and transparency and fostering community participation are suggested to strengthen the programme.

The MGNREGA has profoundly impacted rural India by providing employment, reducing poverty, and promoting social equity. While



One of the critical aspects of MGNREGA is its focus on creating durable assets such as roads, irrigation facilities, and water conservation structures

the programme has achieved significant successes, it faces challenges that must be addressed to maximise its potential. Future research and policy efforts should focus on improving implementation mechanisms, ensuring transparency, and enhancing the sustainability of assets created under the programme. By addressing these issues, MGNREGA can continue to serve as a vital tool for rural development and poverty alleviation in India.

1.2. National Rural Livelihood Mission

The NRLM was launched by the Government of India in 2011 to alleviate rural poverty by creating sustainable livelihood opportunities for the rural poor. It seeks to mobilise the poor, especially women, into SHGs and provide them with necessary skills, financial services, and market linkages. The primary objective of NRLM is to reduce rural poverty by enabling poor households to access gainful self-employment and skilled wage employment opportunities. NRLM focuses on building strong grassroots institutions for the poor, enhancing their capacities, providing financial resources, and facilitating market access. It emphasises the empowerment of women and marginalised



The NRLM has significantly contributed to rural poverty alleviation and women's empowerment in India

communities by forming SHGs, which serve as platforms for social and economic development.

The NRLM operates through a decentralised implementation framework that strongly emphasises community participation. The programme is implemented in a phased manner across the country, starting with resource-intensive blocks to build capacity and demonstrate successful models. The governance structure of NRLM includes the Ministry of Rural Development at the central level, State Rural Livelihoods Missions (SRLMs) at the state level, and District and Block Missions at the local levels. This multi-tiered structure ensures that the programme is responsive to local needs and contexts.

Evidence suggests that NRLM has significantly alleviated poverty by increasing household incomes and enhancing asset ownership among the rural poor (Kochar et al., 2022; Sha et al., 2024). The formation of SHGs has played a crucial role in providing financial stability to rural households through access to credit and savings. Furthermore, NRLM has facilitated skill development and provided employment opportunities, thereby improving the livelihoods of its beneficiaries.

The NRLM strongly emphasises women's empowerment by ensuring active SHG

participation. Research indicates that involvement in SHGs under NRLM has increased financial independence, improved decision-making power, and greater social capital among women (Mishra & Debata, 2021; Das, 2022). The collective nature of SHGs fosters solidarity and mutual support, which contributes to women's overall empowerment. Additionally, NRLM has successfully enhanced women's leadership skills and participation in local governance.

A key NRLM component is promoting financial inclusion by linking SHGs with formal financial institutions. Studies highlight that NRLM has made significant strides in enhancing the economic inclusion of the rural poor by facilitating access to bank credit, insurance, and other financial services. This has enabled SHG members to undertake various income-generating activities, improving their economic resilience. The SHG-bank linkage programme has effectively ensured affordable credit availability to the rural poor.

Despite its successes, studies highlight that NRLM faces several challenges, such as uneven implementation across states, inadequate capacity building, and delays in fund disbursement, which have been widely reported (Pandey & Gupta, 2022; Rajpoot et al., 2023). Additionally, there are concerns about the quality and sustainability of SHGs, with some studies pointing to the need for better training and support mechanisms. Integrating marginalised groups, such as SCs and STs, into NRLM activities remains a critical challenge. Furthermore, the impact of NRLM on market access and value chain development has been limited, necessitating greater focus on these areas.

The NRLM has significantly contributed to rural poverty alleviation and women's empowerment in India. While the programme has achieved notable successes, addressing the implementation, capacity building, and market access challenges is essential for its sustained impact. Future research and policy efforts should focus on enhancing the quality and sustainability of SHGs, improving financial inclusion, and fostering partnerships to maximise the benefits of NRLM. By addressing

these challenges, NRLM can continue to play a pivotal role in transforming the livelihoods of the rural poor in India.

1.3. Kudumbashree

Kudumbashree was launched in 1998 by the Government of Kerala. Its primary objectives are eradicating poverty by empowering women by fostering SHGs and providing them with self-employment and income-generation

opportunities through the thrift and micro-credit programme. The programme focuses on enhancing the socio-economic status of women, improving their financial independence, and promoting community development through a participatory approach. It aims to achieve holistic development by addressing education, health, and social inclusion issues.

Kudumbashree operates through a three-tiered structure: Neighbourhood Groups (NHGs), Area Development Societies (ADS),



Agriculture dominated landscape of Uttarakhand



The local communities have secured better product prices by strategically developing marketing strategies through value chain development

and Community Development Societies (CDS). This decentralised model ensures grassroots participation and local governance, with women at the centre of decision-making processes. The programme is implemented by the Kudumbashree Mission, which works in collaboration with local self-governments (LSGs) to plan, execute, and monitor various initiatives. This institutional framework has been instrumental in fostering community engagement and ensuring the sustainability of SHGs.

Studies show that the programme has increased household incomes, improved asset ownership, and enhanced financial stability among members (Rajagopal, 2020; Venugopalan et al., 2021). Further, they have enabled women to access microcredit, facilitating the start-up and expansion of small enterprises in sectors such as agriculture, animal husbandry, and handicrafts. This has led to the diversification of income sources and reduced economic vulnerability.

Kudumbashree has been particularly successful in promoting women's empowerment. Participation in SHGs has increased financial independence, enhanced decision-making power, and greater social capital among women. The programme has also improved women's access to education, healthcare,

and social services, contributing to their overall well-being. Studies (Muhammed & Reddy, 2019; Kasmirand & Sati, 2024) highlight that Kudumbashree has fostered leadership skills and encouraged active participation of women in local governance and community development activities.

A key component of Kudumbashree is enhancing financial inclusion by linking SHGs with formal financial institutions. The SHG-bank linkage programme has significantly improved access to affordable credit, enabling members to undertake various income-generating activities and invest in productive assets (Chathukulam & Tharamangalam, 2021; Venugopalan et al., 2021). This has improved economic resilience and reduced reliance on informal sources of credit from money lenders and middlemen.

Despite its successes, Kudumbashree faces several challenges. For instance, uneven implementation across regions, bureaucratic delays, and inadequate capacity building have been reported. There are concerns regarding the sustainability of SHGs, with some studies indicating the need for continuous support and monitoring. Additionally, the integration of marginalised groups, such as SCs and STs, into Kudumbashree activities remains a critical challenge. The programme's impact on market access and value chain development has also been limited, necessitating greater focus.

Several policy recommendations have emerged from the literature to enhance Kudumbashree's effectiveness. These include strengthening the capacity of implementing agencies, improving monitoring and evaluation mechanisms, and ensuring timely fund flow. Enhancing the quality of SHGs through continuous capacity building and support is crucial. Additionally, there is a need to focus on market linkages and value chain integration to ensure sustainable livelihoods. Promoting digital financial inclusion and leveraging technology for better implementation and transparency are also important.

Kudumbashree has significantly contributed to poverty alleviation and women's empowerment in Kerala. It is essential to address implementation, capacity building, and market

access challenges for its sustained impact. Future research and policy efforts should focus on enhancing the quality and sustainability of SHGs, improving financial inclusion, and fostering partnerships to maximise Kudumbashree's benefits. By addressing these challenges, Kudumbashree can continue to play a pivotal role in transforming the livelihoods of the rural poor in Kerala.

1.4. Uttarakhand State Rural Livelihood Mission

The Uttarakhand State Rural Livelihood Mission (USRLM) is a state-specific initiative aligned with India's broader national NRLM. It aims to improve the livelihoods of rural households in Uttarakhand by promoting sustainable self-employment and skilled wage employment opportunities. The USRLM seeks to enhance the socio-economic status of the rural poor in Uttarakhand by mobilising them into SHGs and federations. The mission aims to build strong grassroots institutions, provide access to financial services, promote skill development, and facilitate market linkages. A significant focus is placed on empowering women and marginalised communities by ensuring their inclusive growth.

The implementation of USRLM involves a multi-tiered structure, with the SRLM overseeing operations at the state level, District Mission Management Units (DMMUs) at the district level, and Block Mission Management Units (BMMUs) at the block level. This decentralised approach caters to local needs and ensures effective service delivery. The formation and nurturing of SHGs are central to the mission, with community resource persons playing a crucial role in mobilisation and capacity building.

The USRLM has positively impacted the livelihoods of rural households in Uttarakhand and increased household incomes, asset ownership, and financial stability among SHG members. The mission has facilitated access to credit, enabling members to undertake various income-generating activities such as agriculture, animal husbandry, and small enterprises. Furthermore, providing skill

training has improved employment prospects for rural youth and women, contributing to overall poverty reduction.

The USRLM has been particularly successful in promoting women's empowerment. Women's participation in SHGs has increased financial independence, enhanced decision-making power, and greater social capital. Women's involvement in SHG activities has also improved their access to education, healthcare, and other social services. The mission's focus on social inclusion has helped integrate marginalised groups, such as SCs, STs, and OBCs, into the mainstream development process.

One of the key components of USRLM is to enhance financial inclusion by linking SHGs with formal financial institutions. Studies highlight that the mission has significantly improved access of rural households to credit and savings. The SHG-bank linkage programme has provided affordable credit to the rural poor, facilitating investment in productive assets and income-generating activities. This has improved economic resilience and reduced the dependency on informal sources of credit.

Despite its achievements, USRLM faces several challenges, such as uneven implementation across districts, delays in fund disbursement, and inadequate capacity building. There are concerns regarding the sustainability of SHGs, with some studies (Rajesh et al., 2018; Kumar et al., 2019) indicating a need for continuous support and monitoring. Additionally, the integration of marginalised groups remains uneven, with specific areas witnessing better inclusion than others. The mission's impact on market access and value chain development has also been limited, necessitating greater focus.

To enhance the effectiveness of USRLM, several policy recommendations have emerged from the literature. These include strengthening the capacity of implementing agencies, improving monitoring and evaluation mechanisms, and ensuring timely fund flow. Enhancing the quality of SHGs through continuous capacity building and support is crucial. Additionally, there is a need to focus on market linkages and value chain integration to ensure sustainable livelihoods. Promoting

digital financial inclusion and leveraging technology for better implementation and transparency are also important.

The USRLM has significantly contributed to rural poverty alleviation and women's empowerment in Uttarakhand (Yadav et al., 2021; Natesan & Marathe, 2023). While the mission has achieved notable successes, addressing implementation, capacity building, and market access challenges is essential for its sustained impact. Future research and policy efforts should focus on enhancing the quality and sustainability of SHGs, improving financial inclusion, and fostering partnerships to maximise the benefits of USRLM. By addressing these challenges, USRLM can continue to play a pivotal role in transforming the livelihoods of the rural poor in Uttarakhand.

2. Sustainable Livelihood in Uttarakhand

Uttarakhand, located in the Indian Himalayas, is known for its rich forest cover and diverse biodiversity. However, various factors, such as agricultural expansion, infrastructure development, unregulated NTFP collection, forest fire and grazing pressure, have contributed to the degradation of forest resources and biological diversity. Forest-fringe communities¹ in Uttarakhand rely on timber, non-timber forest products, and grazing to fulfil their subsistence need (Sati & Kumar, 2023; Mehta et al., 2023).

Addressing forest degradation in Uttarakhand requires a comprehensive approach that combines conservation, sustainable management, and community empowerment. By tackling the root causes of degradation and implementing effective mitigation strategies, it is possible to preserve Uttarakhand's forests for future generations while ensuring the well-being of the communities that depend on them.

Therefore, the UFRMP-JICA is making efforts to balance conservation with the needs of forest-fringe communities through participatory forest management and sustainable practices. It is also ensuring their rights and involvement in decision-making processes related to forest

use and conservation. Empowering these communities ensures they become stewards of the forests, engaging in sustainable resource management practices that prevent deforestation and promote conservation.

Forest communities often have unique cultural identities and traditional knowledge systems closely tied to the forest ecosystem. Empowering these communities involves recognising and preserving their cultural heritage (Das et al., 2021; Sati, 2023). It also incorporates traditional ecological knowledge into modern conservation practices, thus enriching conservation efforts with centuries-old wisdom (Nautiyal & Goswami, 2022). Indeed, there is a need to empower forest fringe communities for sustainable forest management and livelihoods in Uttarakhand. It requires collaboration among government agencies, NGOs, local communities, and stakeholders to support these communities and preserve the region's natural resources for future generations.

Therefore, the UFRMP-JICA have implemented activities to mitigate forest degradation in designated areas by fostering sustainable livelihoods for the local communities. The UFRMP-JICA has a vision to ensure sustainable forest management that conserves biodiversity, enhances ecosystem services, and improves the livelihoods of local communities, thereby contributing to the region's overall forest health and socio-economic development.

To achieve the objectives of the UFRMP-JICA, a key strategy involves supporting existing or newly established SHGs within each VP in 13 forest divisions in Uttarakhand. These SHGs are empowered to undertake sustainable forest management activities and income-generating ventures, enhancing livelihood capital among forest fringe communities. The selection of livelihood activities (i.e. value chains) is tailored to the specific context of each locality, considering factors such as available resources, local skills, interests of SHG members, and market accessibility. Particular emphasis is placed on activities suitable for impoverished households with limited or no agricultural land. Additionally, the UFRMP-

¹ Forest-fringe communities in Uttarakhand refer to groups of people living in close proximity to forests. These communities rely on the forest for various aspects of their livelihoods, including food, fodder and fuel.



**In Uttarakhand,
the forest fringe
communities
depend heavily
on middlemen,
particularly for
fruit and vegetable
marketing**

JICA ensures that social programmes and microfinance initiatives effectively reach the target populations.

In Uttarakhand, the forest fringe communities depend heavily on middlemen, particularly for fruit and vegetable marketing. Middlemen with considerable market influence often enjoy sizable profits, leaving small and unorganised farmers with meagre returns in the remote part of the state. Moreover, as most communities operate on a small scale and primarily sell locally, they often lack access to grading and other value-added processes. This limited market access and minimal value addition discourage the local communities from commercialising their agricultural and horticultural activities.

To combat the involvement of the middlemen and enhance value addition to communities' produce, the UFRMP-JICA has taken the value chain approach to strengthening local communities' income by improving product quality and market access. This involves various activities and connections throughout the supply chain, including grading, processing, packaging, and direct market engagement. The local communities have secured better product prices by strategically developing marketing strategies through value chain development.

In many SHGs, value chain interventions have allowed the local communities to add value to their produce (i.e., mushrooms, cow ghee, millet, spices, etc.), raise market prices, and establish regulated intermediaries.

Collective action has also boosted the communities' motivation and improved market access for small-scale agroforestry producers, despite the growing emphasis on value chain approaches and enhancing the community networks for forest management and sustainable livelihood. However, a few case studies (Birthal et al., 2017; Shah et al., 2018; Singh & Chatterjee, 2020; Ravichandran et al., 2020) have assessed livelihood impact and governance processes of the projects implemented by various agencies to develop sustainable value chains for the local communities.

Indeed, it is crucial to examine how local communities have progressed in achieving sustainable forest management and livelihood objectives by assessing their livelihood capitals and determining appropriate value chains. Additionally, identifying key factors that facilitate the transition of livelihood strategies is essential. Therefore, the present study examines the implementation process and impact of the UFRMP-JICA activities for sustainable forest resource management and empowering forest-fringe communities in the region.

The results revealed that regular training had increased SHG members' understanding and knowledge of cooperatives and their potential for building sustainable forest management and livelihoods. Furthermore, the UFRMP-JICA has also implemented various value chain activities for 'livelihood diversification' by creating a variety of income sources, which significantly improve one's standard of living and deal with economic uncertainties. The study's outcome presents evidence for various mechanisms through which SHGs could positively affect women's economic, social, political, and psychological empowerment. Additionally, the thematic analysis of collected data suggests that the UFRMP-JICA has a positive and significant impact on sustainable forest management and livelihood generation for the forest fringe communities in Uttarakhand. []

CHAPTER 02

Livelihood Improvement and Community Development

A Model by UFRMP-JICA

The Himalayan ecosystem, renowned for its breathtaking landscapes and ecological diversity, faces a dual challenge of forest degradation and the critical dependence of local and traditional communities on forest resources. Uttarakhand is a northern mountain state in the Indian Himalayas. Most of the population in the state lives in hilly rural areas and relies heavily on local natural resources for their livelihoods.

The heavy reliance on Non-timber Forest Products (NTFPs) has led to unsustainable practices, posing a threat to the livelihoods of forest-dependent communities and the fragile ecosystem. Therefore, the communities who depend on these resources live under the constant threat of climate vulnerability and human-wildlife conflicts. Additionally, the forests face substantial degradation due to the unregulated collection of forest resources, resulting in deforestation and degradation that threaten local ecosystems.

It is imperative to create alternative livelihood opportunities that reduce the burden on NTFPs and promote sustainable practices, thereby safeguarding the delicate balance of the Himalayan ecosystem in Uttarakhand. The state's abundant forest cover, which covers 45.44% of its geographical area, presents a fertile ground for initiatives that balance ecological conservation and economic progress.

2.1. Uttarakhand Forest Resource Management Project

The UFRMP-JICA is a collaborative initiative involving the Government of Uttarakhand, the Japan International Cooperation Agency (JICA), and other stakeholders, including civil society. The JICA funds the Uttarakhand Forest Resource Management Project (UFRMP), which aims to address the problem of forest degradation. The project is being implemented through the Uttarakhand Forest Resource Management Society (UFRMS), a registered entity under the Society Registration Act 1860 with the Registrar of Societies, Uttarakhand.

This significant initiative is aimed at sustainable forest management and enhancing the livelihoods of Uttarakhand's forest fringe communities. The vision of UFRMP-JICA is to ensure sustainable forest management that conserves biodiversity, enhances ecosystem services, and improves the livelihoods of local communities, thereby contributing to the region's overall forest health and socio-economic development. The success of such initiatives can serve as a beacon of hope and a model for similar areas facing comparable challenges.

SHG members process Rhododendron flowers for making juice, converting local resources into livelihood



Photo: Rohida SHG

2.1.1. Objectives

The UFRMP-JICA has the following objectives along various initiatives, primarily facilitated by the cluster federations through the SHGs.

a. Sustainable Forest Management

- ◆ Promote sustainable practices in forest management to conserve biodiversity and maintain ecological balance.
- ◆ Implement measures to prevent forest degradation and promote afforestation and reforestation activities.

b. Enhancement of Livelihoods

- ◆ Improve the livelihoods of local communities, particularly those dependent on forest resources, through income-generating activities and capacity building.
- ◆ Support the development of community-based enterprises (SHGs) and market linkages for value chains produce (value-added products).

c. Capacity Building and Community Participation

- ◆ Strengthen the capacity of community institutions through training and skill development programmes.
- ◆ Encourage active participation of local communities in forest management and decision-making processes.

2.1.2. Governance Structure

The UFRMP-JICA operates autonomously through a High-Powered Committee (HPC) that serves as the apex decision-making body, also known as the project's Governing Body, chaired by the Chief Secretary of Uttarakhand and provides overarching policy guidance. An Executive Committee (EC) has also been established to supervise project implementation regularly. Led by the Principal Secretary (Forest) and the Principal Chief Conservator of Forests (PCCF), who serve as the Vice Chairperson, the EC ensures the effective execution of project activities. For the governance structure of the UFRMP-JICA (see Appendix 1).

The Project Management Unit (PMU) operates to oversee the implementation of the

UFRMP-JICA, which is led by the Chief Project Director (CPD). The PMU manages project execution at the state level, with support from a project management consultancy (PMC), to enhance its capacity and expertise. The CPD's responsibilities include supervising project progress, allocating duties within the PMU, appraising the HPC and EC, and liaising with relevant stakeholders. The CPD is supported by the Project Director and Deputy Project Director, who assist in achieving the vision of UFRMP-JICA to ensure sustainable forest management that conserves biodiversity, enhances ecosystem services, and improves the livelihoods of local communities, thereby contributing to the region's overall forest health and socio-economic development.

a. Cluster Level Federation

At the field level, the Divisional Management Unit (DMU), headed by the Divisional Forest Officer (DFO), oversees project implementation through cluster-level federations². The DMU coordinates with the District Advisory Committee (DAC), chaired by the District Collector, to ensure inter-sectoral convergence and sustainability of project initiatives. Meanwhile, the Field Management Unit (FMU), led by the Range Officer, supervises project activities at the village level, with support from partner NGOs. These NGOs, known as Field-level NGOs (FNGOs), aid in the project's microplanning, participatory processes, and social engineering aspects, addressing gaps in community engagement and expertise.

The project is implemented in 13 forest divisions and includes 35 forest ranges designated to address forest degradation across 839 VPs. These divisions include Alaknanda Soil Conservation, Almora Civil and Soyam, Bageshwar, Champawat, Lansdowne Soil Conservation, Mussoorie, Nainital Soil Conservation, Narendranagar, Pauri Civil and Soyam, Pithoragarh, Ramnagar Additional Soil Conservation, Ranikhet Soil Conservation, and Tehri Dam-1.

The UFRMP has market specialists who focus on market-related aspects, such as analysing market trends, developing marketing strategies, enhancing product value, and building market

² The cluster-level federations are registered as Self-Reliant Cooperatives under the 2003 Act of Uttarakhand State.

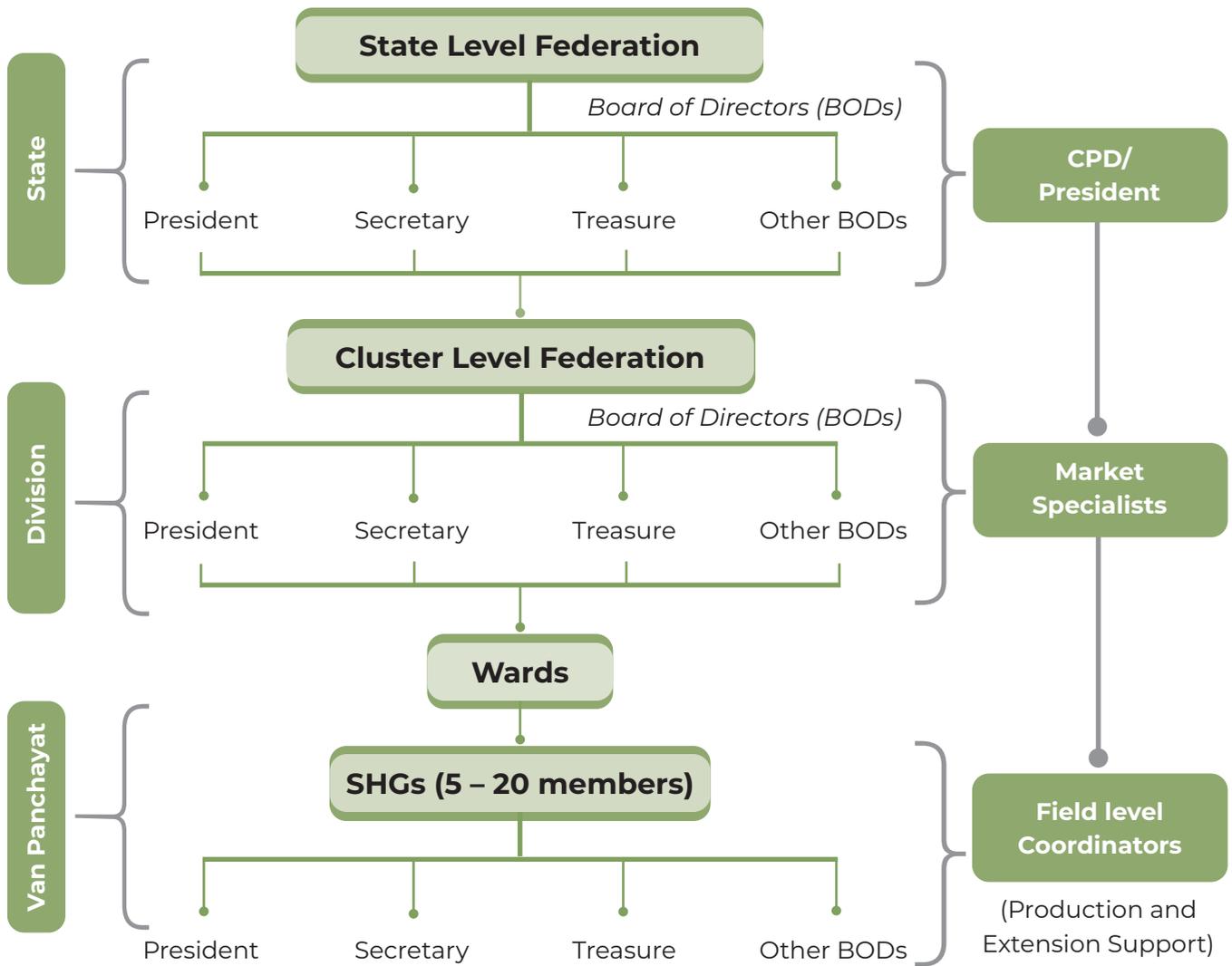


Figure 1: Governance structure of the UFRMP-JICA model (Visual representation by Sankala Foundation)

linkages. Field-level coordinators are also deployed and primarily involved in the on-ground implementation of project activities, engaging with communities, providing training, and ensuring effective stakeholder coordination. Both market specialists and field-level coordinators play vital roles in the holistic success of the UFRMP-JICA, ensuring sustainable management and utilisation of forest resources while implementing value chain activities for the local communities.

The cluster federations are pivotal in bridging the gap between forest management authorities and local communities and are crucial for the project's practical implementation, sustainability, and success. Here are the detailed roles and responsibilities of cluster federations within the UFRMP:

1. Ensure seamless execution and coordination of project activities at the grassroots level.
2. Plan, execute, and monitor value chain activities, including market linkages, value addition and processing.
3. Allocate and distribute resources such as seeds, tools, and financial aid to various community groups involved in the project.
4. Empower local communities with the knowledge and skills needed for sustainable forest management.
5. Conduct training sessions on sustainable forestry practices, biodiversity conservation, and alternative livelihood options.
6. Provide ongoing technical assistance and support to community members in implementing best practices.
7. Foster community mobilisation and

engagement for active participation and ownership of the project.

8. Implement campaigns to raise awareness about the importance of forest conservation and sustainable resource management.
9. Hold meetings to discuss project progress, gather community feedback, and address concerns or issues.
10. Enhance local livelihoods while reducing dependency on forest resources.
11. Promote and support alternative income-generating activities such as agroforestry, eco-tourism, and the production of NTFPs.
12. Facilitate access to microfinance and credit facilities to support small businesses and entrepreneurship within the community.
13. Ensure the project is on track and achieving its goals.
14. Collect data on project activities, forest health, and socio-economic impacts systematically.
15. Prepare and submit detailed progress reports to project authorities, highlighting achievements, challenges, and areas for improvement.
16. Manage and resolve conflicts in forest resource use and project activities.
17. Equip community leaders with conflict resolution and management skills to handle local disputes effectively.
18. Build and maintain relationships with various stakeholders to support project goals.
19. Foster collaborations with government agencies, NGOs, academic institutions, and private sector partners to enhance resource availability and expertise.
20. Facilitate sharing best practices, experiences, and lessons learned with other cluster federations and stakeholders.

b. Van Panchayats

In Uttarakhand, Van Panchayats (VPs) are unique community-based councils responsible for managing and protecting forests at the grassroots level. They are typically composed of members from forest fringe communities with a direct stake in forest resource conservation and sustainable use. These councils empower local communities to participate in decision-making processes related to forest management, ensuring that conservation efforts are aligned

with local needs and priorities. They regulate activities such as grazing, timber harvesting, and NTFP collection to prevent overexploitation and ensure the long-term viability of forest ecosystems. By involving local communities in these management decisions, VPs encourage a sense of ownership and responsibility toward forest conservation.

Additionally, VPs organise patrolling activities, establish fire lines, and raise community members' awareness of the importance of forest conservation. Through collaboration with government agencies and non-governmental organisations, VPs help enforce forest laws and preserve biodiversity. They also promote sustainable livelihoods for forest-dependent communities by facilitating access to forest resources for income-generating activities such as ecotourism, agroforestry, and non-timber forest products (Maikhuri et al., 2017). By integrating traditional ecological knowledge with modern conservation practices, VPs enhance conservation efforts and strengthen the connection between communities and their natural environment. Indeed, VPs are vital for grassroots participation in forest conservation and management in Uttarakhand (Singh, 2013). Their inclusive governance structures and community-driven approach support forest ecosystems' sustainability, resilience, and cultural preservation.

Under the UFRMP-JICA, the VPs were selected on specific parameters, including past performance, the extent of forest degradation, distance from Reserve Forests (RF), and the population, mainly focusing on the target group population. Additionally, the possibility of forming VP clusters is considered. Based on the total score and the feasibility of cluster formation, the clusters with the highest-scoring and most qualified VPs were selected for the first batch of project implementation, and the remaining VPs from other clusters were kept on the waitlist for subsequent batches.

c. Self-Help Groups

The Self-Help Groups (SHGs) in India have a rich history and have evolved to become vital components of poverty alleviation and women's empowerment initiatives. The National Bank for



The UFRMP has market specialists who focus on market-related aspects, such as analysing market trends, developing marketing strategies, enhancing product value, and building market linkages

Agriculture and Rural Development (NABARD) has significantly promoted SHGs for financial inclusion and poverty reduction across the country. Over the years, SHGs have effectively promoted financial inclusion, poverty reduction, women's empowerment, and community development across India. They have become an integral part of government programmes such as the National Rural Livelihoods Mission (NRLM), Swarnajayanti Gram Swarozgar Yojana (SGSY), and various state-specific initiatives aimed at empowering rural and urban poor communities through self-help and collective action. Interestingly, launching of multiple government schemes and programmes promoting microfinance, women's empowerment, and rural development has significantly boosted the SHG movement.

The SHGs typically consist of 10 to 20 individuals, predominantly women from similar socio-economic backgrounds, who unite voluntarily to form a group. The members pool their savings regularly to create a common fund, which provides loans to group members for various purposes, such as starting or expanding small-scale businesses, agricultural activities, education, healthcare, and housing. They operate on principles of mutual trust, solidarity, and collective decision-making. They hold regular meetings to discuss issues, plan activities, and

review progress. Most SHGs receive training and capacity-building support from government agencies, non-governmental organisations (NGOs), and financial institutions to enhance their financial literacy, entrepreneurial skills, and organisational capacity. Their functioning is facilitated by various stakeholders, including banks, microfinance institutions, government agencies, NGOs, and community-based organisations, providing financial and technical support, facilitating linkages with formal financial institutions, and monitoring the impact and performance of various activities.

In Uttarakhand, SHGs are instrumental in various developmental programmes that empower rural communities, especially women. These groups play a critical role in initiatives like the NRLM, the Uttarakhand Women's Federation (UWF), Uttarakhand Gramya Vikas Samiti (UGVS), the Integrated Livelihood Support Project (ILSP), the State Rural Livelihood Mission (SRLM) and the SGSY. Under these programmes, SHGs receive financial support and training to start micro-enterprises and help families rise above poverty. These programmes demonstrate the essential role of SHGs in driving socio-economic development in rural Uttarakhand, fostering community empowerment through collective effort and self-reliance.

Similarly, the SHGs formed under the UFRMP-JICA play a significant role and serve as crucial grassroots institutions that mobilise communities, promote sustainable livelihood practices, enhance financial inclusion, and ensure active participation in forest resource management activities³. By fostering collective action, SHGs help achieve the dual objectives of forest conservation and socio-economic development, contributing significantly to the project's overall success and sustainability. They are involved in various value chains (for example, agriculture, horticulture, animal husbandry, dairy and NTFP collection) and processing activities and contribute to livelihood diversification capacity building, access to finance, market linkages, value addition, and promotion of sustainable practices. This diversification helps SHG members reduce dependency on a single income source and enhances their resilience

³ Forest Management Activities by SHGs means helping in fire control, plantation activities, watching and warding of plantation areas to protect from cattle grazing, and maintenance and care of the plantation. For these activities, the SHGs receive payment from the Forest Department, which is distributed to the members of the SHGs.

to economic shocks.

Additionally, these SHGs receive training and capacity-building support to enhance their skills and knowledge in value chain development, including crop cultivation techniques, livestock management practices, value addition, marketing strategies, and entrepreneurship. This facilitates market linkages by connecting members with buyers, processors, and exporters, thus improving market visibility and maximising profits. Moreover, SHGs engage in value addition activities such as processing and branding to enhance the quality of products, enabling members to command higher prices and increase competitiveness. Lastly, SHGs promote sustainable practices in value chain development, advocating for environmentally friendly production methods and biodiversity protection, thus ensuring the long-term viability of livelihoods.

Under the UFRMP-JICA initiative, 1503 SHGs were formed, encompassing 15,237 members. Priority has been given to vulnerable sections of the community, including women, Scheduled Castes (SCs), Scheduled Tribes (STs), and other marginalised groups within VPs. These SHGs have been organised into 20 CLFs, further united into an apex state-level federation.



**SHG member
dehusking millets
at Ranikhet
Growth Centre**

2.2. Improving Livelihood, Enhancing Community Development

Livelihood improvements and community development are interconnected concepts aimed at enhancing communities' well-being, resilience, and sustainability by focusing on economic, social, and environmental aspects. Livelihood improvements include strategies to increase income levels, diversify sources of income, and improve financial security for individuals and households. This may also involve promoting entrepreneurship, providing vocational training, facilitating market access, and supporting sustainable livelihood practices. It often focuses on asset accumulation, such as land, livestock, savings, or productive equipment.

Protecting assets from risks such as natural disasters, conflicts, or economic downturns improves livelihood resilience. Community development initiatives aim to improve residents' physical infrastructure and essential services, including roads, water supply, sanitation, healthcare facilities, schools, and electricity. Access to these amenities enhances quality of life and facilitates economic and social development.

Dependence on a single source of income or livelihood exposes individuals and communities to significant risks, such as market fluctuations, natural disasters, or policy changes. There is a need to diversify sources of income or livelihoods, which spreads these risks across multiple activities and reduces vulnerability to external shocks. Livelihood diversification enables individuals and communities to adapt to changing circumstances by leveraging various skills, assets, and resources. These strategies provide a safety net during times of crisis. When one source of income is disrupted, individuals can fall back on alternative sources to meet their needs, thereby enhancing resilience against shocks and stresses. Over-reliance on a single natural resource can lead to its depletion or degradation, threatening the long-term viability of livelihoods. However, diversification encourages sustainable resource management by reducing pressure on any one resource

and promoting a more balanced utilisation of available resources.

Today, various government organisations, NGOs and other departments are working in this direction. Diversifying livelihoods can help stabilise income streams throughout the year, reducing the likelihood of poverty and improving overall well-being. This can lead to developing new industries, technologies, and market niches, fostering economic growth and resilience. Diversifying income sources has also strengthened social networks and community cohesion by promoting collaboration and mutual support among individuals engaged in different activities, which can directly contribute to communities' overall resilience in the face of challenges. Moreover, diversifying income sources can promote environmental conservation by reducing pressure on fragile ecosystems. For example, communities that engage in agriculture and eco-tourism activities may be interested in preserving biodiversity and protecting natural habitats.

The UFRMP-JICA has implemented 108 value chain projects to enhance livelihoods in the region. These projects encompass diverse activities such as dairy, spices, mushrooms, poultry, goat farming, growing millets, cow ghee production, red rice cultivation, rajma (kidney beans), Himalayan honey production, tea cultivation, tejpaat (Indian bay leaf), vegetable cultivation, Leh berry processing, fruit and food processing, pithiya, medicinal and aromatic plants, and high-density apple orchards.

2.3. Value Chains

Value chains represent an organisation's activities to deliver products to customers, encompassing procurement, production, distribution, marketing, and delivery (Kaplinsky & Morris, 2001). A value chain includes all the aspects of production right, from product development inputs, training and capacity building, capital investments, and hand-holding for market support (see Table 1). Livelihood activities under the project are being planned and implemented through SHGs in selected project VPs following a value chain-based approach. The expected impact pathways of



the value chain intervention programme are shown in detail (see Figure 2).

The UFRMP-JICA has implemented the following 18 value chain activities to promote sustainable forest management and enhance the livelihoods of forest fringe communities; for pictures of different value chains, refer to Appendix 3.

2.3.1. Tejpaat (Indian bay leaf)

Tejpaat is a significant condiment and spice, also known as Malabar leaf and malabathrum. Its oil has medicinal properties. In recent years, efforts have been made in Uttarakhand to streamline the value chain of tejpaat, supported by various stakeholders such as government agencies, non-profit organisations, and development agencies. These initiatives aim to enhance the productivity and profitability of tejpaat cultivation through training programmes, access to financing, and the adoption of modern agricultural practices.

Harvesting tejpaat is a labour-intensive process that requires skill and patience. Once they reach maturity, the leaves are meticulously plucked by hand and then the leaves undergo sun-drying to preserve their aroma and flavour. Subsequently, the dried leaves are sorted and

graded based on various parameters such as colour, size, cleanliness, presence of twigs, damage, and overall quality. This meticulous sorting process ensures that only the finest leaves are sent to the market, commanding premium prices. There are also opportunities for value addition, including removing twigs, processing them into powder, and extracting oil.

Producers typically bring their tejpatta produce to nearby markets for trade. For example, the Naina Devi Federation sells its tejpatta in the Ramnagar market, a primary NTFP market in Uttarakhand. Through initiatives of the UFRMP-JICA, communities dealing in tejpatta cultivation are supported in various aspects of the value chain, including tejpatta plantation, training, access to markets, and capacity building, thereby contributing to the sustainable growth of the tejpatta in the region.

2.3.2. Spices

The spice value chain encompasses various aromatic and flavourful spices cultivated across Uttarakhand. From the terraced fields of the hills to the fertile plains, Uttarakhand's favourable climate and soil conditions support the cultivation of a wide variety of spices. The spice value chain in the state begins with cultivation, where smallholder farmers utilise traditional farming practices to grow these aromatic crops.

During the field visit of different clusters, turmeric emerged as the most prominent spice grown in value chains. Other commonly grown spices besides turmeric include ginger, green chilli, garlic, coriander, and bhang. Once harvested, the spices undergo processing to enhance their marketability and shelf life. This includes drying, cleaning, and grading to remove impurities and ensure consistency in quality. Some value chains also involve further processing, such as grinding turmeric into powder or extracting essential oils from ginger.

The processed spices are packaged and distributed through various channels, including federation outlets, local markets, grocery stores, supermarkets, and UFRMP-JICA online platforms. The packaging is designed to

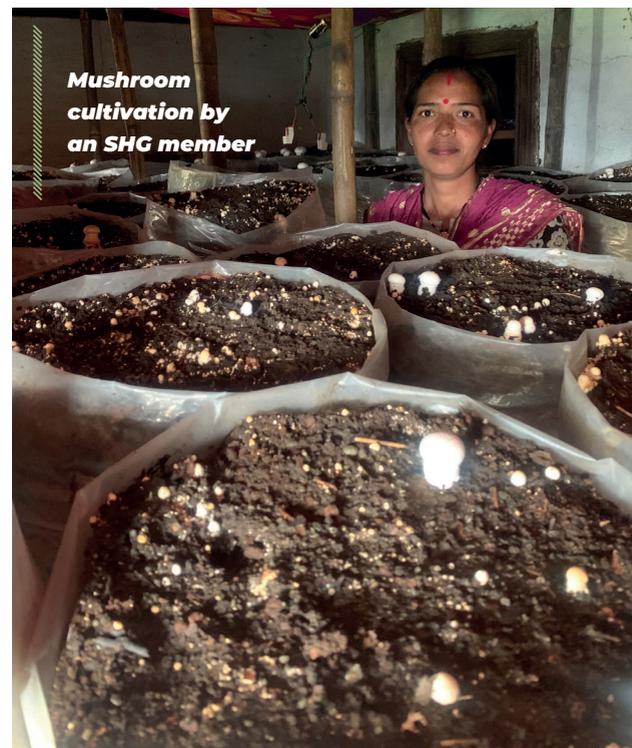
preserve the freshness and flavour of the spices while also adhering to food safety standards. The spice value chain in Uttarakhand also plays a vital role in rural economic empowerment, preserving traditional knowledge and promoting the region's rich culinary heritage.

2.3.3. Mushroom

In Uttarakhand, the mushroom value chain has significant potential for economic development, livelihood improvement, and environmental sustainability.

Mushroom production is helping to lift locals out of poverty and promote sustainable livelihoods by providing high yields, regular supply, and a continuous source of income. Mushrooms are being grown vertically in minimal space inside a room, giving forest communities an advantage over shrinking land holdings and benefiting those with limited farmland.

Button mushrooms are the species most commonly grown in value chains, with Oyster and Shiitake mushrooms also being cultivated. Marketing mushrooms is relatively easy due to their consistent demand, and they are quickly sold in local markets and cities. Currently, locals add little value to mushrooms, but there is



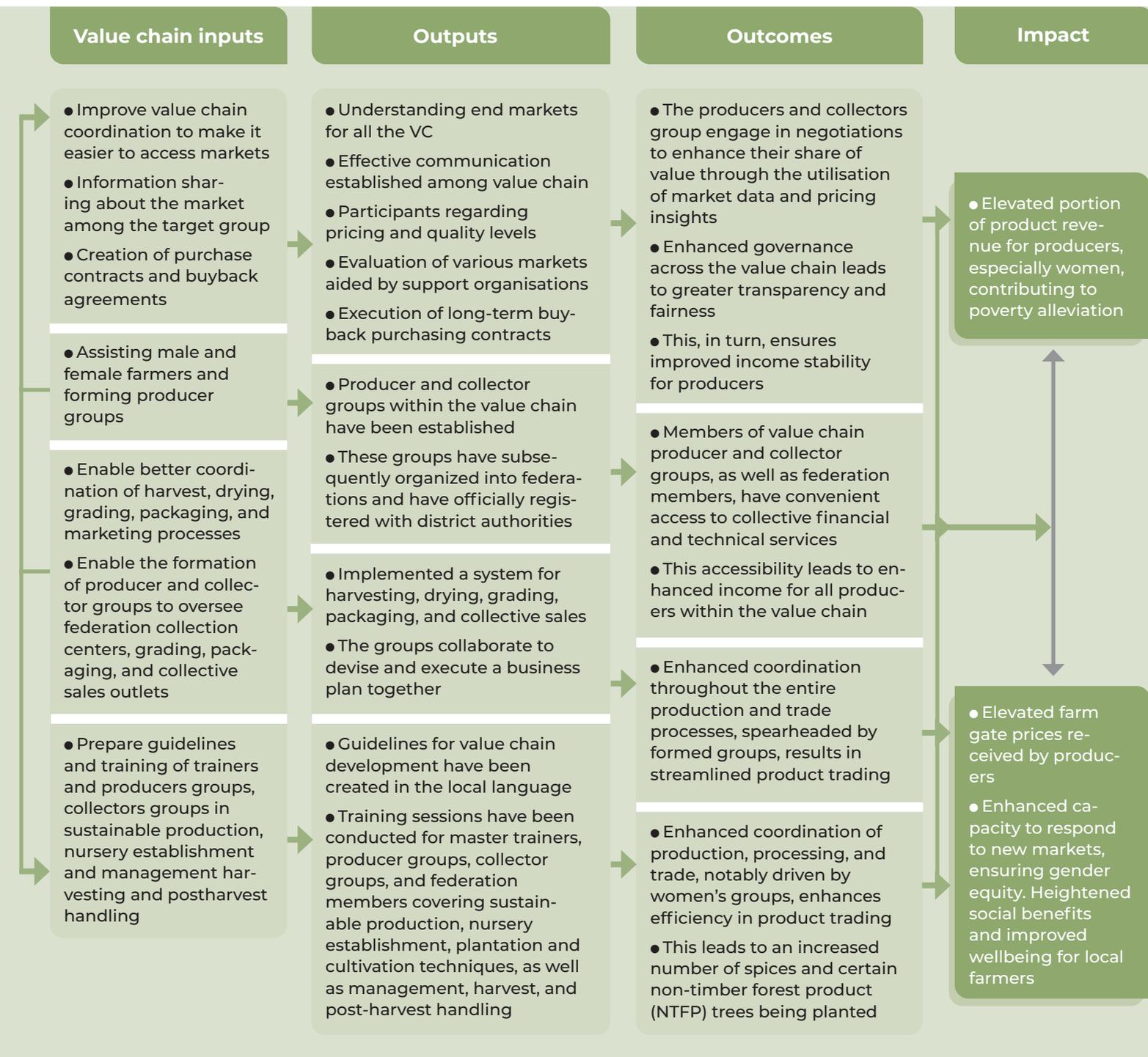


Figure 2: Value chain framework (adopted from Shah et al., 2018)

interest in adding value to gain more income benefits. Value-added products such as dried and pickled mushrooms can extend shelf life, opening up marketing and distribution opportunities.

The UFRMP-JICA organised training and knowledge-sharing sessions for farmers regarding mushroom cultivation techniques, post-harvest handling, packaging, and

marketing. By enhancing every component of the value chain and receiving support from all stakeholders, the mushroom value chain can capitalise on this sector's economic, social, and environmental benefits.

2.3.4. Leh Berry

Sea buckthorn or Leh berry thrives in harsh,

mountainous terrains ranging from 1,200 to 4,500 meters of Uttarakhand. Sea buckthorn is valued for its nutritional and medicinal properties, further enhancing its significance within the value chain. Its rich nutrient profile and medicinal attributes make it a valuable product for society and the broader value chain. Following collection, sea buckthorn berries are either sold in the market as raw products or undergo processing to extract oils, juices, concentrates, and other derivatives. However, harvesting sea buckthorn from the wild poses various challenges and risks, compounded by the short collection period. The UFRMP-JICA has supported sea buckthorn cultivation within agroforestry systems to address these challenges and promote sustainability. This approach ensures a more reliable and controlled supply of sea buckthorn and supports sustainable farming practices.

2.3.5. Goat Farming

In Uttarakhand, the goat farming value chain is crucial in rural livelihoods, economic development, and food security. Goat farming has excellent potential for rural development since it provides a ready-to-use economic asset for producers facing crisis, providing meat, milk, and skin. Goat farming is becoming more recognised as providing secondary employment to marginal or small farms due to its specific economic and management benefits over other livestock. Goats are essential to the agricultural community, particularly the rural poor. They demand cheap initial capital investment and operational costs, allow for easy cash liquidation in times of need, and are adaptable to smallholder farming systems.

The local hill breeds of goats are used as they are adapted to the region's climatic conditions. The farmers take their goats for grazing inside the forest daily, and their feed also includes agricultural residues. Usually, the product is sold only in the local market, and some of it goes to nearby markets, too. Other than local markets, livestock fairs and informal networks are primary avenues for selling goats and goat products such as meat, milk, and wool. Value-addition activities such as processing, packaging, and

marketing goat meat products enhance marketability and create additional income opportunities for farmers.

2.3.6. Pithiya (Vermilion)

The value chain of pithiya, known as kumkum or sindoor, holds significant cultural and religious significance in Hindu traditions. It is often used as a symbol of auspiciousness and is applied by married women as a mark of their marital status. This cultural significance adds to the demand for pithiya, especially during religious festivals and ceremonies.

The locally grown turmeric is dried and then processed to make pithiya organically using lime or alum to enhance its texture, quality and adhesion properties. The pithiya has a mild turmeric aroma and is safe for the skin. The final product is packaged in various sizes, from small pouches to small and big decorative boxes. The local communities' marketing and distribution of pithiya are done by themselves directly or through the field-level coordinators of UFRMP-JICA. Online platforms may come in handy to promote the distribution and marketing of the product and introduce modern methods and techniques for marketing traditional products. Using machinery to collect and mix lime juices with turmeric will help the community promote the pithiya-making process much faster and more effectively.

2.3.7. Red Rice

Red rice, also known as laal chawal or laal bhaat, is primarily cultivated in the hilly terrains of Uttarakhand. Traditionally, farmers prepare terrace fields on slopes using traditional farming practices to grow red rice. Before the introduction of value chains and SHGs, locals were unaware of the economic potential of red rice and often cultivated it in small quantities for cattle feed. However, by implementing value chain initiatives under the UFRMP-JICA, communities gained access to knowledge, improved agricultural practices, and the proper use of inputs such as compost and high-quality seeds, resulting in increased yields and economic benefits.

With the adoption of value-addition processes, they get machinery to remove husk covers and other impurities like stones and grass, and they command higher prices for their produce in the local market. Indeed, due to increasing awareness of its nutritional value and health benefits, there has been a surge in demand for red rice. This has led to expanded distribution channels, including online platforms and speciality stores, further enhancing the economic prospects for communities engaged in red rice cultivation.

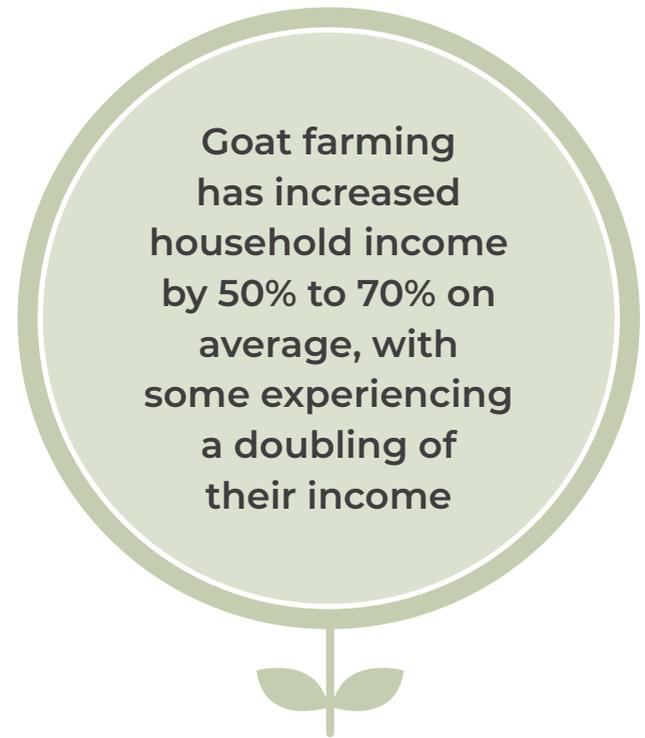
2.3.8. Cow Ghee (Clarified Butter)

In 2016, the native cattle of Uttarakhand were officially recognised as the 'Badri Cattle', becoming the state's first certified cattle breed. These local bovines, characterised by their small stature, prominent hump, and varied body colours, including black, brown, red, white, and grey, weigh between 200–250 kg. The Uttarakhand government has implemented various initiatives to support the Badri cow breed, including the Rashtriya Gokul Mission, the National Kamdhenu Breeding Centre, the Central Herbal Registration System, and the National Dairy Plant, highlighting their vital role in the economy and survival of hill communities.

The Badri cow offers multiple avenues for income generation, from dairy farming and milk collection to the sale of processed products derived from milk, such as ghee, buttermilk, yoghurt, and other dairy products. Under the UFRMP-JICA, communities engaged in the production of cow ghee receive support and guidance to enhance their production processes, improve product quality, and expand market reach. These initiatives aim to strengthen rural communities' economic sustainability and promote the cultural heritage associated with the Badri cow breed.

2.3.9. Millets

In Uttarakhand, nearly every household cultivates millet for personal consumption and sale, making the state one of the major



producers of various millets, including barnyard millet, finger millet, and amaranthus. Millets thrive in less fertile soils and are known as carbon-sequestering crops, making them vital for reducing CO₂ emissions and mitigating the effects of climate change (Shalini et al., 2019). Their ability to withstand low soil moisture conditions in rainfed areas makes them ideal crops for Uttarakhand's current climate crisis. Additionally, millets serve as valuable livestock fodder, reducing pressure on grazing areas and forests and preserving the sensitive Himalayan environment. With rising consumer demand for millet, there is a significant opportunity to enhance productivity and expand the millet market in Uttarakhand. The UFRMP-JICA has engaged forest communities by empowering SHGs in millet cultivation to receive support and guidance to capitalise on this opportunity. By empowering millet farmers and providing healthier snack options for urban populations, millets can be a successful business venture in Uttarakhand.

The UFRMP-JICA initiatives focus on increasing the role of millet in rural households, thereby boosting earnings and empowering farmers. With the proper support and guidance, millet cultivation has the potential to transform the agricultural landscape of

Table 1: A representation of input-output of value chain model

Value Chains (Outputs)	Tej Patta (Indian bay leaf)
	Spices, Mushroom
	Leh Berry
	Goat Farming
	Pithiya (Vermilion)
	Red Rice
	Cow Ghee (Clarified Butter)
	Milletts
	Food and Fruit Processing
	Poultry
	Dairy
	Himalayan Honey
	Tea
	Vegetables
	Kidney Beans
	Medicinal and Aromatic Plants
High-Density Apple Orchard	
UFRMP-JICA (Inputs)	Community Mobilisation
	Microfinance
	Seeds and Saplings
	Fertilisers
	Financial Aid
	Processing units
	Storage Facilities
	Transportation Networks
	Quality Control Value-addition
	Capacity Building
	Branding of Produce

Uttarakhand while promoting sustainable practices and enhancing food security.

2.3.10. Food and Fruit Processing

Uttarakhand's diverse climate and fertile soil foster high production rates of various food products, including fruits, vegetables, pulses, grains, spices, and herbs. Food and fruit processing in the region has unlocked manifold value-added opportunities for locals, transforming fresh produce into nutritional and delicious juices, jams, chutneys, pickles, and more. This value addition meets the high market demand and mitigates the perishable nature of fruits, thereby safeguarding income generation.

The food processing sector in Uttarakhand holds immense potential to increase agricultural yields, reduce post-harvest losses, create jobs, and significantly contribute to the region's overall economic development. The UFRMP-JICA aims to harness the full potential of the food processing market, thereby empowering rural communities and fostering sustainable economic development across different districts of Uttarakhand by providing the necessary support and resources. Such initiatives focus on organising training and capacity-building programmes and providing information and support to empower local communities engaged in food and fruit processing. These initiatives aim to enhance the skills and capabilities of individuals involved in the sector, thereby fostering economic growth and empowerment in rural communities.

2.3.11. Poultry

In Uttarakhand, poultry, including eggs and broilers, is one of the fastest-growing businesses in rural areas. Compared to traditional agriculture, poultry farming offers higher productivity and stability against wildlife conflicts, with shorter investment cycles yielding quick returns. The rising consumption and demand for chicken and eggs further fuel the expansion of the poultry industry, which is increasingly becoming a prominent presence in the state, even catalysing reverse migration



in some rural villages.

The UFRMP-JICA has embraced backyard poultry farming, which meets high local and urban demand and financially supports communities. This initiative fosters self-employment and offers inexpensive, protein-rich food for rural residents, including young people, farmers, and farmwives. Particularly for women, backyard poultry farming presents a viable opportunity to generate income while tending to household and child responsibilities, thereby reducing gender disparities and enhancing livelihood resilience. Through the UFRMP-JICA initiative, poultry farming communities receive support and resources to strengthen their practices and market access.

2.3.12. Dairy

In rural and semi-rural regions of Uttarakhand, almost every household keeps animals, primarily

buffaloes and cows, ensuring year-round milk availability through rotational mulching. The rise of independent small-scale dairy farms and milk collection facilities, occasionally challenging state-owned dairies, reflects the growing significance of dairy farming in the region. Dairy farming contributes significantly to the rural economy by bolstering financial security and enhancing the socio-economic status of marginalised, small-scale, and landless rural households. Uttarakhand's abundant natural resources provide an ideal environment for cattle rearing, complemented by communal fodder resources and innovative fodder management practices such as growing fodder trees and cultivating grasses on private property.

Through the UFRMP-JICA initiatives, there has been a surge in interest and investment in dairy farming among local communities, focusing on enhancing the productivity and market competitiveness of the Badri cow breed. By facilitating milk lactometers for fair milk pricing and investing in transportation infrastructure and cold storage, cluster-level federations aim to connect dairy farmers with markets, encouraging commercialisation and market participation. Furthermore, the UFRMP-JICA emphasises training and skill development for female dairy industry workers, empowering them to contribute more effectively to the sector's growth and sustainability.

2.3.13. Himalayan Honey

Honey, an organic sweet substance crafted by honeybees from plant nectar, undergoes meticulous gathering, mixing, depositing, hydrating, and ripening within honeycombs (EU Council, 2002). In the hills of Uttarakhand, beekeeping has remained a steadfast practice, predominantly employing traditional methods and housing bees in walls, logs, and other types of hives. For local inhabitants, beekeeping is a supplementary occupation alongside agriculture and animal husbandry, yielding honey as its primary product.

Beyond conventional beekeeping practices, local communities in neighbouring forest surroundings also harvest honey from natural hives of the Asian Honeybee (*Apis cerana Fabricius*) and Giant Honeybee (*Apis dorsata Fabricius*). The benefits of beekeeping extend far beyond honey production, encompassing the preservation of natural plant species, medicinal use of honey, and economic opportunities for rural communities (Kumari et al., 2016). Particularly for women and impoverished farmers without land, beekeeping offers a viable source of income requiring minimal investment and space, often turning a profit within the first year of operation.

Moreover, beekeeping plays a vital role in pollinating traditional subsistence crops, newly introduced cash crops, and local



SHG members with rhododendron juice drums

vegetable critical to the livelihoods of the local communities. Recognising the significance of this traditional practice, initiatives under the UFRMP-JICA are integrating modern inputs to enhance honey production and income generation for rural women and communities living in these areas. By providing training, resources, and market linkages, the UFRMP-JICA empowers communities socially and economically, fostering sustainable beekeeping practices that contribute to the overall well-being of Uttarakhand's rural communities.

2.3.14. Tea

The labour-intensive nature of the tea industry, particularly in tasks such as plucking and packing, has provided employment opportunities, particularly for women and marginalised individuals in hilly villages. With practical strategies and government support, tea plantations have the potential to reclaim wasteland and contribute positively to the environment. As Uttarakhand grapples with escalating environmental challenges such as deforestation and soil erosion, tea cultivation emerges as a sustainable solution for preserving soil and moisture. Reforestation efforts associated with tea plantations mitigate ecological degradation and open avenues for eco-tourism, camping sites, and job creation within local communities.

With the support of the UFRMP-JICA, communities have begun cultivating various herbs and plants to produce herbal tea. Chamomile flowers, Tulsi, and Rhododendron emerged as top priorities for herbal tea. The leaves or flowers are meticulously plucked, washed, dried, and packaged for sale. Some SHGs even acquired solar dryers to enhance the quality and marketability of their tea products. Through the UFRMP-JICA initiatives, communities across different parts of Uttarakhand are harnessing the potential of herbal tea cultivation to generate income. Tea cultivation has emerged as a hope for sustainable livelihoods and environmental conservation in the region by leveraging traditional knowledge and modern techniques.

2.3.15. Vegetables

Due to its conducive agro-climatic conditions, vegetable cultivation holds a comparative advantage in Uttarakhand's hilly terrain. Polyhouses have emerged as a transformative tool, enabling year-round production and mitigating climate risks. Summer months bring a boon for farmers as they capitalise on selling off-season vegetables in the plains, augmenting their overall income. However, despite the profitability of farming, growers grapple with various marketing and production challenges, which, in particular, pose difficulties due to the perishable nature of produce, seasonal fluctuations, and market dynamics influencing pricing along the supply chain.

The UFRMP-JICA initiatives are crucial in addressing these challenges by providing transportation facilities and enhancing market linkages. They empower rural communities to overcome logistical hurdles and access broader markets. Through the UFRMP-JICA initiatives, local communities receive constant support and training from field-level coordinators, enhancing their skills and expertise in production and trading processes. These initiatives catalyse sustainable agricultural development, fostering empowerment and resilience among rural communities.

2.3.16. Kidney Beans

In Uttarakhand, kidney beans, commonly known as rajma, are a vital source of nutrition and income for rural communities. Cultivated during the kharif season, rajma is a high-value cash crop prized for its nutritional richness and distinct flavour, colour, and texture. Varieties such as Joshimath Rajma, Chakrata Rajma, Harsil Rajma, and Munsyari Rajma flourish in different districts of Uttarakhand, each renowned for its unique qualities and nutritional content.

Moreover, the varieties of beans cultivated in Uttarakhand exhibit a wide range of characteristics, including varying sizes, shapes, and colours, such as red, maroon, brown, white, coffee-coloured, and speckled. These diverse attributes contribute to the distinct flavour

profile of Uttarakhand's beans, making them highly prized compared to those grown on the plains. The cultivation of rajma in Uttarakhand goes beyond mere agricultural practice; it is a lifeline for tribal and rural populations inhabiting the inaccessible higher-hill regions.

Through the UFRMP-JICA initiatives, the local communities receive guidance and financial assistance to optimise their rajma cultivation practices. By aligning with market demands and leveraging modern agricultural techniques, the communities are enhancing productivity and income generation, bolstering their economic prospects and overall well-being. These initiatives transform livelihoods and nurture a thriving farming sector that resonates with the UFRMP's spirit of resilience and progress by empowering communities with knowledge, resources, and market access.

2.3.17. Medicinal and Aromatic Plants

In Uttarakhand, medicinal and aromatic plants (MAPs) are reshaping rural livelihoods, promising increased income for rural communities and environmental stewardship. By integrating systematic manufacturing and processing methods, the production of medicinal plants holds immense potential for job creation and enhanced living standards among the rural poor, all while preserving the region's rich biodiversity.

Through initiatives like the UFRMP-JICA, communities engaged in cultivating Medicinal

and Aromatic Plants (MAPs) in Uttarakhand are harnessing their natural resources and empowering themselves economically in a socially and environmentally responsible manner. Some MAPs, such as atis, kutki, jatamansi, ashwagandha, chirality, mint, and lavender, are cultivated in the state for commercial purposes. As these initiatives continue to evolve, they pave the way for a more prosperous and sustainable future for rural communities in Uttarakhand.

2.3.18. High-Density Apple Orchard

Uttarakhand has diverse apple varieties, significantly contributing to India's apple production. The apple is harvested and transformed into products like jams, juices, and more, enhancing their market appeal and economic value. Moreover, many of these sprawling apple orchards double as eco-tourism destinations, inviting visitors for recreation. The forest communities depend on apple farming for sustenance and livelihood, offering substantial employment opportunities throughout the production and marketing processes.

The UFRMP-JICA initiatives are underway to address the challenges faced by apple growers. They empower farmers through training and capacity-building programmes and try to uplift rural communities dependent on apple cultivation. Through collective efforts, these communities are bolstering resilience against climate change impact by adopting sustainable farming practices and modern technologies. Additionally, they are forging direct marketing connections and strengthening value chains to minimise dependency on intermediaries and maximise returns for growers.

2.4. Market Support System of the UFRMP-JICA for Value Chains

The UFRMP-JICA aims to ensure that forest communities can effectively participate in and benefit from the value chain products by providing strategic interventions and support. The state-level federation supports the CLFs in accessing larger markets at the state and



national levels, exploring the possibility of developing new products, adding value, improving packaging, and establishing a solid brand presence in the product market. The state-level federation is envisaged to provide any other support CLFs or SHGs require to market community products.

Here are the detailed roles of the UFRMP in developing and supporting the market support system for value chains:

1. Facilitate access to broader, more profitable markets for value chains taken by the local communities.
2. Conduct market research to identify demand for value chain products and potential market opportunities, including local and national markets.
3. Establish networks and platforms connecting local producers with buyers, wholesalers, retailers, and exporters to secure reliable market outlets.
4. Support participation in trade fairs, exhibitions, and marketing events to showcase local products and attract buyers.
5. Enhance the value of products through processing and quality improvement.
6. Train local communities on value-addition techniques such as drying, grading, packaging, and branding.
7. Develop and improve infrastructure, such as processing units, storage facilities, and transportation networks, to ensure product quality and reduce post-harvest losses.
8. Implement quality control measures to meet market standards and consumer expectations.
9. Provide financial and technical support to enhance productivity and market readiness.
10. Facilitate access to microfinance and credit facilities to help local producers invest in value addition activities and improve production processes.
11. Offer technical advisory services on sustainable harvesting, processing techniques, and business development.
12. Develop and promote a strong brand identity for forest products from Uttarakhand.
13. Create a distinct brand for forest products, emphasising their unique qualities, such as being organic, sustainably sourced, and community-produced.

14. Implement marketing campaigns to raise awareness about the brand and its products among target consumer groups.

15. Support certification processes (e.g. organic, fair-trade) to enhance product credibility and marketability.

16. Develop market information systems to provide local producers with real-time data on market trends, prices, and demand.

17. Establish efficient communication channels between producers, market intermediaries, and buyers to ensure smooth and transparent transactions.

18. Offer entrepreneurship, business management, and marketing training to help local producers manage and grow their businesses.

19. Support the formation and strengthening of cooperatives and producer groups to enhance collective bargaining power and reduce transaction costs.

20. Help local producers navigate regulatory requirements and obtain necessary licenses and permits for selling and exporting value chain products.

21. Continuously monitor and evaluate the effectiveness of market support activities.

22. Conduct regular impact assessments to evaluate market support interventions' economic and social benefits on local communities.

23. Establish feedback mechanisms to gather input from local producers and market stakeholders and continuously improve market support services.

The state-level federation markets the products through 'HavePure' brand name with its 'My Re-Fill Store' outlets and an online portal (www.Havepure.in). The SHG beneficiaries also employ various strategies to sell their produce locally, leveraging traditional and community-based methods. They directly sell their produce to local buyers, shops, mandis and in weekly markets, known as haats that are integral to the local economy, providing platforms for direct sales and ensuring steady markets and fair prices. Some communities adopt the Community-Supported Agriculture (CSA) model, providing regular deliveries of fresh produce to subscribed consumers. □

CHAPTER 03

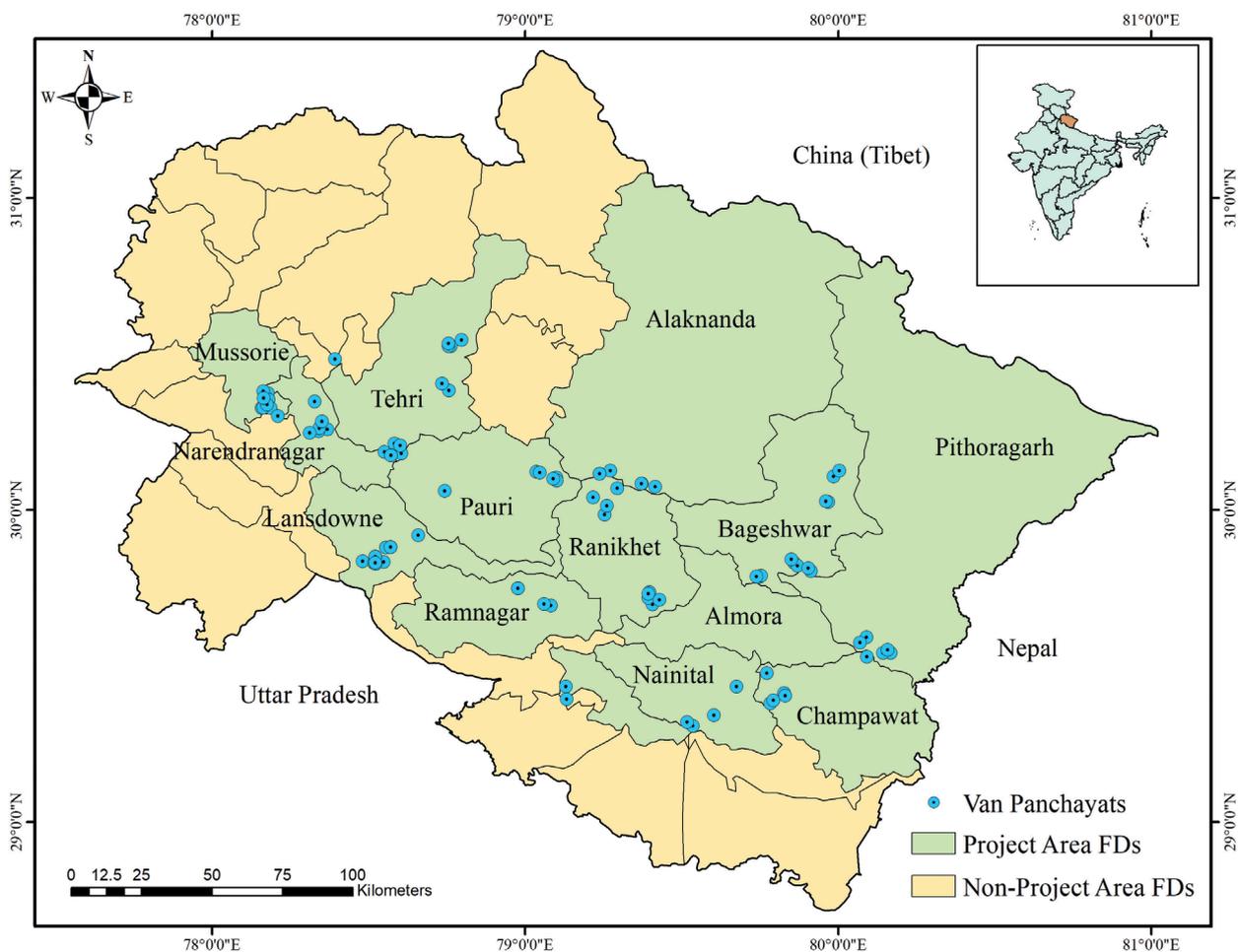
Project Design and Methodology

3.1. Study Area

Uttarakhand is situated in the central Himalayas, with diverse biological diversity and has about 45% forest cover of the state's geographical area. Covering an area about 53,483 km² Uttarakhand shares borders with Himachal Pradesh in the north, Uttar Pradesh in the south, and international borders with Nepal and China. It is spread over three biogeographic provinces, the Upper Gangetic Plain (7A), central Himalayas (2B), and Cold-arid regions (1C). Physically, the state can be

divided into three main zones: the Himalayas, the Shiwalik, and the Terai region. This unique setting forms the backdrop for our research on sustainable livelihood, conservation, and rural development in Uttarakhand.

Uttarakhand has major rivers, including the Ganges and Yamuna and their tributaries. These rivers contribute to the region's fertility and hold immense cultural and religious significance. The state takes pride in its 12% geographical area under a protected areas network, which includes six national parks,



Map 1: Map showing the locations of sampled Van Panchayats for the study (Map prepared by Ravina

seven wildlife sanctuaries, four conservation reserves, and one biosphere reserve. According to Champion and Seth (1968), Uttarakhand's forests are classified into eight forest type groups, viz., Tropical Moist Deciduous, Tropical Dry Deciduous, Subtropical Pine, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub Alpine Forests, Moist Alpine Scrub and Dry Alpine Scrub, each playing a crucial role in the state's ecosystem.

In states like Uttarakhand, conservation and socio-economic development are at the core of discussions among various stakeholders. To promote the sustainable livelihood of the people in the central Himalayas of India, multiple innovations are being conducted along with the conservation and management of natural resources. This study evaluates the impact of various alternative livelihood activities on rural communities living in forest fringe areas implemented under the UFRMP-JICA initiative (see Map 1).

3.2. Scope of the Study

Uttarakhand, with its unique topography, diverse biological diversity, and rich cultural milieu, presents challenges and opportunities for sustainable livelihoods. This study aims to delve into these dimensions, focusing on strategies, policies, and community initiatives that foster economic growth, social equity, and environmental stewardship. Specifically, this study evaluated the impact of various livelihood activities implemented by UFRMP-JICA in collaboration with SHGs.

This study also endeavoured to assess the impact and governance process of UFRMP-JICA initiatives, whose goals are to sustain forest management and enhance the livelihoods of the forest fringe communities. Therefore, the Sankala Foundation team delved into the UFRMP-JICA pathways towards inclusive livelihoods and sustainable forest management through comprehensive document analysis and field surveys.

The Sankala Foundation team conducted the following activities to fulfil the study's objectives:

1. Understand the components of value chains:

input suppliers, producers, processors, distributors, and retailers.

2. Map value chains by identifying key actors, activities, and linkages.
3. Understand value-addition processes, including production, processing, packaging, branding, and marketing.
4. Assess competitiveness, inclusivity, and sustainability of value chains. Put capital a
5. Examine women's empowerment through self-help groups and skill development programmes.
6. Understand skills for vulnerable communities for alternative livelihoods and diversification.
7. Evaluate the socio-economic impact of SHGs in asset creation and quality of life improvements.
8. Document lessons learned, best practices, and replicable models of successful SHG and value chain interventions.

3.3. Methodology

To understand the implementation of various dimensions of the sustainable livelihood programme and their attendant issues, the Sankala team sought to evaluate livelihood capital and activities required for a means of living that enhances people's ability to make their lives economically, environmentally, and socially sustainable. Therefore, the methodology was designed to measure the community's livelihood capital (social, natural, human, physical and financial capital) and implementation process of the UFRMP activities at the SHG level. The study also investigated the challenges faced by the local communities and documented their recommendations to overcome them to achieve UFRMP-JICA goals.

The present study employed a mixed-method research design. The primary quantitative data was collected via household surveys with forest fringe communities. In contrast, the qualitative data were sourced through focus group discussions and key informant interviews. Participatory data obtained from interviews and group discussions served as highly effective sources of information regarding the intricate issues of sustainable forest resource management, community development,

and sustainable livelihoods. Engaging with stakeholders through these interviews and discussions offered valuable insights into the diverse perspectives within local communities. This information was crucial for developing continuous and meaningful engagement strategies for assessing livelihood capital, governing SHGs, and conducting impact evaluations.

3.3.1. Data collection

The UFRMP-JICA provided economic empowerment data, presented graphically and in tabular form (see Annexures 1 and 2). We have also used Participatory Rural Appraisal and Phenomenological approaches for the primary data collection and analysis (refer to Annexure 5).

a. Participatory Rural Appraisal

The Participatory Rural Appraisal (PRA) is an approach to whole community development and research that empowers local people to actively participate in the assessment, planning, and implementation of projects and programmes that affect their lives (Chambers, 1994). It is a bottom-up approach that values local knowledge, perspectives, and priorities,

aiming to foster ownership, empowerment, and sustainability. The PRA employs various techniques and tools to gather qualitative and quantitative data, such as group discussions, participatory mapping, and wealth ranking exercises (Häsler et al., 2019). The PRA also values local knowledge and perspectives, recognising that community members are experts in their own lives and environments (Neumeier, 2017).

The PRA is designed to be rapid and cost-effective, allowing valuable information to be collected relatively quickly. It often draws on Rapid Rural Appraisal (RRA) techniques, emphasising quick, flexible, and participatory methods for gathering data in rural contexts (Sen & Kansal, 2019). Furthermore, the methodology takes a holistic approach to assessment, considering various dimensions of community life, including social, economic, environmental, and cultural aspects. The PRA also recognises the interconnectedness of different factors and seeks to understand the underlying causes and dynamics of community problems and opportunities (Lara et al., 2018). For instance, during PRA, local communities generate, analyse, own, and share information as a part of their empowerment process (Bayeh, 2016).



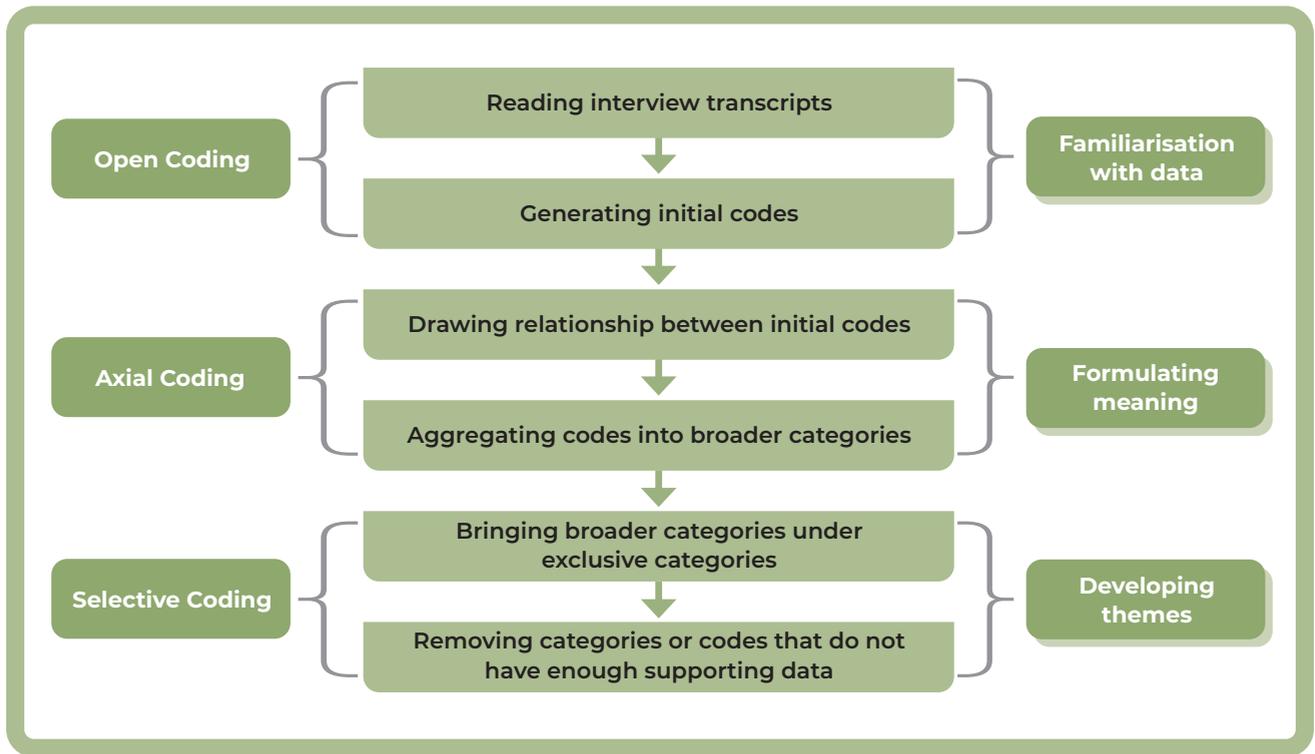


Figure 3: Phenomenological data analysis path (Source: Yadav, 2023)

The power and popularity of the PRA are mainly explained by the unexpected analytical abilities of local communities when catalysed by relaxed rapport and expressed through sequences of participatory and visual methods. Evidence shows (i.e., Bayeh, 2016; Joshi et al., 2019) the high validity and reliability of information shared by the local community through PRA compared to data from more traditional methods.

For the data collection, semi-structured interviews with open-ended questions were designed to better conceptualise perspectives with the flexibility to explore new topics during the PRA. To conduct this study, the interview and group discussion script (refer to Appendix 3) was designed to understand communities' sociodemographic structure, perspectives on sustainable livelihood generation, community development, value chain activities, and experience associated with the human-wildlife interface. The PRA was also conducted to gauge livelihood capital among rural communities to govern SHGs for running value chain activities. A snowball sampling strategy was used to interview local communities in both Kumaon and Garhwal regions. During the interview and

PRA, if the participant had difficulty answering a question or provided only a brief response, cues or prompts were given to encourage the interviewee to consider the question further. Depending on each respondent's choice, interviews were conducted (refer to Appendix 5) in Hindi or vernacular (Kumaoni and Garhwali), lasting 30-45 minutes. The Sankala Foundation team collected large-scale data from 1,079 households in 166 SHGs within 95 VPs of Uttarakhand.

3.3.2. Data analysis

Recorded data was transcribed and translated from Hindi, Garhwali and Kumaoni to English. Afterwards, the phenomenological data analysis transcends the mundane nature of each description to reveal the phenomenon's essence, and coding steps (see Figure 3) were followed to depict the result or themes.

a. Coding

Open coding implies line-by-line coding, where concepts and key phrases are identified for generating initial codes (Saldana, 2021). In the first segment, researchers at the Sankala

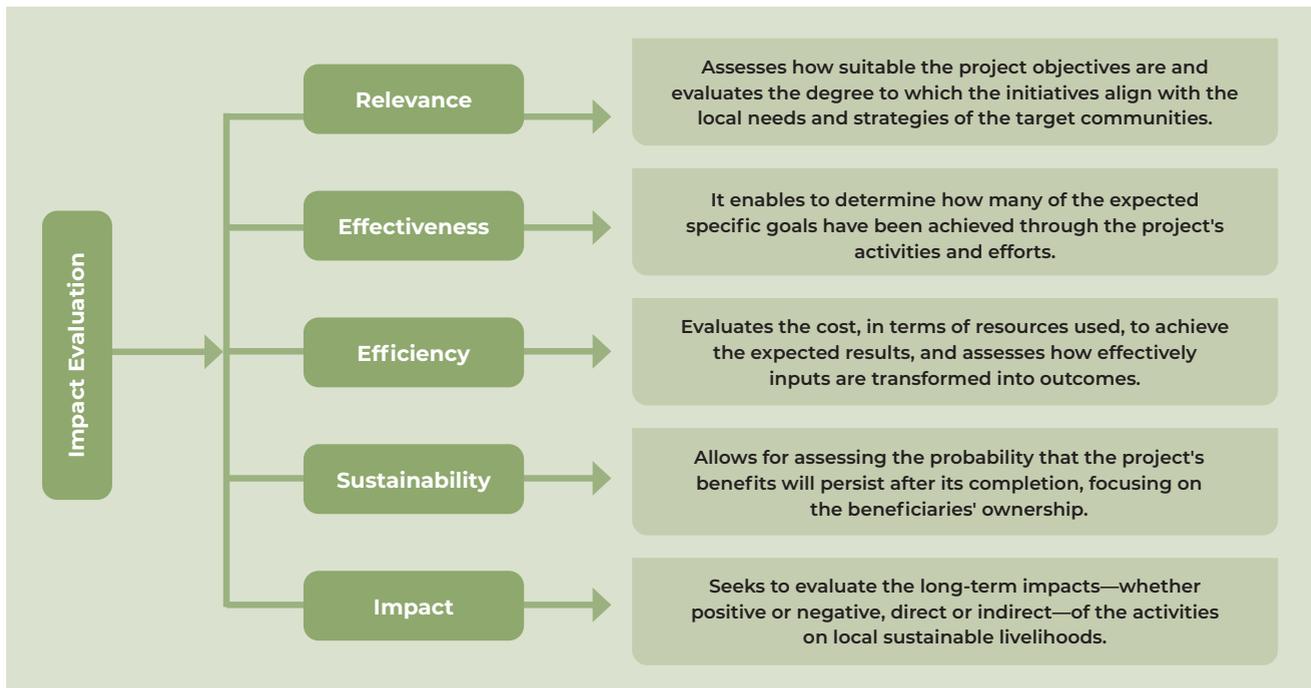


Figure 4: Criteria for impact evaluation of the UFRMP-JICA model (Adapted from Colombo et al., 2018)

Foundation read interview transcripts to familiarise themselves with the data and identified vital phrases. Irrelevant data (i.e., conversations unrelated to research objectives) was eliminated from interview transcripts. The data from each participant was constantly compared for similarities, and key phrases were assigned to each of them. Afterwards, researchers labelled critical phrases with a particular code. They reflected on what they read and understood to make sense of the phenomenon of building sustainable livelihoods for rural mountain dwellers in Uttarakhand.

Axial coding draws relationships among open codes and aggregates them into border categories (Saldana, 2021). In essence, axial coding seeks to identify central (i.e., axis) phenomena in one's data when a researcher aims to examine the phenomena's structures and processes (Collins & Stockton, 2018). The research team used axial coding to organise codes to formulate the meanings of the phenomenon. Afterwards, codes were aggregated into broader core categories based on their relations and similarities.

Selective coding incorporates all the categories' dimensions and relationships to develop themes that represent the central

thesis of phenomenology (Saldana, 2021). The selective coding process allowed us to group similarly patterned codes into exclusive categories that eventually revealed themes. In the progression, we also removed codes or categories without sufficient data. Subsequently, researchers created illustrations to identify relationship patterns between codes that helped develop themes. Representative quotes were also developed by integrating several analytical notes that illustrated trends in the data or participants' unique perspectives, explained in Table 2 of the Results Chapter (4). Some unique quotes and testimonies were also used in the livelihood impact evaluation and governance processes (see Chapter 5).

3.4. Theory of Livelihood Impact and Governance Processes

This study applied the Sustainable Livelihoods Framework (SLF) to assess the livelihood impact of the UFRMP-JICA's implemented activities through SHGs. The SLF (see Figure 4) navigates through an external factor influencing their access to resources essential for their well-being. These resources, grouped into five livelihood capitals (i.e., Natural, Physical, Human,

Social, and Financial), encompass assets like land, infrastructure, monetary, education, and social networks (see Chapter 5 or the definition of livelihood capitals). The community-based forest management programme operates in complex social-ecological systems with diverse stakeholder groups. Therefore, we adapted the eight good environmental governance principles (i.e., legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability, and adaptability) to guide natural resource governance and foster equity. Indeed, programmes that meet the requirements for good environmental governance are more likely to meet conservation and socio-economic goals.

Our evaluation of livelihood impact and the governance process of the UFRMP-JICA involved rigorous data gathering through various methods, such as document analysis, direct field observations, community surveys, expert interviews, and group discussions. This study used large-scale survey data from 1,079 rural households in 166 SHGs within 95 VPs of Uttarakhand to assess the impact and governance of the UFRMP-JICA. The Sankakala team analysed the livelihood capitals and governance of SHGs with diverse socio-ecological backgrounds (see result in Chapter 4). Afterwards, the research team adapted guidelines built by (Colombo et al., 2018) for a structured process to aggregate and interpret data to produce a comprehensive final

assessment within the SLF for the UFRMP-JICA (see Chapter 5).

3.5. SWOT Analysis

The SWOT (Strengths, Weaknesses, Opportunities and Threats) is a strategic tool that assists individuals and communities in identifying the strengths, weaknesses, opportunities, and threats to sustainable livelihood and the biodiversity conservation of projects (Belay et al., 2010). The SWOT analysis stipulates project objectives and helps detect internal and external influences that either favour or negatively affect the realisation or development of the goals (Savari et al., 2022). It presents processes of strategic development for programmes or projects. The SWOT has been extensively used to explore internal and external environments to attain systematic strategies and support approaches for decision-making regarding projects and programmes. The main goal of SWOT analysis is to examine the external and internal factors that stimulate or hinder the progress or successful implementation of projects or programmes to support operational decisions.

This applied research is qualitative from paradigmatic aspects and is exploratory regarding the data collection method conducted through SWOT analysis (Kry et al., 2020). The content of each area of SWOT was extracted based on the results of qualitative content analysis via interviews with the experts of the mentioned sample. Based on the initial interviews, an open-ended questionnaire was

designed to conduct PRA to investigate the strengths and weaknesses, opportunities, and threats to value chains and SHGs for sustainable livelihood. In the study area, cluster-level meetings, group discussions, and personal interviews were conducted among SHG members to collect information on the feasibility of value chains, market demands, and sustainable livelihood status. []

Sankala team member discusses the aims and objectives of the PRA with SHG members



Photo: Ganganath SHG

CHAPTER 04

Results and Discussion

The results are depicted from household surveys and PRA with 1,079 SHG members of the Kumaon and Garhwal regions in Uttarakhand. The data from UFRMP-JICA management units has also been used to understand how SHGs are transforming the lives of forest communities. The study outcomes are easily interpretable and analysed in thematic and graphical terms, supporting the expert evaluation of the UFRMP-JICA.

4. Results

4.1. Demographic Characteristic

Socio-demographic factors ranging from gender, religion, socioeconomics, and literacy influence people's responses to livelihood

challenges. The data presents insights into the demographic and socio-economic characteristics of the respondents surveyed. In this study, age, education, land endowment and community characteristics are the barriers poor households face when entering sustainable livelihood strategies regarding access to basic infrastructure. In terms of gender distribution (see Table 2), the majority of participants were female, comprising c. 96% (n = 1,041) of the sample, while males accounted for only c. 3% (n = 38). The average age of participants was c. 42 years, ranging from 19 to 82 years old. A significant portion of primary education is c. 37%, followed by those with secondary (i.e., ten years of schooling) and higher secondary (i.e., 12 years of schooling) c. 31%. In comparison, c. 25% of SHG members who participated in this study



SHG members posing after a successful PRA meeting at Rohida Van Panchayat, Gairsain

had no formal education.

Agriculture emerged as the predominant source of income for the majority of c. 92%, with smaller percentages deriving income from livestock, i.e., c. 5% only. Most respondents have multiple income sources, including agriculture, livestock, manual labour, handicrafts, and tourism. However, the communities also owned land; the average landholding per participant was 10.5 Nali (1 Hectare = c. 5 Nali), ranging from 0 to 140 Nali. In terms of social categorisation, all the respondents were born in Uttarakhand. The majority identified as belonging to the General Category (c. 88%), followed by Other Backward Classes (c. 11%) and Scheduled Castes (c. 10%). A smaller portion (c. 0.83%) of the population also belongs to Scheduled Tribes in the predominant cultural-religious milieu (i.e., Hinduism). Overall, the data highlights a predominantly female rural population engaged in agriculture as their primary livelihood, with varied educational attainment and social categorisation, reflecting

the diverse socio-economic landscape of the surveyed population.

4.2 Thematic Analysis

The study examines livelihood capital (i.e., social, physical, natural, human, and financial capital), associated challenges, and community recommendations to achieve the UFRMP-JICA objectives. The aim of thematic analysis is based on a key hypothesis: SHG-based co-management of value chains has changed the livelihood capital of the local communities for sustainable forest management in Uttarakhand. Significant themes from the DPA are supported by illustrative quotes and presented in Table 3. Inferred individual statements from the PRA and RRA have been used to demonstrate the influence of various factors. The study revealed the community (SHG members) perspective on the progress of the UFRMP-JICA and the effectiveness of sustainable livelihood generation in Uttarakhand.

Table 2: Demographics of Research Participants from SHG Members in Uttarakhand

CHARACTERISTICS OF PARTICIPANTS	PERCENTAGE (~ %) (N =1079)
GENDER	
Male	3.50 % (38)
Female	96.50% (1041)
AVERAGE AGE	M = 42.50 (R = 19 - 82)
EDUCATION	
Primary	37% (402)
Secondary and higher secondary	30.50% (330)
Graduate	5% (56)
Postgraduate	2% (25)
No formal education	24.50% (266)
MAJOR INCOME SOURCE	92% (992)
Agriculture	5% (51)
Livestock	3% (36)
Other occupations (including manual labour)	
AVERAGE LAND HOLDING (IN NALI)	M = 10.5 (R = 0 -140)
CATEGORY	88.50% (955)
General	10.83% (9)
Other Backward Class	9.82% (106)
Scheduled Castes	0.83% (9)
Scheduled Tribes	

**Table 3: Thematic Analysis of Interviews
Conducted with the SHG Members in Uttarakhand**

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Social capital	Culture and norms	100 % (1079)	We come together to celebrate our festivals, rituals, and customs. The Johra folk dance is performed in groups to break down barriers and unite people.
	Social values and trust	93 % (1003)	Our community works together to tackle challenges like livelihood issues and human-wildlife conflicts. I also always count on my neighbours for support.
	Tolerance and acceptance	94 % (1014)	During SHG meetings, we participate in constructive debates to share ideas and make decisions by consensus for sustainable livelihoods and natural resource management.
	Cooperation and mutual support	98 % (1057)	The SHG members significantly foster cooperation and mutual support within the community, especially in managing value chain activities that generate monetary benefits.
	Network	100 % (1079)	We have established networks with government officials, research institutions, and NGOs to get support for developing sustainable livelihood opportunities for ourselves.
	Equity and inclusiveness	86 % (928)	The SHG has significantly empowered me. Now, my family and community consult with me before making important decisions.
	Solidarity and reciprocity	82 % (885)	In our community, people are friendly, share common interests, and participate in community activities with unity and mutual benefit.

Table 3 continued

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Natural capital	Raw materials (NTFPs)	100 % (1079)	Our forest produces fuel wood, fodder, and timber, whereas our croplands produce food, fodder, and crop residues.
	Water	100 % (1079)	In our area, rivers, tributaries, and sub-tributaries serve as vital water sources for irrigation and household use. Irrigation networks play a crucial role in supporting value chains related to horticulture and agriculture.
	Ecosystem and biodiversity	100 % (1079)	Our livelihood primarily relies on utilising natural resources such as forests, grasslands, and water. The biodiversity in our vicinity provides intangible values such as spiritual, cultural, aesthetic, and recreational benefits.
Human capital	Financial literacy	87 % (938)	Initially, I needed to gain the skills and confidence to manage my finances effectively. Now, I am capable and confident enough to do financial transactions at the bank. Additionally, I actively participate in managing the common SHG fund.
	Value-addition skills	98 % (1,057)	After attending capacity-building training, I have been processing, packaging, and branding value chains and other agricultural products.
	Leadership	94 % (1014)	Through regular meetings with SHGs, I have honed my communication, negotiation, self-governance, and problem-solving skills. I actively engage in collective decision-making processes in my household and community.
	Health and nutrition	72 % (776)	Through SHG, we gain a supportive environment where we feel comfortable discussing our health concerns openly and taking care of each other. We also gain better nutrition knowledge.

Table 3 continued

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Physical capital	Light infrastructure	100 % (1079)	Through the UFRMP-JICA, I have received various support, including tools for horticulture, fruit processing, product packing and livestock rearing.
	Smart infrastructure	100 % (1079)	The UFRMP-JICA has connected us directly to the market to cut out the middleman. I can also navigate my product's best available market price through the federation network.
	Heavy infrastructure	100 % (1079)	Modern facilities have been built in the buildings to implement the UFRMP-JICA successfully. The building is a centre for administration, capacity building, value addition, and storing raw materials and final products.
Financial capital	Economic empowerment	89 % (960)	My income has improved after I received support from the UFRMP-JICA to work with other SHG members on various livelihood activities, including value chains.
	Household saving	98 % (1057)	I have saved earnings accumulated over time within the household through various value-chain activities. The savings are available for the whole family in financial need.
	Community savings	100 % (1079)	We have contributed to collective savings accumulated over time, available for every SHG member in financial need. Our community savings are also collateral for running a business.
	Purchasing power	100 % (1079)	My income has increased in the last couple of years, and I spend comparatively more money on food, childcare, healthcare, education, and clothing.
	Microfinance	94 % (1014)	I have used community funds as loans for building a house, medical treatments, marriage, livestock, small-scale businesses, and agriculture.

Table 3 continued

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Governance	Legitimacy, inclusiveness, and integration	82 % (884)	The UFRMP-JICA is widely accepted and recognised by stakeholders as an authority and institution. Diverse groups, especially economically marginalised communities, participate in various value chain initiatives through SHG to get socioeconomic benefits. The UFRMP-JICA has integrated forest policies with sustainable livelihood development strategies to empower the local community. The project has also collaborated with private sectors, research institutions, NGOs, and civil societies to leverage resources, expertise, and innovative solutions.
	Adaptability	86 % (928)	The UFRMP-JICA has developed institutions (federations and SHGs) that effectively adjust to changing circumstances, new challenges, and emerging opportunities for various value chains.
	Fairness, transparency, and accountability	87 % (938)	In the SHGs, communities always make equitable and impartial decisions and take action to run various value chain activities. Their records and data allow everyone to scrutinise and act on UFRMP-JICA's implemented activities.
	Capability	94 % (1014)	The UFRMP-JICA has a skilled and qualified workforce that plays crucial roles in effective governance. This includes recruiting, training, and retaining competent staff across different federation levels.

Table 3 continued

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Challenges	Human-wildlife interactions	100 % (1079)	Direct costs incurred from living with wildlife include monetary loss through livestock or crop loss due to wild boar and monkeys. Non-monetary psychological costs include stress and fear, as well as opportunity costs.
	Competitive market	84 % (906)	Inaccessibility to markets, modern inputs, and technology, as well as deficient infrastructure and high transport costs, also lead to the non-competitiveness of products.
	Transportation	82 % (884)	The transportation facilities in our area are very poor. We wait weeks to transport our produce to the mandi of Dehradun or Haldwani, which is more challenging for the fruit and vegetable supply chain. We usually sell our produce to the middleman at a low price, or it gets rotten in the field.
	Water scarcity	43 % (464)	Our area faces an acute drinking and irrigation water shortage; sustainable water utilisation through the construction of micro-dams would solve the duo's problems.
	Crop pests and diseases	68 % (734)	Recently, there has been a significant increase in crop pests and diseases in agricultural fields, leading to adverse effects on the quantity and quality of the produce. Disease outbreaks also threaten poultry and goatry value chains, exacerbating the economic losses.
	Branding and Quality	78 % (842)	Maintaining product quality is challenging, especially when buying raw materials (milk, cow ghee, millet, etc.) for value addition. This affects the branding of our final products.

Table 3 continued

THEMES	CODES	FREQUENCY (n = 1079)	REPRESENTATIVE QUOTES
Community recommendations	Funds	87 % (938)	We need more low-interest funds to start value chains in mushrooms, cow ghee, poultry, goats, and dairy.
	Human-wildlife conflicts	100 % (1079)	Wild animals, including deer, wild boar, black bear, leopards, and tigers, cause significant crop damage and livestock loss. Their population should be controlled, and appropriate compensation should be provided within time.
	Water management	78 % (841)	Drainage congestion and soil erosion are the fundamental issues underlying the water resources problems. Integrated management is needed to ensure the drinking, irrigation, and recreation water requirements.
	Fruit processing development	87 % (938)	Our various value chain products need adequate processing, cold storage, and transportation infrastructure.
	Capacity building	73 % (787)	There is a need for training and facilities to enhance a base for cultivating off-season vegetables.
	Middlemen	84 % (906)	There should be mechanisms and facilities for equitable trade of all value chain products.
	Medical, pest control and vaccination	100 % (1079)	Medical, pest control, and vaccination facilities should be established to control reoccurring diseases in various value chains (e.g. poultry, fruits, livestock, and crops).
	Transportation	72 % (776)	Better transportation facilities must be developed to break the monopoly of intermediaries and local brokers.

4.3. Discussions on Thematic Analysis

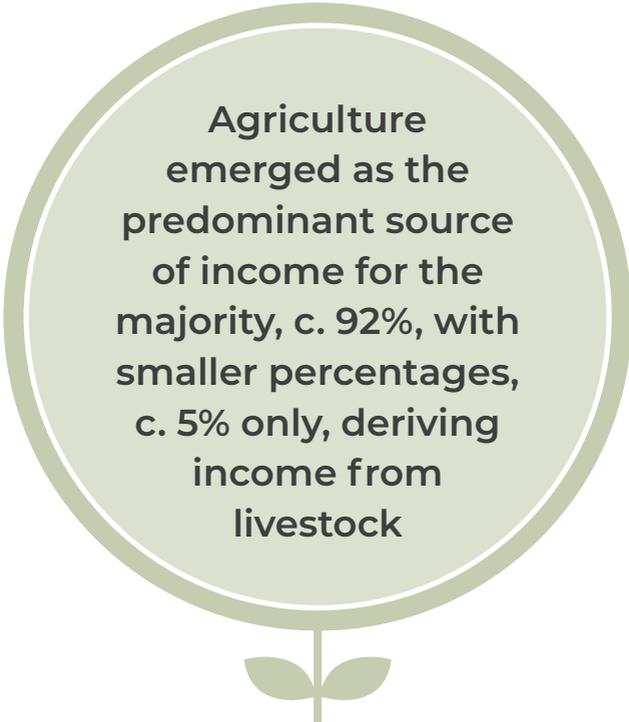
The thematic analysis shows that the UFRMP-JICA leverages natural, human, financial, social, and physical capital to enhance sustainable forest management and improve the livelihoods of forest-dependent communities. The project has created a balanced and resilient approach to resource use and community development by integrating these capitals.

Our finding shows that by incorporating institutional frameworks, community involvement, capacity building, conflict resolution, and adherence to legal standards, the project has implemented various activities for sustainable forest management and alternative livelihoods for forest-dependent communities. Chapter 5 assesses the impact and governance of the UFRMP-JICA-implemented activities.

The stakeholders identified several challenges to achieve the UFRMP-JICA goals and obtain substantial livelihood in Uttarakhand. One of the significant challenges of human-wildlife conflict from studied VPs is mainly damaging crops and livestock. Despite various preventative measures, including compensation payments from the

government and fencing, the problem persists. These escalating trends endanger wildlife and encourage a hostile attitude of the local communities towards wildlife conservation. Given this urgent problem, there should be incentives to mitigate the cost of crop damage and livestock theft caused by wildlife while promoting coexistence between humans and wildlife and sustainable livelihood.

The analysis suggests a notable enhancement in livelihood capitals, supporting the initial hypothesis. A significant boost in physical capital has been evident in implementing various infrastructures (i.e., growth centres) that foster sustainable livelihood opportunities for local communities. The shift in natural capital indicates a prevalent willingness among community members to safeguard forest resources and biodiversity for sustainability. While there has been noticeable progress in enhancing the skills and capabilities of SHG members (human capital), challenges persist in managing human-wildlife interactions, transportation for produce, and middlemen in trade. Financially, SHG members have experienced considerable improvement in income and expenditure, alongside the emergence and growth of diverse livelihood strategies. Socially, considerable advancements have occurred, particularly in women's empowerment and UFRMP-JICA-community relations.



Agriculture emerged as the predominant source of income for the majority, c. 92%, with smaller percentages, c. 5% only, deriving income from livestock

4.4. SWOT Analysis of the Livelihood Programme

The SWOT analysis helps recognise internal (strengths and weaknesses) and external (opportunities and threats) factors affecting a subject and evaluate its current state (Belay et al., 2013). Weaknesses in the SWOT analysis hinder an organisation's performance at its present level and need enhancement to maintain competitiveness. At the same time, strengths are positive attributes and qualities that aid in accomplishing organisational goals. Opportunities are favourable external factors that can provide a competitive edge, while threats are potential risks to the organisation. This study utilised the SWOT matrix to analyse

the adaptive capacity issues of SHGs and the value chain (see Table 4), aiming to pinpoint key internal (strengths and weaknesses) and external (opportunities and threats) factors and prioritise strategic areas for natural resource management. The SWOT analysis, focusing on local-level adaptation (specifically for SHGs and value chains), has typically adopted a sustainable livelihood framework to highlight Uttarakhand’s strengths, weaknesses, opportunities, and threats. Sustainability in

livelihoods means the ability to withstand shocks and trends,

sustaining life in challenging conditions. The UFRMP-JICA sustainable livelihood model offers valuable insights for sustainable natural resources management by considering various livelihood aspects. Therefore, given its comprehensive approach, this SWOT analysis provides helpful information to the UFRMP-JICA to enhance the local communities’ adaptation to sustainable forest management

Table 4: SWOT Analysis of Value Chains Initiated by the Uttarakhand Forest Resource Management Project

STRENGTHS	WEAKNESSES
<p>1. Abundant Natural Resources: Uttarakhand is rich in natural resources such as water, forests, and minerals, which can support various industries in the value chain.</p>	<p>1. Infrastructure Challenges: Limited infrastructure, particularly transportation and cold storage hinder the smooth functioning and expansion of value chain activities.</p>
<p>2. Agricultural Diversity: Uttarakhand has diverse agricultural products, including fruits, vegetables, herbs, and spices, which can contribute to agro-processing industries within the value chain.</p>	<p>2. Dependency on Agriculture: The heavy reliance on agriculture makes the value chain susceptible to natural disasters, seasonal variations, and market fluctuations.</p>
<p>3. Technology: New irrigation and crop cultivation technologies are available for mountainous farmers.</p>	<p>3. Limited Market Access: Geographic remoteness and inadequate connectivity to significant markets limit the reach and competitiveness of products from Uttarakhand’s value chains.</p>
<p>4. Skilled Labour Force: The state has a skilled labour force, particularly in agriculture, tourism, and handicrafts, which can support the development and expansion of various value-added activities.</p>	<p>4. Lack of Technological Integration: Limited adoption of modern technologies and practices in value chain activities affects efficiency, productivity, and competitiveness.</p>
<p>5. Available Experts: For the SHGs and federations, agricultural experts and market specialists (i.e., MS and FLCs) are available to handhold the community’s members.</p>	<p>5. Fragmented Supply Chains: Fragmentation and lack of coordination among stakeholders in the value chain led to inefficiencies and missed opportunities for value addition.</p>
<p>6. UFRMP-JICA Support: The UFRMP-JICA initiatives have promoted entrepreneurship, skill development, and infrastructure development, which facilitates the growth of the value chain sector in Uttarakhand. The SHGs also receive new drought-resistant plant cultivars and animal breeds.</p>	<p>6. Excessive Crop Waste: Horticulture produce (vegetables and fruits) gets wasted due to limited transportation facilities and market availability in rural areas.</p>

Table 4 continued

STRENGTHS	WEAKNESSES
7. HavePure: An organisation has been set up to distribute produce, exchange market information and brand products, and build a marketing network for value chains (crop and rural products).	7. Limited Processing Units: The availability of processing and packaging equipment is limited by SHGs.
8. Community Network: The UFRMP-JICA project has created a strong, active community participation network through awareness and linkages between organisations and communities.	8. Limited Market Access: HavePure is not yet a sustainable, profit-making organisation that can provide a viable alternative to middlemen.
OPPORTUNITIES	THREATS
1. Value Addition: There is a significant potential for value addition in various sectors such as agriculture, tourism, and handicrafts through processing, branding, and marketing initiatives.	1. Climate Vulnerability: Climate change-related impact such as erratic weather patterns, natural disasters, and environmental degradation pose risks to Uttarakhand's natural resources and the viability of value chain activities.
2. Export Potential: Uttarakhand's unique products and natural resources have export potential, particularly in markets seeking organic, eco-friendly, and sustainable products.	2. Competition: Domestically and internationally, competition from other regions and states affects Uttarakhand's market share and pricing competitiveness for value chain products.
3. Technology Adoption: Embracing technologies such as e-commerce, digital marketing, and precision agriculture can enhance efficiency, reach, and competitiveness in the value chain.	3. Resource Depletion: Unsustainable exploitation of natural resources, such as water, forests, and land, can deplete resources over time, impacting the long-term sustainability of the value chain.
4. Physical Capital: Developing cold storage facilities and transport services in rural areas for various value chains can boost sustainable livelihood for mountain dwellers.	4. Vulnerability and Resilience: Increased vulnerability and decreased resilience of farmers due to frequent droughts and human-wildlife conflicts can affect various initiatives for building sustainable livelihood in the state.
5. Collaboration and Networking: Building partnerships and networks among various stakeholders in the value chain can unlock synergies, improve supply chain management, and create new business opportunities.	5. Land-use Changes: Due to migration, agricultural fields are becoming abundant, luring wild animals into cultivated land for crop damage and livestock attacks.
6. Insurance: Developing an insurance system for livestock and agricultural products (i.e. value chains) would develop SHG members' confidence in taking risks.	6. Unsustainability: Rampant harvesting of high-value medicinal, aromatic wild edible plants.

Table 5: SWOT Analysis of SHGs Initiated by the Uttarakhand Forest Resource Management Project

STRENGTHS	WEAKNESSES
<p>1. Better Database: For micro-planning, a suitable database on farmers' monthly income, quality, and quantity of produce is available from SHGs and the federation.</p>	<p>1. Limited Financial Resources: Many SHGs in Uttarakhand need help accessing sufficient financial resources to start or expand their enterprises, which hinders their growth potential.</p>
<p>2. Micro-credits: Established credit systems to provide micro-finance facilities (such as rural banks).</p>	<p>2. Limited Access to Markets: Lack of marketing skills, infrastructure, and access to markets beyond local communities can restrict the reach and profitability of products from SHGs in Uttarakhand.</p>
<p>3. Community Cohesion: The local communities have a strong sense of community, and social cohesion provides a conducive environment for forming and functioning self-help groups.</p>	<p>3. Capacity and Skill Gaps: Some SHGs may need more skills, training, and capacity in financial management, product quality control, and market research, affecting their competitiveness.</p>
<p>4. Local Knowledge and Skills: Members of SHGs possess traditional knowledge and skills in handicrafts, agriculture, and small-scale industries, which are being leveraged for income generation and community development.</p>	<p>4. Dependency on External Support: Reliance on external agencies or NGOs for funding, training, and technical assistance can create dependency and sustainability challenges for SHGs in the long run.</p>
<p>5. Place Attachment: A strong sense of place attachment among the SHG members helps sustain natural resources.</p>	<p>5. Social Stigma and Cultural Barriers: Societal norms and cultural barriers may discourage some individuals, particularly women, from participating in SHGs, limiting the inclusivity and impact of these groups.</p>
<p>6. UFRMP-JICA Support: The UFRMP-JICA schemes and programmes aim to promote SHGs and provide financial assistance, training, and capacity building that support the growth of sustainable livelihood opportunities in Uttarakhand.</p>	<p>6. Debt: High borrowing and indebtedness among farmers.</p>
<p>7. Market Demand for Handicrafts and Agro-based Products: The growing demand for handmade and organic products presents opportunities for SHGs in Uttarakhand to market their products locally, nationally, and internationally.</p>	<p>7. Migration: Permanent and seasonal migration is becoming prominent for sustainable livelihood has become common.</p>

Table 5 continued

STRENGTHS	WEAKNESSES
<p>8. Empowerment and Women's Participation and Leadership: SHGs have empowered women by providing them with opportunities for economic independence, decision-making, and leadership roles, contributing to gender equality and social development.</p>	<p>8. Dependency on Natural resources: Local people depend highly on natural ecosystems for their subsistence requirements.</p>
OPPORTUNITIES	THREATS
<p>1. Diversification of Income Sources: SHGs in Uttarakhand can explore diversifying their income sources by venturing into new sectors such as eco-tourism, renewable energy, and community-based services.</p>	<p>1. Competition from Mass-produced Goods: Competition from mass-produced goods, including those imported from other regions or countries, can pose challenges for SHGs in Uttarakhand, particularly regarding pricing and market share.</p>
<p>2. Value Addition and Branding: Adding value to local products through processing, packaging, and branding can enhance their marketability and profitability, tapping into niche markets and premium pricing segments.</p>	<p>2. Natural Disasters and Climate Change: Uttarakhand is prone to natural disasters such as floods, landslides, and earthquakes, which can disrupt SHG activities, damage infrastructure, and affect livelihoods.</p>
<p>3. Digitalisation and E-commerce: Embracing digital technologies and e-commerce platforms can expand the reach of SHG products beyond traditional markets, reaching a broader customer base locally, nationally, and globally.</p>	<p>3. Policy Changes and Regulatory Environment: Changes in government policies, regulations, and taxation can impact the operations and sustainability of SHGs, requiring adaptation and compliance measures.</p>
<p>4. Partnerships and Collaborations: Forming partnerships with government agencies, NGOs, private companies, and market intermediaries can provide SHGs with access to resources, markets, and expertise for scaling up their operations.</p>	<p>4. Migration and Urbanisation: The outmigration of youth and working-age people from rural areas to urban centres can deplete the workforce and community cohesion, affecting the continuity and viability of SHGs.</p>
<p>5. Community-based Initiatives: Engaging in community-based initiatives such as environmental conservation, healthcare, and education can generate social impact and create additional revenue sources for SHGs.</p>	

and alternative livelihoods through a value-chain approach (see Table 5). Improving access to financial, human, physical, social, and natural capital can bolster communities' adaptability.

4.5. Discussions on SWOT Analysis

This SWOT analysis provides insights into the internal and external factors influencing the value chains and SHGs supported by the UFRMP-JICA in Uttarakhand. It offers insights for strategic decision-making to leverage strengths, address weaknesses, seize opportunities, and mitigate threats to building sustainable livelihoods in the state. This SWOT analysis also highlights the internal and external factors influencing CLFs (see Table 3) and SHGs (see Table 4). The weaknesses

of this analysis highlight areas where the organisational performance of the UFRMP-JICA needs to improve and maintain competitiveness in production value chain products and their brand building in the market. Conversely, strengths denote positive attributes that aid in accomplishing organisational goals.

The SWOT's opportunities section signifies advantages that offer a competitive edge for both CLFs and SHGs. At the same time, the analysed threats represent potential risks to the UFRMP-JICA in building sustainable livelihood in Uttarakhand. The outcome of the SWOT can guide strategic planning and interventions to capitalise on strengths, address weaknesses, seize opportunities, and mitigate threats for sustainable development and women empowerment at the grassroots level. □



SHG members start their SWOT analysis meeting with prayers

CHAPTER 05

Livelihood Impact and Governance Processes

This chapter aims to enhance understanding of the livelihood impact and governance processes of the UFRMP-JICA initiative for sustainable forest management and alternative livelihoods for the local communities. In this context, it intends to answer the following research questions using the results of this study (see Chapter 4): What is the impact of the UFRMP-JICA's implemented activities on sustainable forest management and alternative livelihood? Furthermore, to what extent has the UFRMP-JICA followed the principles of environmental governance?

5.1. Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) is a structured approach to assess the effectiveness,

efficiency, relevance, and sustainability of projects, programmes, policies, or interventions (Colombo et al., 2018). It is a systematic process that involves gathering, analysing, and interpreting data to understand the outcomes and impact of a particular initiative, including sustainable livelihood programmes for rural communities (Chen et al., 2013). Within this framework, impoverished local communities navigate fragile circumstances, possessing various livelihood capitals (i.e., natural, physical, human, financial, and social) shaped by social institutions and the organisational milieu (Wang et al., 2021). In the face of risks stemming from markets, systems, policies, and nature, household livelihood capital influences communities' choices of survival strategies.

The SLF (see Figure 5) characterises individuals as navigating through a vulnerable external

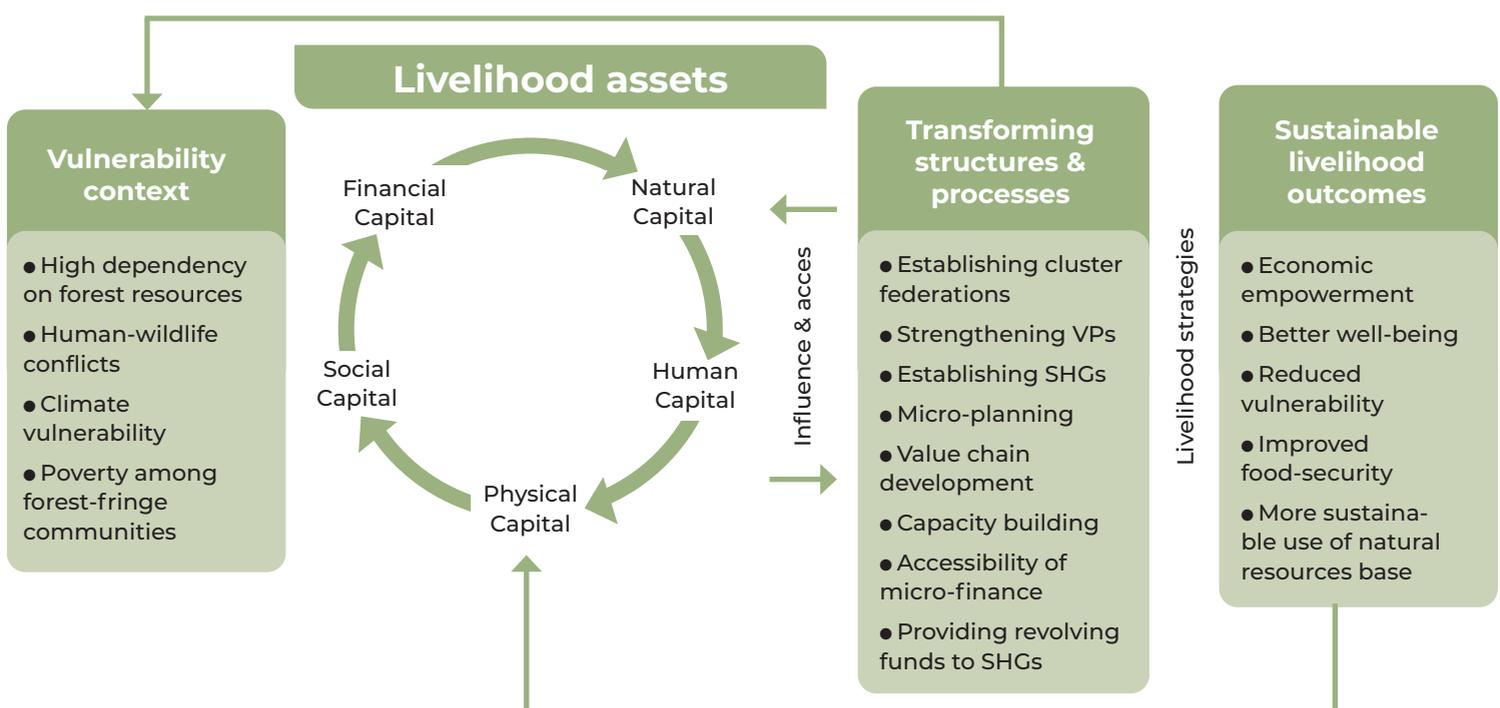


Figure 5: Sustainable livelihoods framework for the UFRMP-JICA model (Adopted from Colombo et al., 2018)

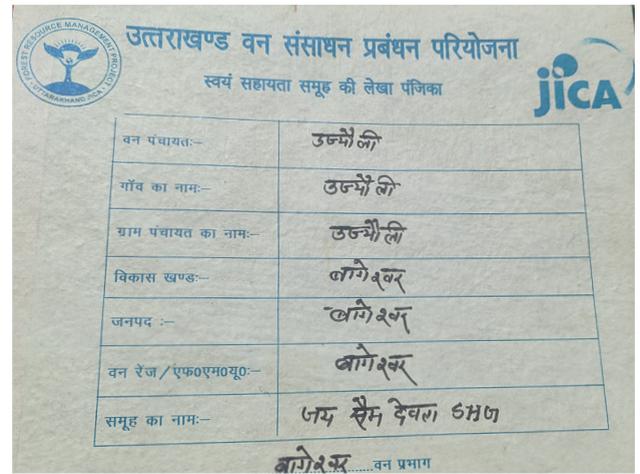
environment beyond their control, significantly influencing their access to resources essential for their well-being (Savari & Zhoolideh, 2021). These resources, grouped into five livelihood capitals (i.e., Natural, Physical, Human, Social, and Financial), encompass assets like land, infrastructure, education, and social networks (Pandey et al., 2017). The interplay between these capitals and social structures and policies shapes the context in which people operate. In response to this context, individuals devise livelihood strategies comprising activities and decisions to meet their needs and enhance their overall livelihood, often by improving their access to and utilisation of these capitals (Ojha et al., 2017).

To properly assess the effectiveness of sustainable livelihood projects at a local level, it is essential to have an impact evaluation indicator that can accurately reflect the vital outcomes (Jha et al., 2021). Drawing on the concept of sustainable livelihoods, indicators have been identified to gauge project impact by examining changes in the livelihoods of the target community. Indicators encompass all elements necessary for sustaining a means of living, which can impede or enhance people’s ability to achieve economic, environmental, and social sustainability (Oduor, 2020).

5.2. Indicator Selection

The UFRMP-JICA has invested in creating physical (i.e., growth centres) and institutional (cluster federations and SHGs) infrastructures. The project has also invested in skill or technology generation for the local communities, yielding human capital. Being part of VPs, the local communities also have legal rights to access common natural resources (natural capital). Through the SHGs, the communities have accumulated common monetary assets that members have used as loans to fulfil their financial requirements (see Table 6).

The results of this study elaborated on the purpose of identifying the minimum basket of indicators, which enables the assessment of all the fundamental issues constructed for the UFRMP-JICA and different types of livelihood asset capital. Indicator systems from



Copy of savings book (top) of SHG members, vital for financial tracking and official record

international organisations were reviewed (FAO, 2001); CICI, 2003; Don, 2008; Chen et al., 2013) during indicator design for this study. The final set of indicators embraced a wide range of the UFRMP-JICA performance and different types of livelihood capital, as shown in Table 5. We selected these indicators for each type of capital because they are associated with the reality of livelihood conditions and the characteristics of the UFRMP-JICA performance in Uttarakhand. The thematic analysis of the interviews conducted with the SHG members for the livelihood impact and governance processes is presented in Chapter 4 (see Table 2).

We identified conventional indicators for physical capital like heavy, light, and smart infrastructure. We describe livestock as light infrastructure because most people raise buffaloes, cows, sheep, goats, and poultry, which mainly serve as supplementary sources of income. It is suggested that indicators like forest density or timber storage be developed to enhance our understanding of natural capital. However, the Sankala Foundation team needed

help to collect data concerning forest density due to constraints within the scope of the study. As a result, we opted for an indirect empirical approach, selecting indicators of natural capital based on the forest fringe community's perceptions. These indicators include the community's views on biodiversity conservation progress, forest health status crucial for protection, and activities undertaken for forest conservation. We also took the availability of 'water' and 'raw materials' to run various value-chain activities as indicators for natural capital.

In examining human capital, we include indicators besides the conventional skill and knowledge measure, such as financial literacy

and leadership among SHGs for sustainable forest management and successful value chain implementation. This choice stems from the numerous opportunities the UFRMP-JICA offers for local community involvement in project management, often playing significant roles in managing forest resources and advancing livelihoods. Furthermore, we recognise health status and nutrition as crucial indicators for participation in the UFRMP-JICA and for fostering livelihood development.

Key indicators include financial empowerment and the accessibility of microfinance when assessing financial capital. While some publications utilise indicators like household

Table 6: Improved Livelihood Capital through the UFRMP-JICA Initiatives

LIVELIHOOD CAPITAL	INDICATORS	BUILT ADAPTIVE CAPACITY AMONG LOCAL COMMUNITIES
Financial capital	Economic empowerment Microfinance	Income SHG members have improved after implementing value chains. Pooled financial resources to make small interest-bearing loans to SHG members.
Social capital	Tolerance and mutual support Equity and inclusiveness	Communities engage in constructive debates to exchange ideas for their business. SHG has empowered women significantly in the society.
Human capital	Financial literacy Value-addition skills Leadership	Women have the skills and knowledge to handle finances effectively. Women in SHGs have enhanced their leadership capabilities, drove effective group functioning, and achieved greater social and economic empowerment.
Physical capital	Heavy infrastructure Light infrastructure Smart infrastructure	Infrastructural support, including tools and machines, is available for horticulture, fruit processing, product packing, and livestock rearing. Federation buildings with modern facilities have been established to ensure the successful implementation of the project activities.
Natural capital	NTFPs Ecosystem and biodiversity	The local communities have been using NTFPs sustainability. The communities' dependency on forests has been reduced recently.

bank deposits, gathering such data for this study poses challenges. Therefore, we identified relevant variables, such as income and purchasing power, to supplement related indicators. The UFRMP-JICA has introduced diverse value chains to boost the income of forest fringe communities. Hence, we incorporate the SHG's quantity of produce, monitoring savings, and turnover (see Appendix 1 and 2) to bolster the household income indicator.

In examining social capital, we have selected indicators such as tolerance and acceptance, cooperation and mutual support, and social networks to explore the interpersonal dynamics within and beyond local communities. Understanding behaviours and perceptions about participation in the UFRMP-JICA is crucial for livelihood development. Through their engagement with SHGs, individuals gain access to external information and opportunities for communication, thereby enhancing community relationships. Additionally, equity and inclusiveness are utilised as indicators to analyse shifts in women's status concerning their involvement in family decision-making and participation in value chain activities facilitated by community co-management principles.

In essence, we have chosen distinct indicators and variables for each of the five types of livelihood capital, even though some may overlap with related forms of capital. We intend to fully utilise comprehensive sources and data to substantiate our research findings in Chapter 4 (see Table 2) for the impact evaluation of the UFRMP-JICA to develop sustainable livelihood opportunities for forest fringe communities in Uttarakhand.

5.3. Livelihood Impact

The study has identified sub-capitals within the framework and evaluation characteristics (see Figure 6) based on some fundamental dimensions considered within each livelihood capital. Dimensions are intended as 'sub-capitals', i.e., topics and themes relevant to each capital are monitored for an impact evaluation, covering tangible and intangible aspects of the targeted SHG members (see Table 7).

5.3.1. Natural Capital

The notion of natural capital encompasses the abundance and quality of natural resources, ranging from tangible capital like lands and NTFPs to intangible public goods such as ecosystems and biodiversity (Everard et al., 2021). In rural Uttarakhand, where activities like agriculture and livestock rearing heavily rely on natural resources, environmental concerns directly impact the health and well-being of nature and people. The land is a crucial resource for sustenance and productivity, and it is primarily utilised for agriculture and livestock rearing (Thapa, 2013).

Water is another tangible capital that holds particular significance, especially in developing nations where women often bear the brunt of water-related tasks (Mengistu & Assefa, 2020). Uttarakhand's fertile land and favourable climate support agriculture and horticulture, which are communities' primary livelihood sources. Natural capital, including soil quality, water resources, and biodiversity, is essential for sustainable farming practices that ensure food security and income generation. The state's extensive forest cover provides timber, fuelwood, fodder, medicinal plants, and wild fruits. Sustainable management of these forest resources ensures long-term availability and ecological balance, supporting the livelihoods of forest-dependent communities.

The study found that natural capital is abundant for the local communities, and they derive livelihoods from natural resource-based activities like rhododendron and tejpatta. The SHG members also cultivate vegetables that grow throughout the year: pumpkin, cucumber, beans, radish, carrot, coriander, and greens, but these are grown in smaller proportions and are consumed domestically. Meanwhile, the commercial viability of these vegetables is relatively high, and geo-climatic conditions support their mass production. Ginger, turmeric, chilli, tejpatta, coriander, and garlic are the spices grown in all surveyed VPs for this study. The local communities also reported that potatoes have recently attained impressive production figures among other vegetable crops, mainly in the highlands.

Table 7: A representation of livelihood capital and resources that support sustainable livelihoods and community resilience

Livelihood Capital (Outcomes)	Social Capital
	Natural Capital
	Human Capital
	Physical Capital
	Financial Capital
UFRMP-JICA (Efforts)	Culture
	Norms
	Social Values
	Trust
	Tolerance
	Acceptance
	Cooperation
	Mutual support
	Network
	Equity
	Inclusiveness
	Solidarity
	Reciprocity
	Raw materials
	Water
	Ecosystem
	Biodiversity
	Financial Literacy
	Value-addition Skills
	Leadership
	Health
	Nutrition
	Light infrastructure
	Smart Infrastructure
	Heavy infrastructure
	Economic Empowerment
	Household Saving
Community Savings	
Purchasing Power	
Microfinance	

During the PRA, two SHG members stated:

“Through the UFRMP-JICA initiative, I learned sustainable farming techniques that have improved our crop yields and reduced dependency on the forest for fuel, wood and fodder.”

SHG Member: Hema Devi
Van Panchayat: Rohada

Nanda devi (JICA) Gairsain Swayatt
Sehkarita, Ranikhet Forest Division



“Through the UFRMP-JICA initiatives, we have planted trees and revitalised our local forest, contributing to better forest health. Joining the SHG has empowered us to manage our natural resources more effectively, ensuring a better future for our children.”

SHG Member: Bhagwati Devi
Van Panchayat: Pantoli

Maa Barahi (JICA) Swayatt Sehkarita,
Nainital Forest Division



These quotes and analysis (see Table 2) reflect the experiences and benefits of forest communities in Uttarakhand that have gained natural capital through self-help groups, emphasising sustainable practices, environmental conservation, and community well-being. The SHG members also suggested that a sustainable livelihood can be ensured if more land is devoted to off-season vegetables. Scientific training programmes can be imparted to farmers to encourage them to adopt cash crop farming. The UFRMP-JICA provides infrastructure facilities such as the construction of cold storage, availability of markets, improved seeds, and adequate manure to enhance the production of cash crops. The group's focus on sustainable resource management has helped us preserve our natural capital, ensuring their land remains productive for future generations.

5.3.2. Physical Capital

Physical capital encompasses infrastructures and productive assets such as roads, secure buildings, and telecommunications, enabling individuals to fulfill basic needs and enhance

productivity (Wu et al., 2014). It consists of heavy infrastructure (e.g. warehouse, mode of transportation), light infrastructure (e.g. tools and machinery), and smart infrastructure (e.g. telecommunications). In remote rural areas, the absence of essential services like transportation and agricultural tools has significant repercussions for communities' livelihood activities (Thapa et al., 2016). Light infrastructures contain essential tools and machinery for value additions and branding that can significantly enhance productivity, reducing time and effort expended on production activities.

During the field investigation, we found that UFRMP-JICA has built a network of physical capital, such as growth centres, to run cluster-level federations to support SHGs in achieving their goals. We also found that nearly all SHG members who had participated in this study reported holding livestock. Large animals such as cows, buffaloes, and mules were the dominant animals kept by communities and contributed significantly to household income. Rearing livestock provides a reliable source of income and livelihood for many households. It is not just about direct income from selling animal products like meat, eggs, milk and ghee. It also involves utilising them for personal consumption and other purposes like ploughing fields and transporting goods in mountainous regions where machinery might not be practical.

Furthermore, federations and SHGs have infrastructural support, including tools and machines, fruit processing, product packing, and livestock rearing. Federation buildings with modern facilities have also been established. Nevertheless, people's dependency on physical capital developed by UFRMP-JICA varied across the study area. However, one participant stated:

“The project has also provided processing and packaging facilities for our produce for the value addition.”

SHG Member: Basanti Devi
Van Panchayat: Pantoli

Maa Barahi (JICA) Swayatt Sehkarita,
Nainital Forest Division



The quote and analysis (see Table 2) highlight the positive impact of gaining physical capital through UFRMP-JICA, emphasising improvements in infrastructure, tools, and overall living conditions for rural communities in Uttarakhand.

5.3.3. Human Capital

Human capital comprises the skills, knowledge, ability and health that enable people to pursue different livelihood strategies and achieve their livelihood objectives (Li et al., 2020). This encompasses tangible aspects like education and training and intangible qualities like creativity and problem-solving abilities. Investing in human capital through education and professional development is vital for enhancing productivity, innovation, and economic growth (Giacovelli, 2022). Human capital also includes assets like labour skills and health, enabling individuals to pursue various livelihood strategies (Mawa et al., 2021). Better human capital is crucial for sustainable resource management and community empowerment for alternative livelihood. Human capital is a crucial factor in fostering sustainable forest management and enhancing the livelihoods of local communities in Uttarakhand.

The result shows that the UFRMP-JICA has successfully invested in enhancing human capital, which is fundamental to sustainable livelihoods in Uttarakhand, by improving skills, education, entrepreneurship, governance, capacity building, and technology adoption for sustainable livelihoods and forest management. In the studied SHGs, the available human resources are skilled, knowledgeable, and healthy, enabling individuals or households to pursue different livelihood strategies to achieve their livelihood objectives. Given the available resources, technology and formal institutional structures (federations and SHGs), human capital is helping communities escape poverty. Investing in human capital ensures communities sustainably manage resources and adapt to future challenges. By investing in SHG members' human capital, the local communities have become more resilient and self-reliant and can improve their livelihoods and manage natural resources sustainably.

The following quotes and analysis (see Table 2) highlight the significant impact of gaining human capital through self-help groups, focusing on education, skill development, and personal growth among rural women in Uttarakhand. They also reflect the journey and experiences of rural women who have gained leadership skills through self-help groups.



During the PRA, two interviewees stated that

'I never imagined I could lead others to create positive change at the grassroots level. Being part of the SHG has given me the confidence and skills to lead my village. Attending various meetings and trainings organised by UFRMP-JICA taught me that leadership is about service and empowerment. Today, I am the village head (Gram Pradhan) and am committed to uplifting every village member.'

SHG President: Rekha Bisht
Van Panchayat: Badet

Ranikhet (JICA) Swayatt Sehkarita,
Ranikhet Forest Division



'The UFRMP-JICA has empowered us to challenge traditional gender roles and stand against discrimination. We are forging a new path for future generations. I have learned the importance of solidarity and collective action. Together, we have the power to transform our community and uplift each other.'

SHG President: Bharati Kaira
Van Panchayat: Binta

Ranikhet (JICA) Swayatt Sehkarita,
Ranikhet Forest Division



5.3.4. Social Capital

Social capital encompasses the array of social resources like networks, relationships, and associations that individuals rely on when pursuing different livelihood strategies requiring coordinated efforts (Grootaert, 2002). These factors are vital for generating sustainable livelihood opportunities and often directly benefit other aspects, such as innovation and knowledge sharing (Mahato & Jha, 2023). Social capital in the form of social resources or social networks is one of farmers' most essential assets, which can increase poor households' labour productivity and income (Goulden et al., 2013). Efficient utilisation of social capital relies on how people interact, collaborate, and resolve community conflicts. Furthermore, social capital includes internal equity and

inclusiveness within the community. Social equity and inclusiveness are critical values in sustainable livelihood development and pertain to fair opportunity access concerning gender, income, caste, and age (Sanyal, 2015).

During the PRA, two participants had a firm and positive opinion about UFRMP-JICA in building social capital among their communities.

'The UFRMP-JICA has created a strong network of women who share resources, knowledge, and encouragement, strengthening us all together. The SHG has provided a platform for us to collectively address social issues, making our voices heard and our community better.'

SHG Member: Poonam Shahi
Van Panchayat: Saili Sunoli

Ranikhet federation,
Ranikhet Forest Division



'The UFRMP-JICA has empowered us to work together on community projects, fostering a sense of unity and shared purpose. Through the SHG, I have learned the importance of networking and collaboration, which has opened up new opportunities for sustainable forest resources management and diverse livelihood.'

SHG President: Champa Devi
Van Panchayat: Badet

Ranikhet (JICA) Swayatt Sehkarita,
Ranikhet Forest Division



We found that the local communities in the study area have rich social capital that includes common culture, norms, social values, trust, tolerance, acceptance, cooperation, mutual support, network, equity, inclusiveness, solidarity, and reciprocity. Furthermore, we found that SHGs have strong social networks that provide individuals with better access to resources, such as micro-credit, training, and employment opportunities. These resources are essential for improving livelihoods and achieving the long-term sustainability of forest resources. Indeed, individuals have a vast opportunity to collaborate and share resources and information. This collaboration leads

to more efficient and effective community projects and economic activities, promoting sustainable development. We found that SHG members collectively address challenges and find solutions. This collective problem-solving capability is vital for adapting to changes and overcoming obstacles that might threaten their sustainable livelihoods and forest management.

These quotes and analysis (see Table 2) reflect the profound impact of self-help groups in fostering social empowerment among marginalised women in Uttarakhand, highlighting themes of belonging, confidence, and advocacy.

5.3.5. Financial Capital

Financial capital encompasses all the financial and economic resources individuals or communities utilise to achieve their livelihood objectives, including cash availability, employment, and economic development (Jezeer et al., 2019). In rural areas of Uttarakhand, it is crucial to assess how projects can enhance the financial status, such as total income,

considering factors like cash flow, bank deposits, savings, and earnings. Sustainable livelihood projects often impact financial capital significantly, requiring capacity building and infrastructure maintenance, which can be costly (Mengistu & Assefa, 2020). These projects can notably enhance productivity in economic activities, providing employment opportunities and fostering the emergence of new activities by introducing new infrastructure and technologies.

The UFRMP-JICA has implemented various activities to ensure financial capital for sustainable livelihoods in Uttarakhand by facilitating access to credit, education, and infrastructure and enhancing community development and market access. We found that the availability of financial capital enables SHG members to access credit and loans for starting or expanding businesses, investing in agriculture, or developing infrastructure (see Appendix 1 & 2). During our surveys, the SHG members also reported that investments have created a robust foundation for economic empowerment, forest sustainability, and

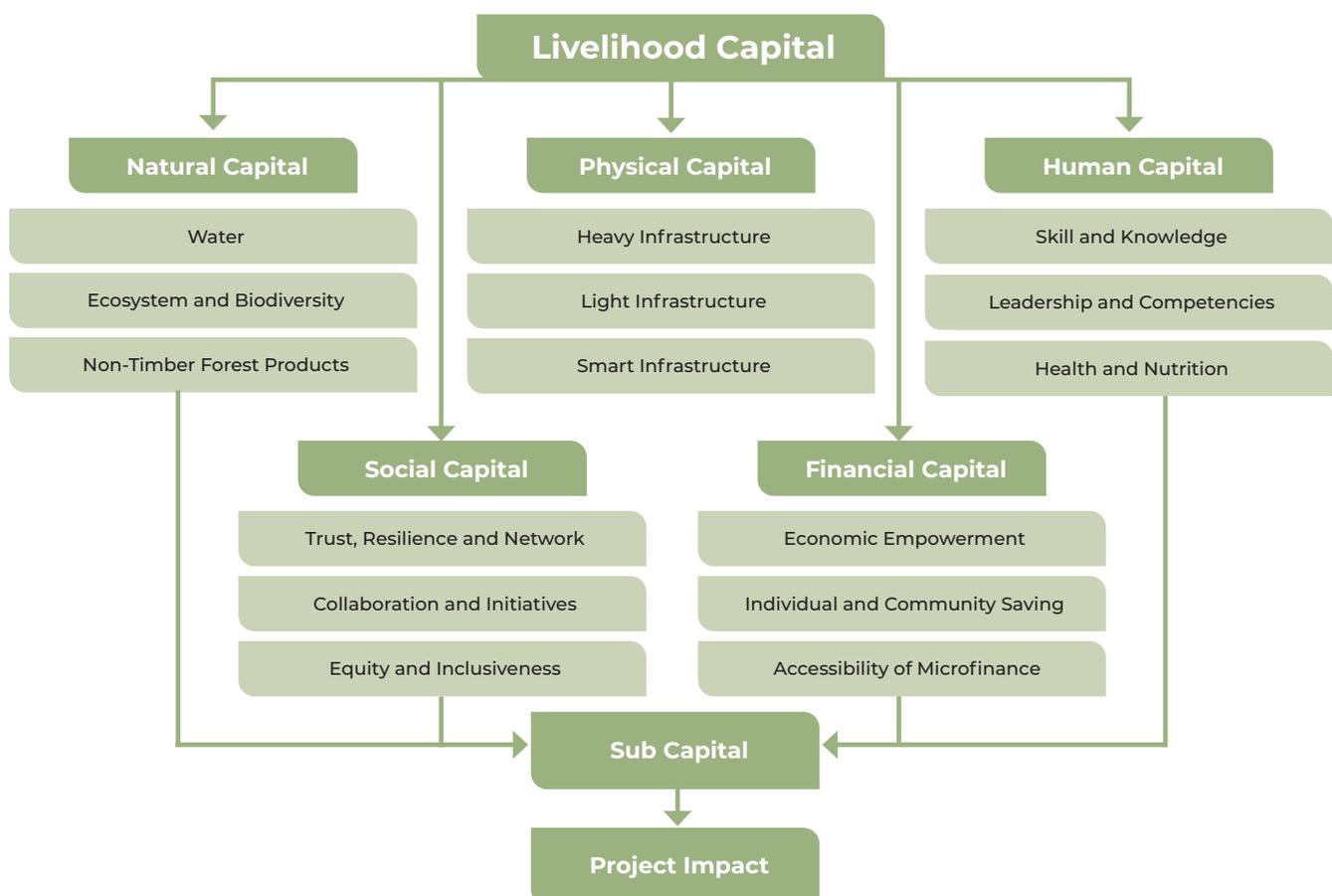


Figure 6: Livelihood capitals for the UFRMP-JICA model (Adopted from Colombo et al., 2018)

improved quality of life. For instance, income from sales of livestock products and millet remained the primary source of livelihood in the study area; across all respondents, there were perceptions that opportunities for income generation had increased.

Two of the respondents stated that

'Joining the self-help group transformed my life. I now have a steady income from mushroom cultivation and the confidence to make decisions for my family. It feels incredible to be financially independent.'

SHG Member: Vimla Goswami
Van Panchayat: Thapaliya Mehragaon

Naina Devi (JICA) Swayatt Sehkarita,
Nainital Forest Division



'I started a small fruit processing business with the microloan and training I received from the UFRMP-JICA. Now, I can contribute to my children's education. Economic empowerment has given me a voice in my household. I am respected, and my opinions are valued, which was not the case before.'

SHG Member: Geeta Devi
Van Panchayat: Pataliya

Maa Barahi (JICA) Swayatt Sehkarita,
Nainital Forest Division



These quotes and evaluations (see Table 2 and Appendix I & II) represent the voices of economically marginalised women who have experienced empowerment through the UFRMP-JICA. They also reflect the transformative impact of self-help groups on the lives of economically marginalised women in Uttarakhand, emphasising empowerment, community, and financial independence.

5.4. Governance Process

Through the UFRMP-JICA, SHGs (forest fringe communities) have encouraged natural resource management, ensuring they benefit socially and economically from conservation efforts. Community-based natural resource management programmes navigate complex social-ecological systems with various

stakeholders by supporting various sustainable livelihood initiatives, including value chains. Environmental governance encompasses institutions (laws, policies, rules, and norms), structures (decision-making bodies, formal organisations, and informal networks), and processes (decision-making, policy creation, negotiation of values, and conflict resolution) (Bennett & Satterfield, 2018). Environmental governance primarily aims to regulate individual behaviours or collective actions to achieve public ecological benefits and related livelihood outcomes. Effective environmental governance can sustain or enhance ecosystem functioning and provide ecosystem services, including sustainable livelihood, by preserving habitats and biodiversity. A thorough understanding of ecological governance involves analysing environmental decisions and assessing whether the resulting policies and processes lead to sustainable environmental and social outcomes.

5.4.1. Principles of Legitimacy, Inclusiveness, and Integration

The UFRMP-JICA is widely accepted and recognised by stakeholders as an authority and institution. Diverse groups, especially economically marginalised communities, have participated in various value chain initiatives through SHGs to get socioeconomic benefits. We found that the CFLs were sincere throughout the decision-making process, which is the proper authority to build SHGs' capacity to achieve the UFRMP-JICA's objectives. The local communities were allowed to express their preferences about various activities related to value chains. The important views were heard during the deliberations about livelihood and forest management in SHG meetings across the project area. The SHG members greatly influence management decisions, providing better input on sustainable forest management and enhancing their livelihoods across Uttarakhand. Furthermore, the UFRMP-JICA has integrated forest policies with sustainable livelihood development strategies to empower the local community in Uttarakhand.

The project has partnered with private sectors, NGOs, and civil societies to utilise resources, expertise, and innovative solutions. This collaboration aims to ensure sustainable forest management that conserves biodiversity, enhances ecosystem services, and improves local community livelihoods, ultimately contributing to the forest's overall health and the region's socio-economic development.

During the PRA, SHG members testified alike

'Our involvement in the UFRMP-JICA has given us a legitimate voice in our forests' decisions. We feel respected and heard. Participating in the project gave us a sense of ownership over our forest resources. This legitimacy motivates us to work even harder to protect and manage them.'

SHG Member: Hansi Devi
Van Panchayat: Badet

Ranikhet (JICA) Swayatt Sehkarita,
Ranikhet Forest Division



'Inclusiveness is at the heart of the project, and it has empowered us to participate fully and equally in forest resource management, improving our livelihoods and our environment. The project has successfully integrated traditional knowledge with modern practices, creating a holistic approach to forest management that benefits everyone.'

SHG Member: Tara Mehra
Van Panchayat: Thapaliya Mehragaon

Naina Devi (JICA) Swayatt Sehkarita,
Nainital Forest Division



These testaments and evaluations reflect the importance of legitimacy, inclusiveness, and integration in the UFRMP-JICA, highlighting how these principles empower forest communities and contribute to sustainable forest management.

5.4.2. Principle of Adaptability

The UFRMP-JICA has developed institutions (cluster federations and SHGs) that adjust

effectively to changing circumstances, new challenges, and emerging opportunities and challenges for various value chains. This involves adjusting policies, practices, and management strategies in response to new information, environmental changes, and evolving community needs. The local communities are also involved in the governance process with diverse perspectives and foster collaboration among themselves and other stakeholders for sustainable livelihood activities. Besides, enhancing the skills and knowledge of all stakeholders involved ensured that they can effectively participate in and contribute to adaptive governance.

Federations and SHGs were able to make timely adjustments and improvements by continuously monitoring the outcomes of management practices and evaluating their effectiveness. The UFRMP-JICA has also established mechanisms through cluster federations for sharing information and best practices among stakeholders, fostering a collaborative approach to problem-solving and incorporating strategies that enhance forest ecosystems and local communities resilience to environmental and socio-economic changes. Indeed, the UFRMP-JICA has a governance structure for adaptability, ensuring sustainable forest management and the long-term well-being of local communities and ecosystems.

During group meetings, one of the VP heads shared her thoughts below.

'Through the UFRMP-JICA, we have learned to embrace new methods and technologies, making our forest management practices more effective and sustainable. The training and support from the UFRMP-JICA have equipped us with the skills to adapt our traditional practices to meet modern livelihood challenges. Indeed, we have become more resilient and resourceful in managing our forest resources to benefit our environment and community.'

SHG Member: Ganeshi Devi
Van Panchayat: Rohada

Nanda Devi (JICA) Gairsain Swayatt
Sehkarita, Ranikhet Forest Division



The above thoughts and analysis highlight the importance of adaptability in the UFRMP-JICA, emphasising how this quality empowers rural communities to effectively manage and protect their forest resources in the face of change.

5.4.3. Principles of Fairness, Transparency, and Accountability

The UFRMP-JICA has adopted principles of fairness, transparency, and accountability to ensure effective and ethical management of forest resources and value chain initiatives to improve the livelihoods of local communities, thereby contributing to Uttarakhand's overall forest health and socio-economic development. By adhering to these principles, the project has fostered trust and cooperation among stakeholders, enhanced the effectiveness of its initiatives, and moved towards sustainable management of forest resources.

The cluster federations respect the views of SHG members throughout the decision-making process and micro-planning to achieve sustainable forest management goals and enhance livelihoods. In SHGs, communities always make equitable and impartial decisions and take action to run various value chain activities. Their records and data are available for everyone to scrutinise and act on.

The CLFs have ensured that all stakeholders, especially local communities, get fair access to resources and benefits of the value chains. All relevant stakeholders also get involved in decision-making processes, and SHGs give voice to marginalised and vulnerable groups. Federations maintain transparent and open communication channels with all stakeholders about project goals, processes, and outcomes by regularly publishing reports on project progress, financial expenditures, and performance evaluations to keep all stakeholders informed. The UFRMP-JICA has established robust mechanisms for micro-planning, monitoring (i.e. MIS) and evaluating the project's performance against its objectives, including regular audits and assessments. The project also takes appropriate corrective actions when deviations from planned activities or

objectives occur, holding responsible parties accountable for their actions.

During a PRA, SHG members recorded their statements like

'Fairness is at the heart of the UFRMP-JICA. We are confident that decisions are made with our best interests in mind, ensuring equitable access to resources for all. The project's commitment to fairness has empowered us to participate in forest management decisions without fear of discrimination or bias.'

SHG Member: Beena Devi
Van Panchayat: Saili Sunoli
Ranikhet federation,
Ranikhet Forest Division



'In our SHG, everyone has a voice and benefits from various value-chain activities implemented by the UFRMP-JICA. Additionally, as SHG members, we are accountable to each other and our community. We take our roles seriously and strive to meet our commitments.'

SHG Member: Vijmati Devi
Van Panchayat: Ghandiyal
Nanda Devi (JICA) Gairsain Swayatt
Sehkarita, Ranikhet Forest Division



These statements and evaluations showcase the importance of fairness, transparency, and accountability in the UFRMP-JICA, highlighting how these principles empower rural women and foster community trust and collaboration.

5.4.4. Principle of Capability

The UFRM has emphasised building and enhancing the skills, knowledge, and resources necessary for effective forest management and sustainable development. The project ensures that all stakeholders are equipped to contribute to and benefit from the project. The UFRMP-JICA has a skilled and qualified workforce that plays crucial roles in effective governance, including recruiting, training, and retaining competent staff across different

federations. Additionally, the compatibility of cluster federation and SHGs has been developed thoroughly by supplying necessary tools, technologies, and financial resources to stakeholders, enabling them to implement and sustain project activities effectively. Responsive strategies have also been adapted by implementing management practices that can adapt to changing conditions, new information, and emerging challenges to ensure the project's long-term success.

During the PRA, SHG members testified that

'Through the UFRMP-JICA, we have gained valuable skills and knowledge that have enhanced our capability to address challenges and seize opportunities for sustainable value chains. The project's inclusive approach has enhanced our capability to collaborate and work together as a community.'

SHG President: Radha Devi
Van Panchayat: Rohada

Nanda Devi (JICA) Gairsain Swayatt
Sehkarita, Ranikhet Forest Division



'Through our collective capability and determination, we are positively impacting the health and resilience of our forests, ensuring their sustainability for future generations. For instance, UFRM-JICA has empowered us to undertake sustainable forest management activities that help in fire control, plantation activities, watching and warding of planted areas to protect from cattle grazing, and maintenance and care of the plants.'

SHG Member: Sumati Devi
Van Panchayat: Ghandiyal

Nanda Devi (JICA) Gairsain Swayatt
Sehkarita, Ranikhet Forest Division



These statements and evaluations underscore the importance of recognising and enhancing the capability of rural women in Uttarakhand to effectively manage value chains and conserve forest resources through various activities implemented by the UFRMP-JICA.

5.5. Overview of Governance

The governance process of the UFRMP-JICA is a multi-layered system that emphasises community participation, transparency, accountability, and sustainable management. The study reports that the perceived benefits of participating in SHGs were enhanced income from gainful employment and new business opportunities and participation in community work (e.g. value chain activities). Additionally, we also recorded enhanced social relations, improved access to credit and health facilities, enhanced physical infrastructure (e.g. administrative building), improved income for local people, and coordinated sharing of provisioning ecosystem services like NTFPs and water. The principles of legitimacy, inclusiveness, and integration have been well implemented in SHGs to build a sustainable livelihood for the forest fringe communities. Additionally, transparency, accountability, fairness, and capability principles were also followed while implementing value chain activities at the SHG level. In subsistence-based poor rural agrarian societies, human capital, such as the quality and quantity of available labour, is a building block for acquiring livelihood objectives and sustaining livelihood outcomes.

Drawing from livelihood impact and governance processes, the present case study suggests that participation of the local community in the UFRMP-JICA has great potential for sustainable forest management and enhancing the livelihoods of local communities. However, the analysis also indicates a need to improve institutional mechanisms for sharing resources among the stakeholders with better transparency, accountability, and fairness. Moreover, most SHGs needed more robust facilitation and resources to deliver value chain mandates and some costs were associated with human-wildlife conflicts. For more collaborative governance of sustainable livelihood activities in the federations, local institutions should be reconfigured to allow SHG members to participate actively in decision-making, information sharing, and

equitable access to livelihood-related benefits.

5.6. Sustainability Analysis and Replicability of the UFRMP-JICA

The UFRMP-JICA has significantly contributed to sustainable forest management and the livelihoods of forest-dependent communities through biodiversity conservation and participatory forest management, as well as addressing implementation, capacity building, and sustainability challenges. Another critical aspect of the UFRMP-JICA is improving the livelihoods of forest-dependent communities. Additionally, the UFRMP-JICA has supported the development of NTFPs to provide alternative income sources for local communities.

The outcome of this study indicates that the UFRMP-JICA alternate livelihood model has enhanced social capital by fostering community cohesion and collective action through cluster-level federations and SHGs. It has improved human capital by providing training and capacity-building programmes, equipping community members with essential skills for diverse livelihood opportunities. The model also emphasises the sustainable management of natural resources, enhancing natural capital by reducing communities' dependency on forest resources. Additionally, by following a good environmental governance structure, the project ensures that these practices are implemented responsibly and effectively. Investments in physical capital, such as processing units and storage facilities, have enabled communities to market their produce more efficiently.

Despite its successes, the UFRMP-JICA faces several challenges, including bureaucratic delays, inadequate capacity building, and limited financial resources. There are concerns regarding the sustainability of project activities once external funding ceases. Further improvements in financial capital are needed to ensure the long-term success and sustainability of various implemented value chains. To run the federation in the future, enhanced financial inclusion strategies, such as

better access to microfinance and low-interest loans are crucial. By addressing these financial barriers, communities can fully capitalise on this integrated livelihood approach, leading to resilience and sustainability.

From the UFRMP-JICA study, several policy recommendations have emerged (see Chapter 6) that are crucial for enhancing the project's effectiveness. These recommendations underscore the importance of strengthening the capacity of local institutions and community organisations, improving coordination among stakeholders, and ensuring timely fund flow. The sustainability of project activities through continuous support and follow-up is a pressing need. There is also an urgent call to integrate marginalised groups and develop alternative livelihood options to alleviate the pressure on forest resources. Key steps include promoting adaptive management practices and leveraging technology for monitoring and evaluation. Future research and policy efforts should enhance community engagement, improve socio-economic outcomes, and foster adaptive management practices to maximise the benefits of the UFRMP-JICA model. By addressing these challenges, the UFRMP can continue to play a pivotal role in conserving Uttarakhand's Forest resources and improving the well-being of its rural communities, even after external funding (i.e. JICA) ceases. Therefore, UFRMP-JICA's exit strategy should focus on gradually transferring responsibilities and providing ongoing support; it can ensure that the project's benefits are sustained long after its direct involvement ends.

The UFRMP-JICA demonstrates strong potential for replicability in other regions and offers a sustainable solution to environmental, economic, and social challenges. This potential can be harnessed by carefully considering and adapting to local contexts. However, successful replication will depend on the ability to transfer technology, build institutional capacity, and effectively engage communities. Indeed, further data collection and assessment tailored to specific regions would be necessary for a more detailed analysis to prepare a replicability strategy. □

CHAPTER 06

Conclusion and Recommendations

The UFRMP-JICA has successfully established clusters for a robust ecosystem that supports micro-enterprise growth, managed by poor and marginalised forest fringe communities through SHGs. The SWOT analysis provides insights into the internal and external factors influencing the value chains and SHGs supported by the UFRMP-JICA. The outcome of the SWOT can be used by the UFRMP-JICA for strategic planning and interventions to capitalise on strengths, address weaknesses, seize opportunities, and mitigate threats to sustainable development and empowerment of communities at the grassroots level.

The outcomes indicate that the SHG's enterprises have gained momentum and generated better returns, ultimately improving livelihoods and sustainable forest management. Therefore, more diverse value chains are produced on a large scale, including millet, spices, cow ghee, mushrooms, and processed fruits (e.g., apple, pear, peach, plum, and apricot).

The study's findings demonstrate that these enterprises have gained momentum and generated better returns, leading to improved livelihoods and sustainable forest management. The study also provides an overview of how project implementation has contributed to the growth of livelihood capital (i.e. social, financial, human, physical, and natural capital) through the adoption of principles of environmental governance (i.e. legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability, and adaptability). For instance, the UFRMP-JICA has provided scientific training programmes to local communities,

encouraging them to adopt various value chains. This has led to an increase in the cultivation of cash crops, particularly off-season vegetables, in the study area. Infrastructural facilities such as storage, markets, improved seeds, and manure have also been provided, enhancing the production of value-chain products. We also list the following achievements, challenges and recommendations for the UFRMP-JICA.

6.1. Achievements of the UFRMP-JICA

1. The timely supply of inputs like seeds and organic and chemical fertilisers has helped improve the productivity of value chain produce. The introduction of improved varieties of seeds, such as vegetables, ginger, and turmeric, has been critical in SHGs since they enhance productivity and returns.
2. Organised low-income communities through SHGs have provided an essential source of finance and capacity, significantly contributing to sustainable forest management and economic empowerment.
3. The SHGs have provided a platform for collective action, empowering rural communities to influence and negotiate with the stakeholders to participate in sustainable livelihood and forest management.
4. Community resources have been effectively blended with government finance to invest in community-managed sustainable livelihood activities (i.e. value chains).
5. The UFRMP-JICA has diversified and enhanced livelihood options by implementing various value chain activities to combat rural poverty and secure livelihood.

6. Through income-generating activities and capacity building, the local communities, particularly those dependent on forest resources, have been economically empowered.
7. The UFRMP-JICA has promoted market-led infrastructure for activities critical for SHG members to realise their prices better.
8. In SHGs and cluster federations, post-harvest infrastructure is available for crops.
9. The UFRMP-JICA has also made provisions for the primary and secondary processing of millets in and around areas with better tourist flow.
10. The SHGs' products are sold directly to tourists after primary and secondary processing.
11. The UFRMP-JICA has provided processing infrastructure to cluster federations and SHGs for custom hiring, as the local communities in the study area need their

produce processed for personal consumption and trade.

Despite its successes, UFRMP-JICA has challenges. For instance, uneven implementation across regions, bureaucratic delays, and inadequate capacity building have been reported. Concerns regarding the sustainability of SHGs indicate the need for continuous support and monitoring. The programme's impact on market access and value chain development has also been limited, necessitating greater focus.

6.2. Challenges in Value Chain

There are following major challenges value chains in UFRMP-JICA's

1. Infrastructure bottlenecks: transportation, storage, and market access.
2. Technological limitations: low productivity,

SHG members pose along with Sankala Team at Sumgarh VP



quality standards, and processing facilities.

3. Institutional barriers: regulatory hurdles, limited market information, and financial constraints.

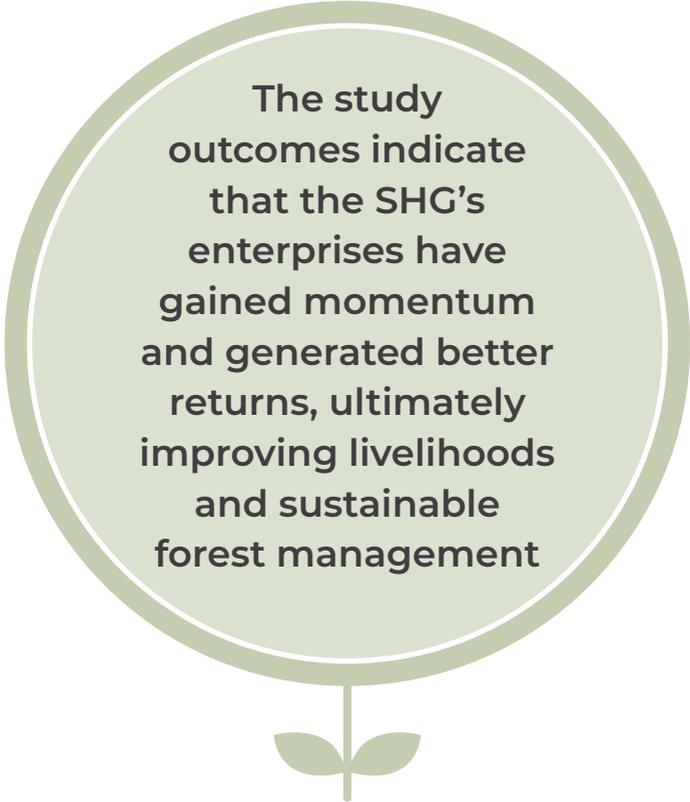
Our study recommends some policy actions to enhance UFRMP-JICA's effectiveness. These include strengthening the capacity of implementing agencies, improving monitoring and evaluation mechanisms, and ensuring timely fund flow. Enhancing the quality of SHGs through continuous capacity building and support is crucial. Additionally, there is a need to focus on market linkages and value chain integration to ensure sustainable livelihoods. Promoting digital financial inclusion and leveraging technology for better implementation and transparency are also important. It is also essential to address implementation, capacity building, and market access challenges for its sustained impact.

Future research and policy efforts should focus on enhancing the quality and sustainability of SHGs, improving financial inclusion, and fostering partnerships to maximise UFRMP-JICA benefits. By addressing these challenges, UFRMP-JICA can continue to play a pivotal role in transforming the livelihoods of the rural poor in Uttarakhand.

6.3. Recommendations for Improving Livelihood

There are following major recommendations for sustainable livelihood in UFRMP-JICA's

1. Refrigerators can be installed in each cluster of villages to avoid milk wastage, and incentives should be given to milk-producing farmers for encouragement.
2. Veterinary centres should be modernised and opened in each cluster of villages.
3. Increasing honey production to meet the growing demand for organic honey will reduce poverty among Uttarakhand's forest fringe communities.
4. The UFRMP-JICA's capacity-building efforts should focus on developing partnerships, networking, and curriculum for its value chain activities.
5. One of the most significant challenges has emerged as animal attacks by wild pigs and



The study outcomes indicate that the SHG's enterprises have gained momentum and generated better returns, ultimately improving livelihoods and sustainable forest management

monkeys on agriculture and horticulture crops. The project must invest in infrastructure like solar boundaries or iron fencing to protect farmers' land from wild animals.

6. The project needs to identify farm mechanisation equipment suitable for hilly areas to promote sustainable clusters and improve the productivity of horticulture products.

The study concludes that there is enormous potential among SHGs to participate in horticulture; the entire scenario may change, and sustainable livelihood may be ensured for the economically marginalised forest communities in Uttarakhand. The forest ecosystem should be managed in ways that allow the provision of goods and services for local communities by holistically addressing issues related to livelihood capital and sustainable value chain. The following suggestions are given to enhance livelihoods and to achieve sustainable forest management: (1) a sizeable proportion of land should be transferred from traditional crops to cash crops cultivation; (2) millet cereal farming should be practised parallel to maintain agrobiodiversity and horticulture; (3) rearing of livestock for producing milk and milk products should be

encouraged; and (4) community participation should be ensured.

One of the significant challenges to achieving the UFRMP-JICA goals is human-wildlife conflict in studied VPs, which mainly damages crops and livestock. Despite various preventative measures, including compensation payments from the government and fencing, the problem persists. These escalating trends endanger

wildlife and encourage a hostile attitude of the local communities towards sustainable forest management. Given this urgent problem, there should be incentives to mitigate the cost of crop damage and livestock theft caused by wildlife.

The UFRMP-JICA alternate livelihood model has enhanced social capital by fostering community cohesion and collective action through cluster-level federations and SHGs. It has improved human capital by providing training and capacity-building programmes, equipping community members with essential skills for diverse livelihood opportunities. The model also emphasises the sustainable management of natural resources, enhancing natural capital by reducing communities' dependency on forest resources. Additionally, by following a good environmental governance structure, the project ensures that these practices are implemented responsibly and effectively. Investments in physical capital, such as processing units and storage facilities, have enabled communities to market their produce more efficiently. However, further improvements in financial capital are needed to ensure the long-term success and sustainability of various implemented value chains. To run the federation in the future, enhanced financial inclusion strategies, such as better access to microfinance and low-interest loans, are crucial. By addressing these financial barriers, communities can fully capitalise on this integrated livelihood approach, leading to resilience and sustainability. This way, the UFRMP-JICA livelihood model can be effectively replicated in other parts of Uttarakhand and the Himalayan regions. □



A woman handpicking produce, contributing to the value chain with her skilled labour and dedication

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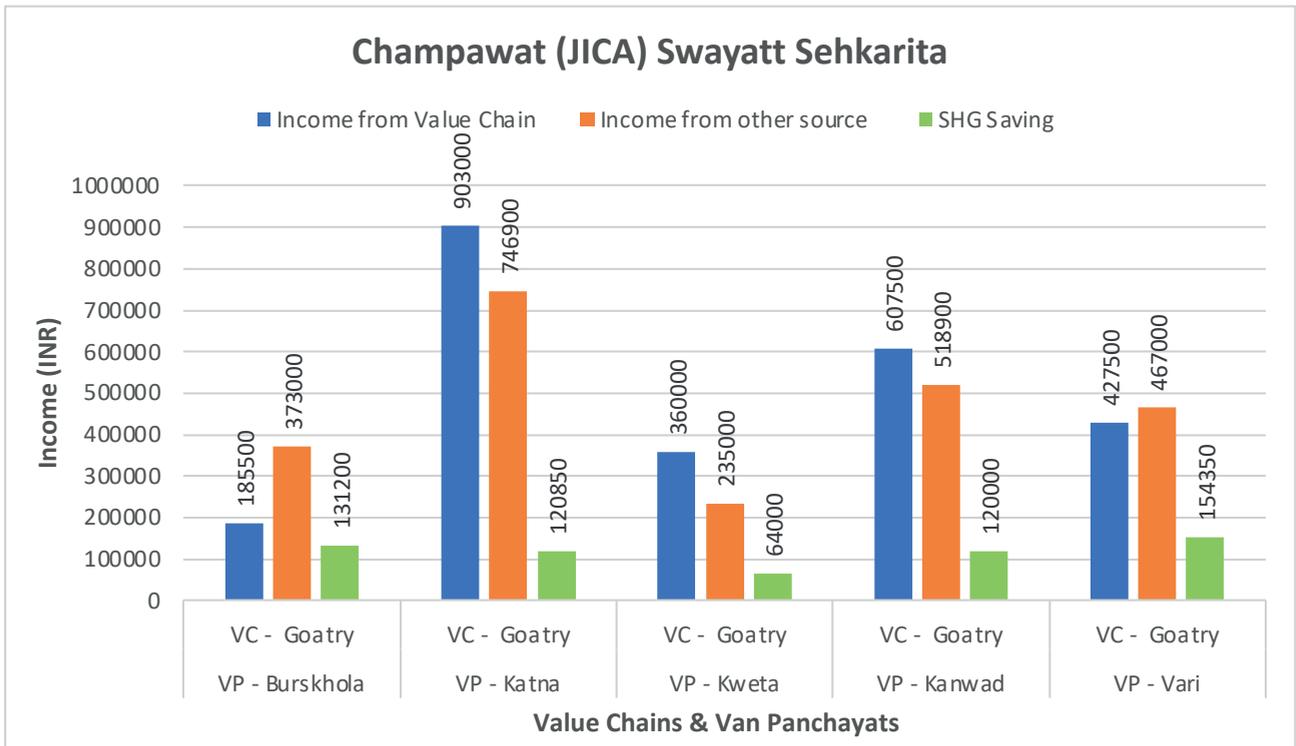
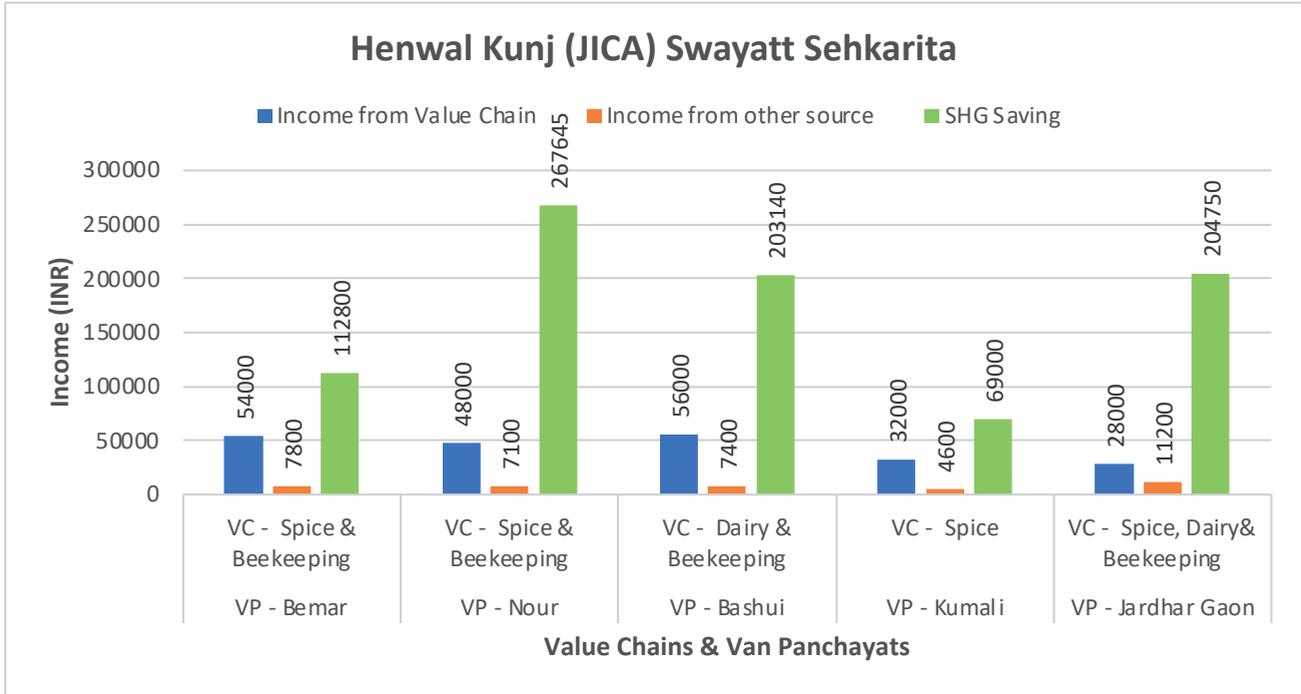
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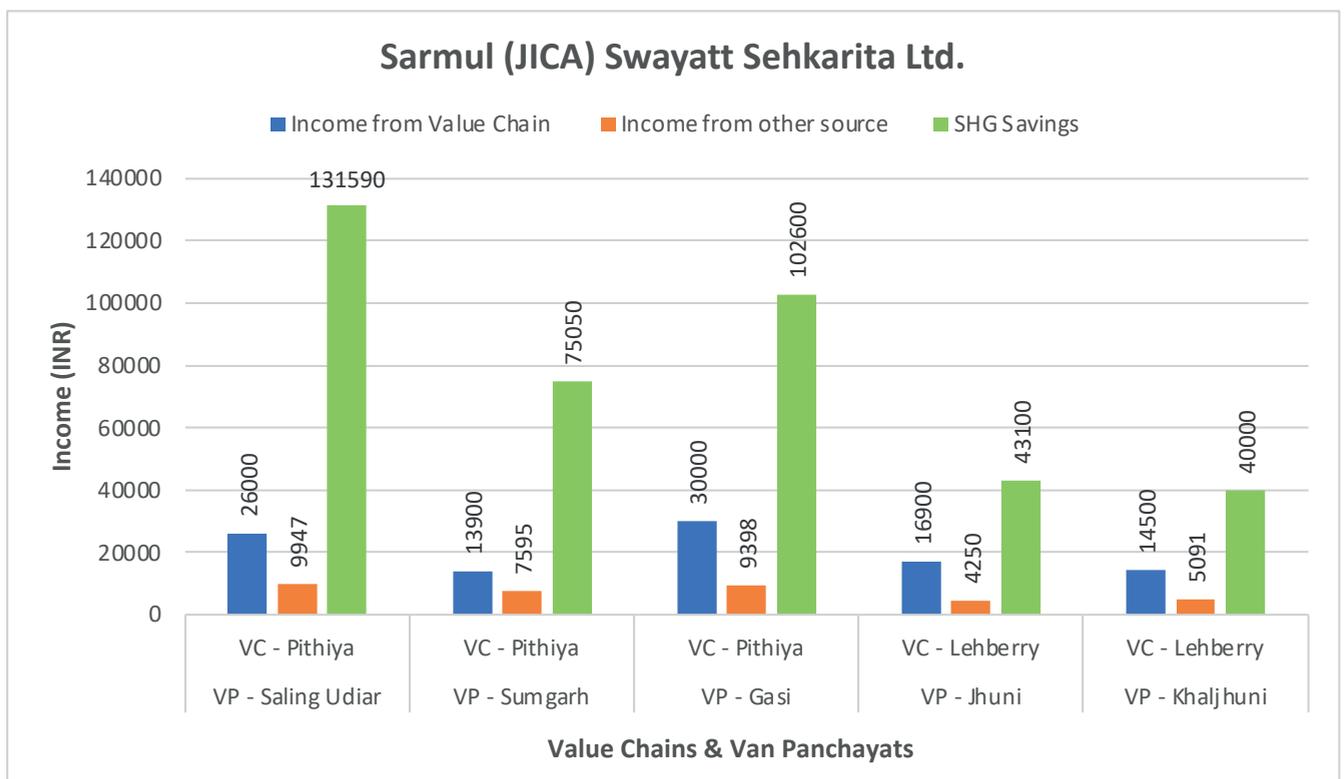
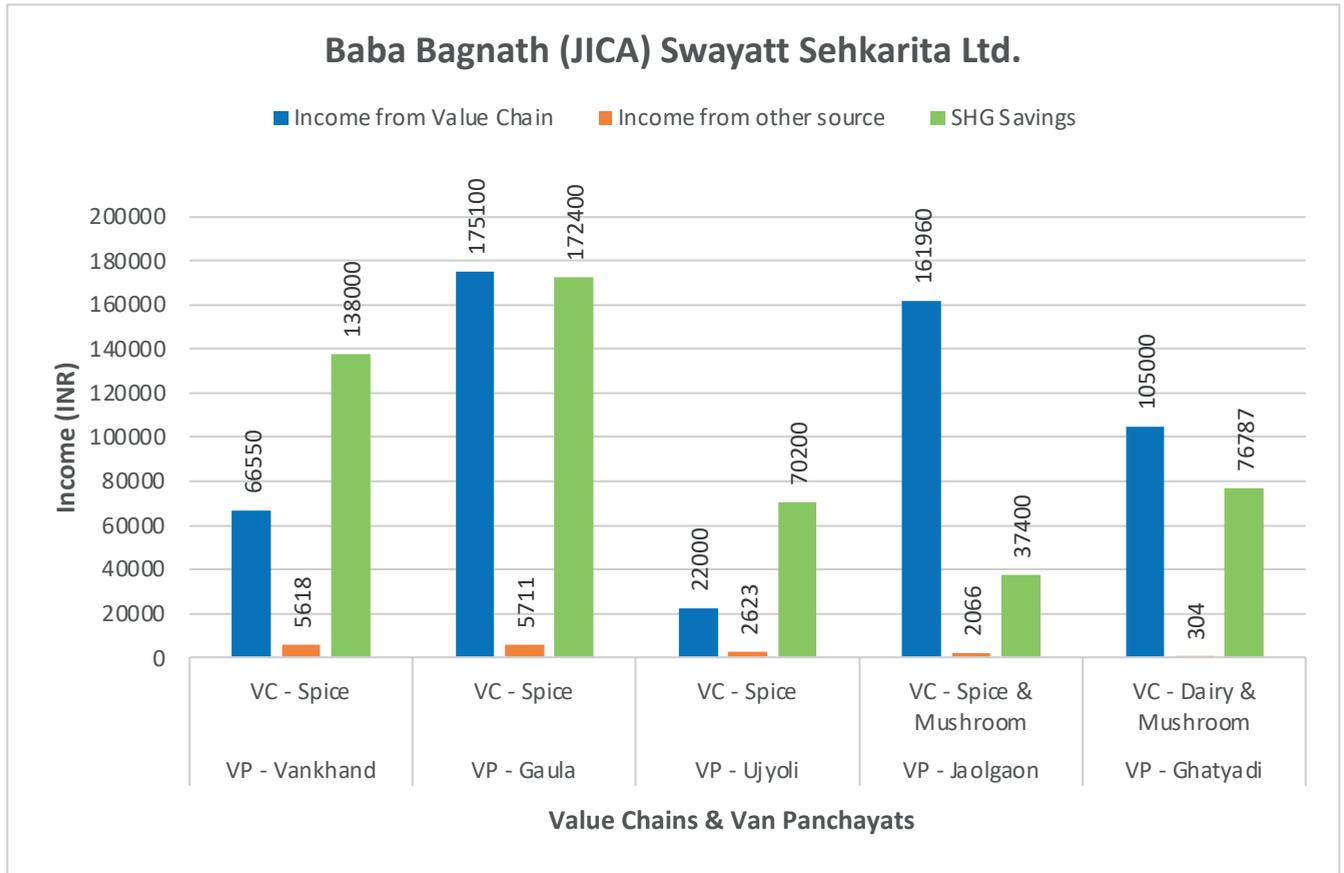
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Appendices

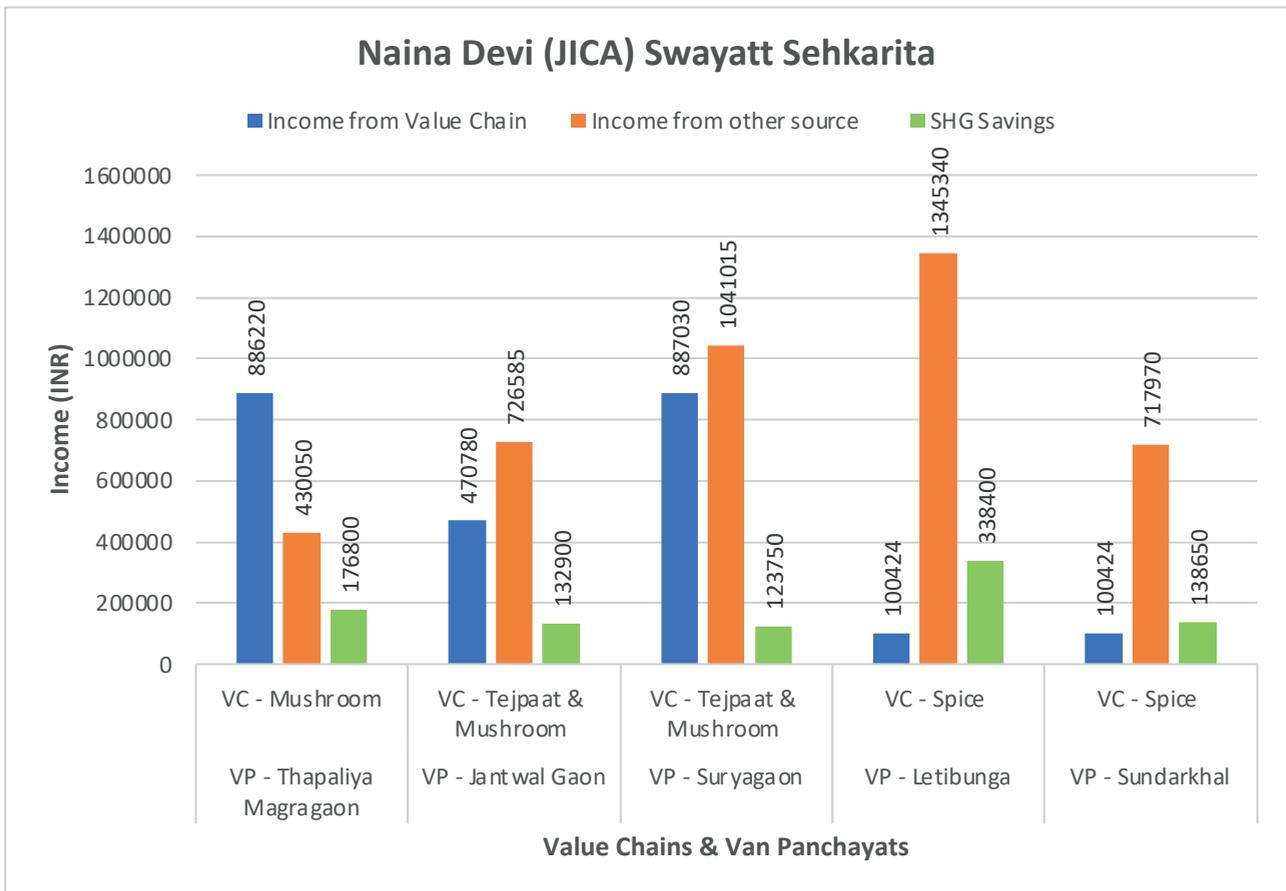
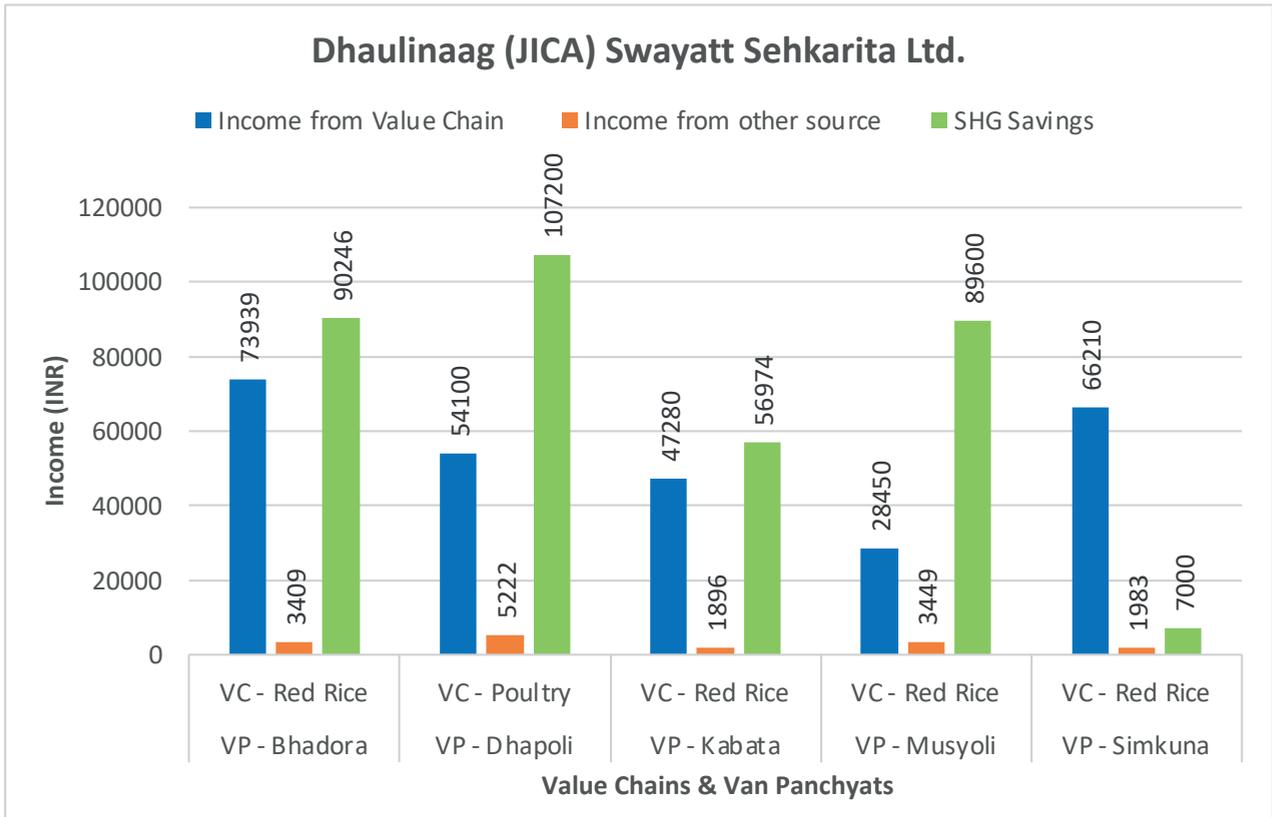
Appendix 1: Analysis of economic empowerment of VPs from different Federations



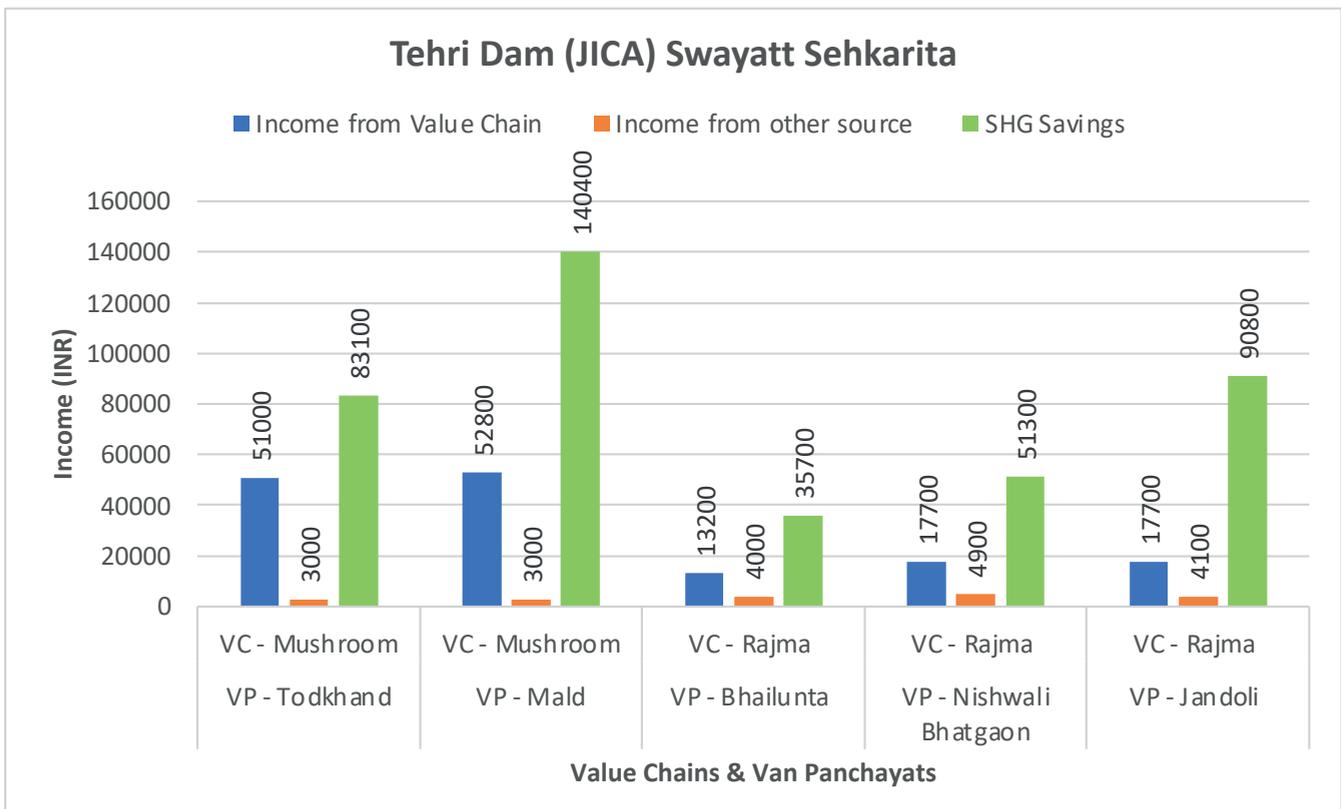
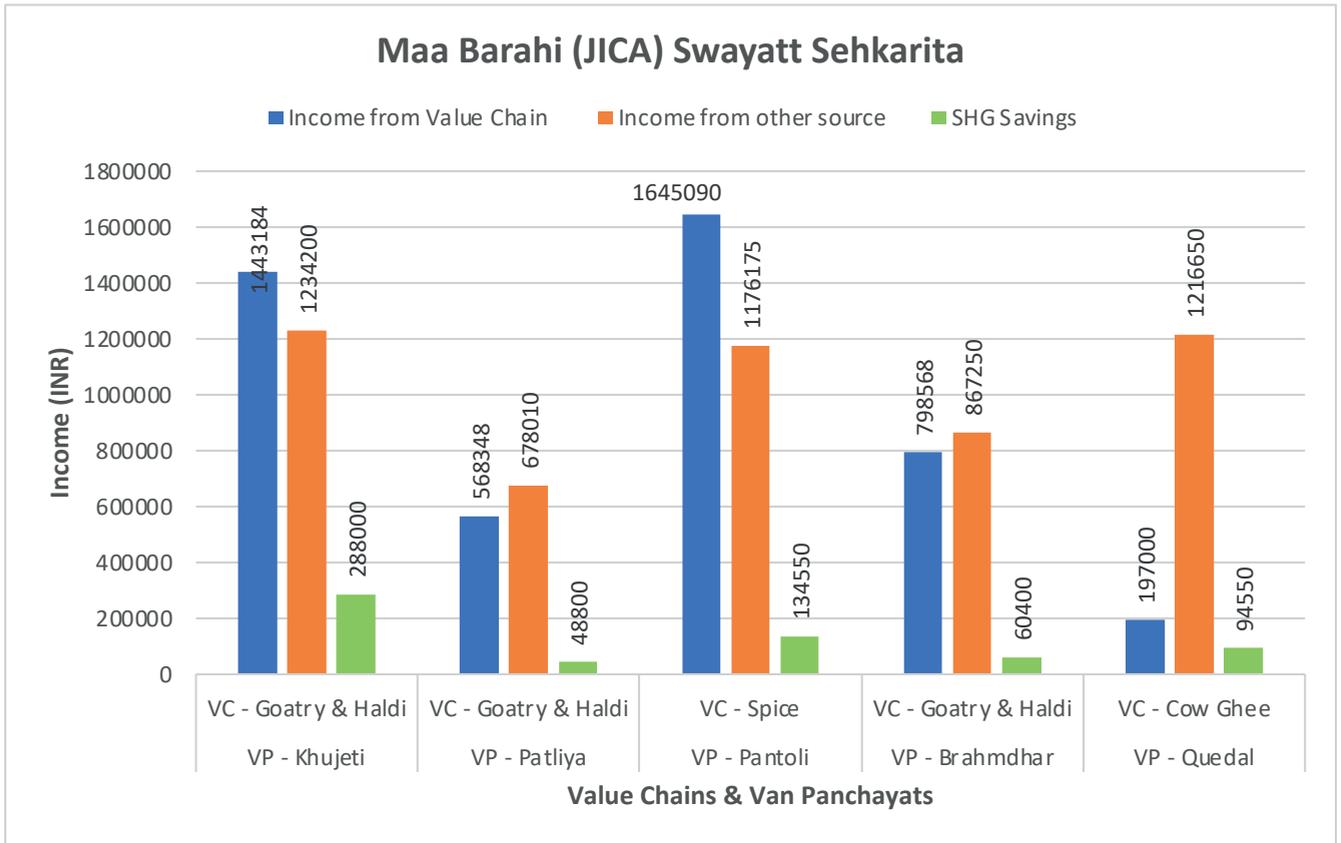
Appendix 1



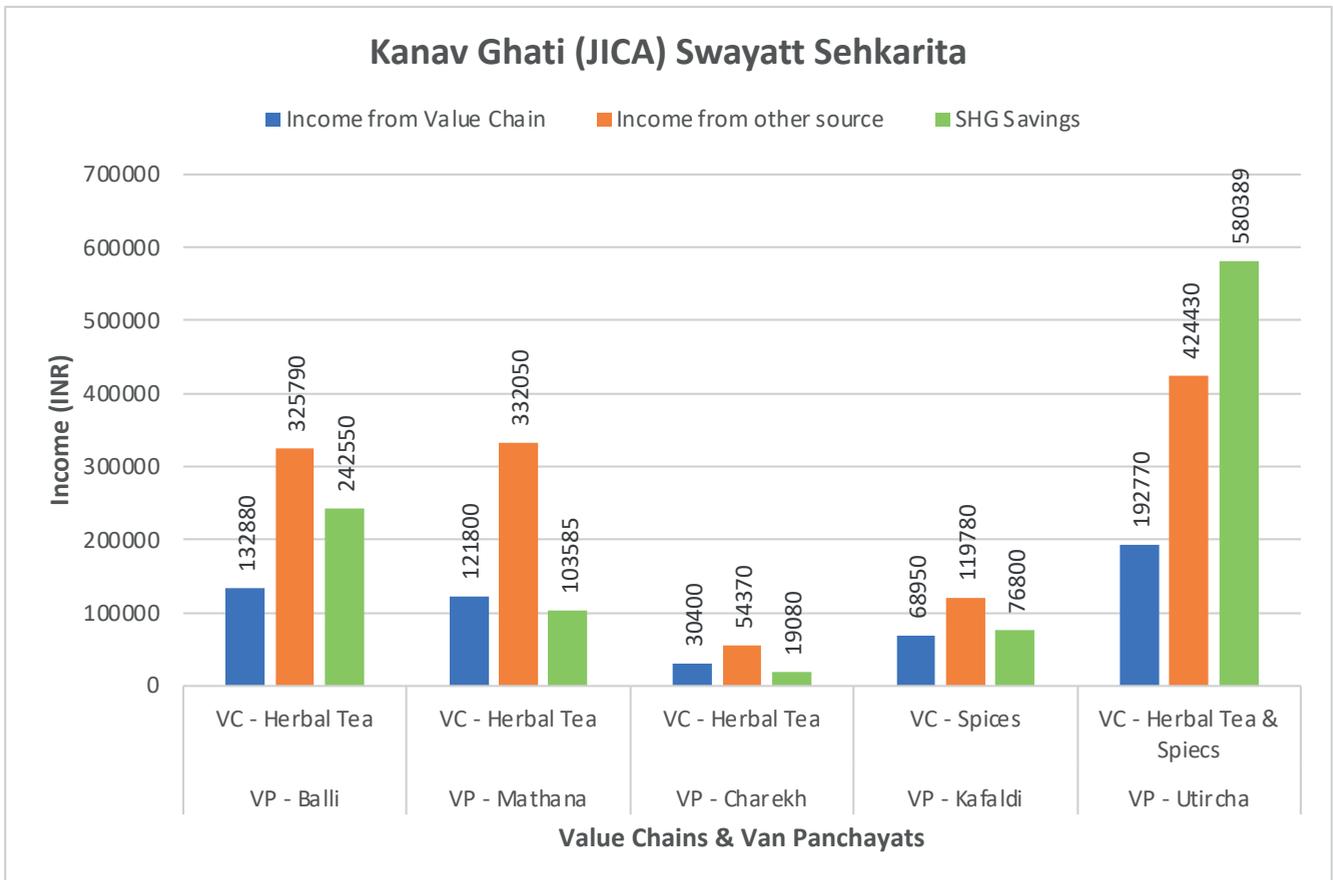
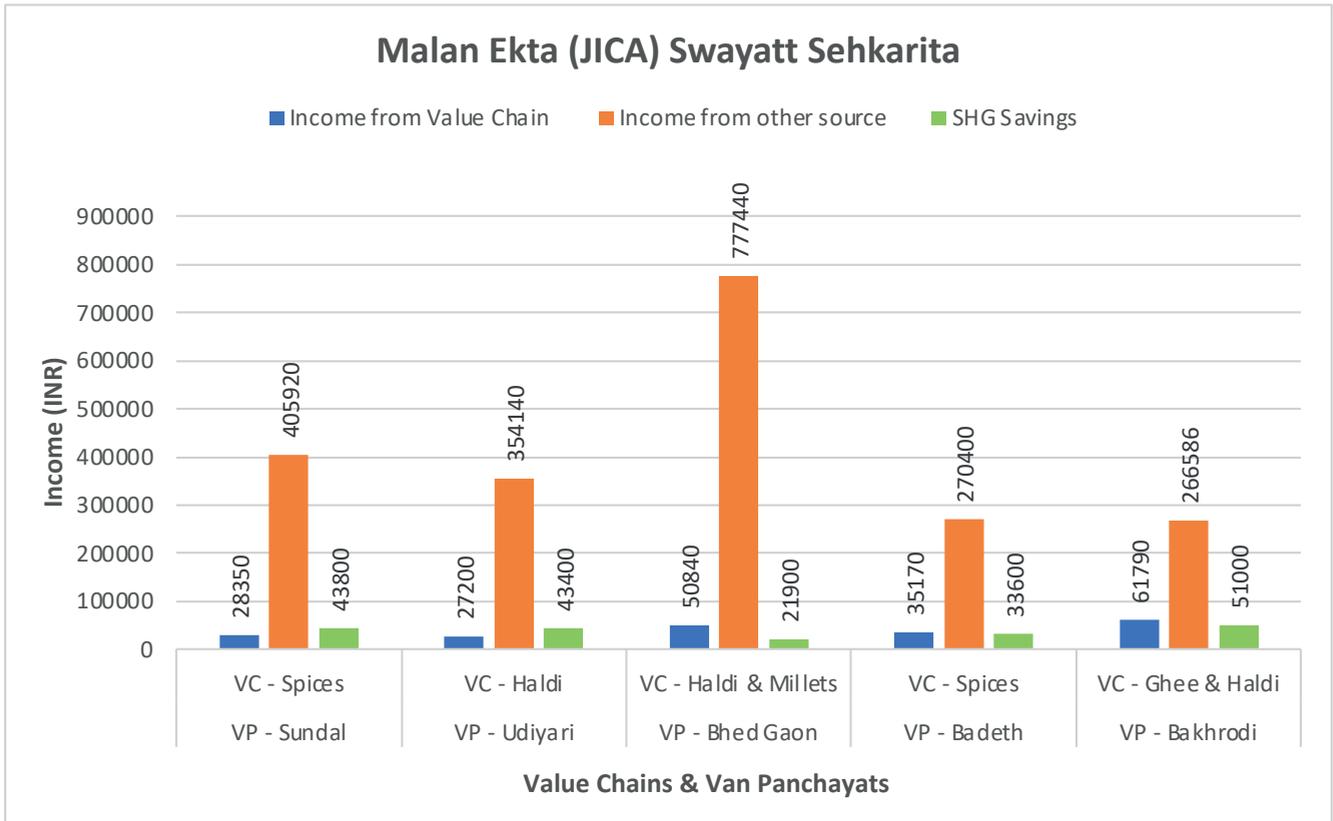
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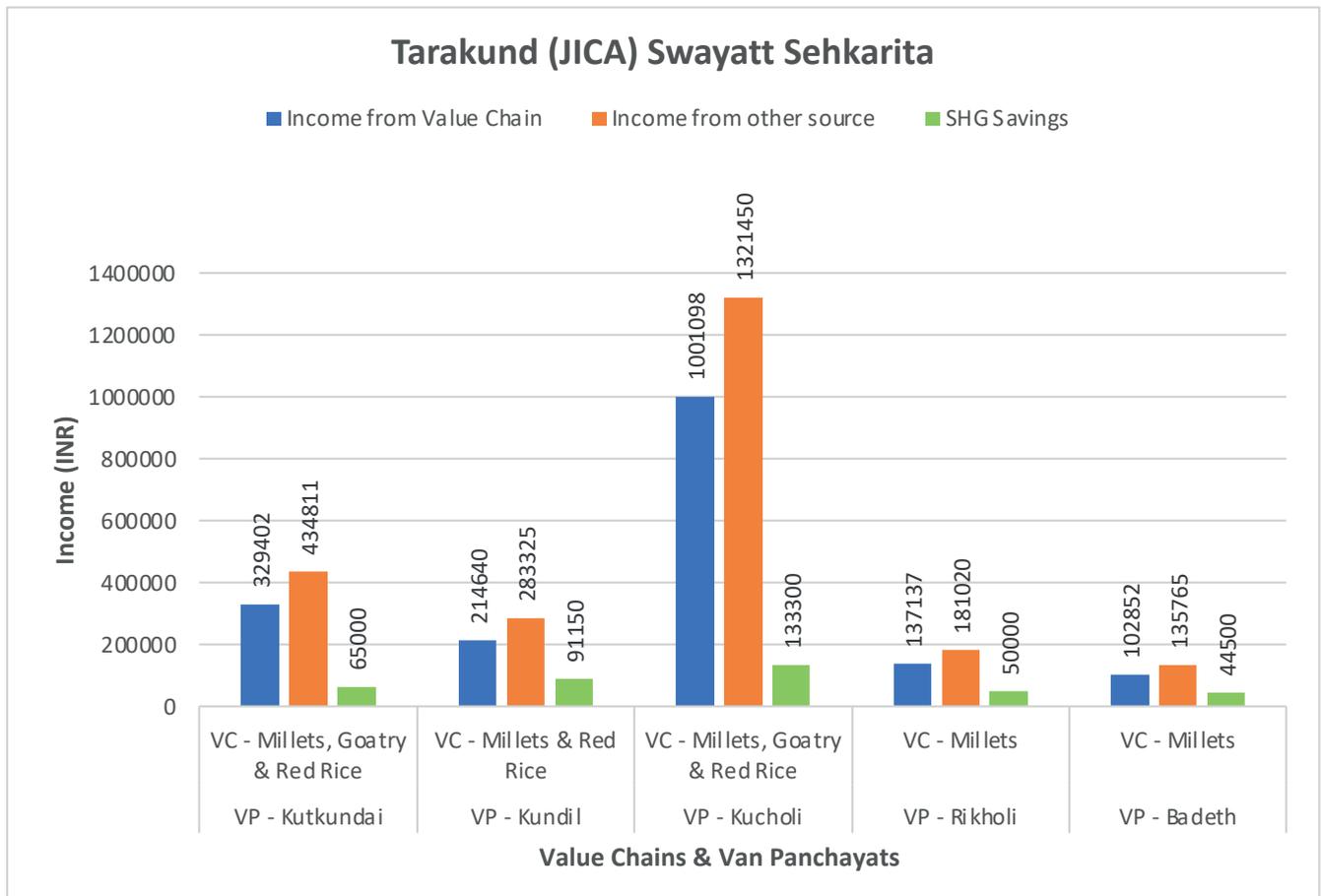
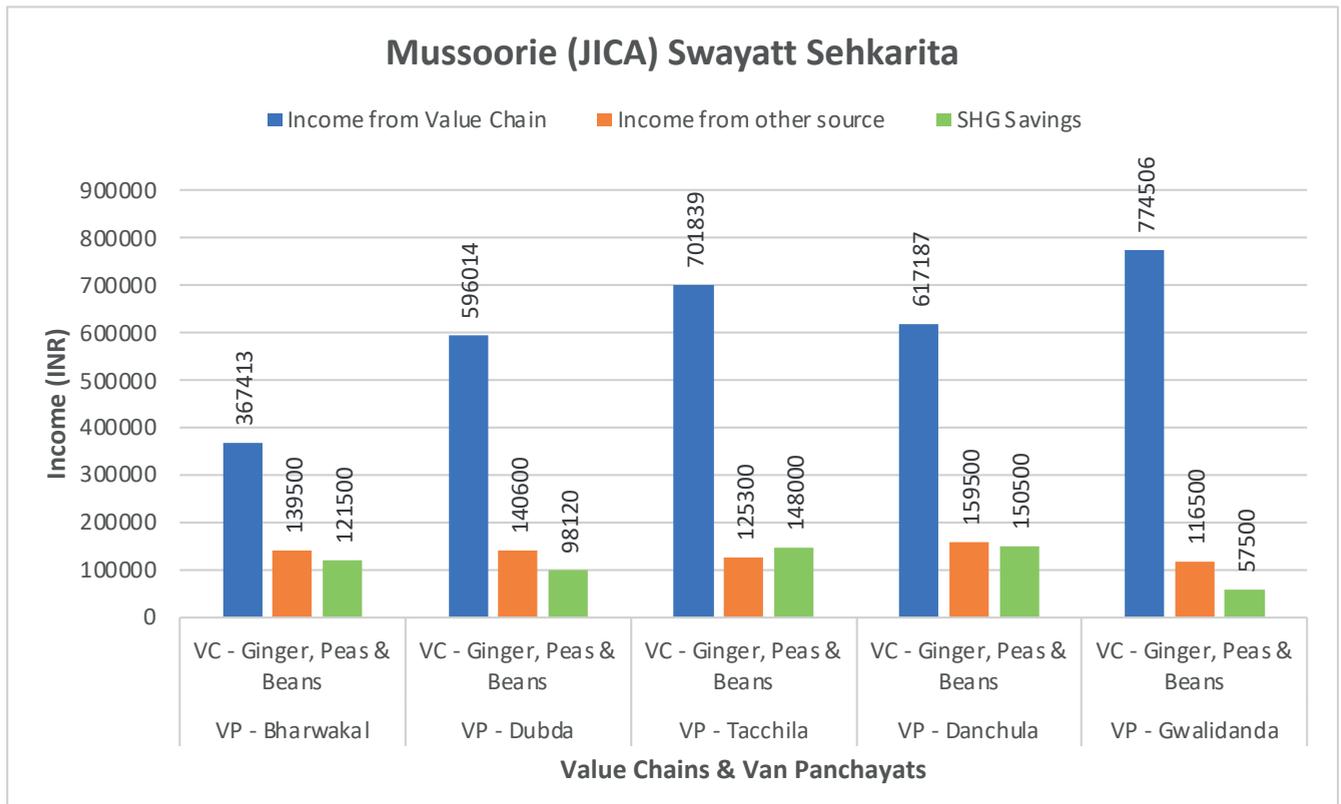
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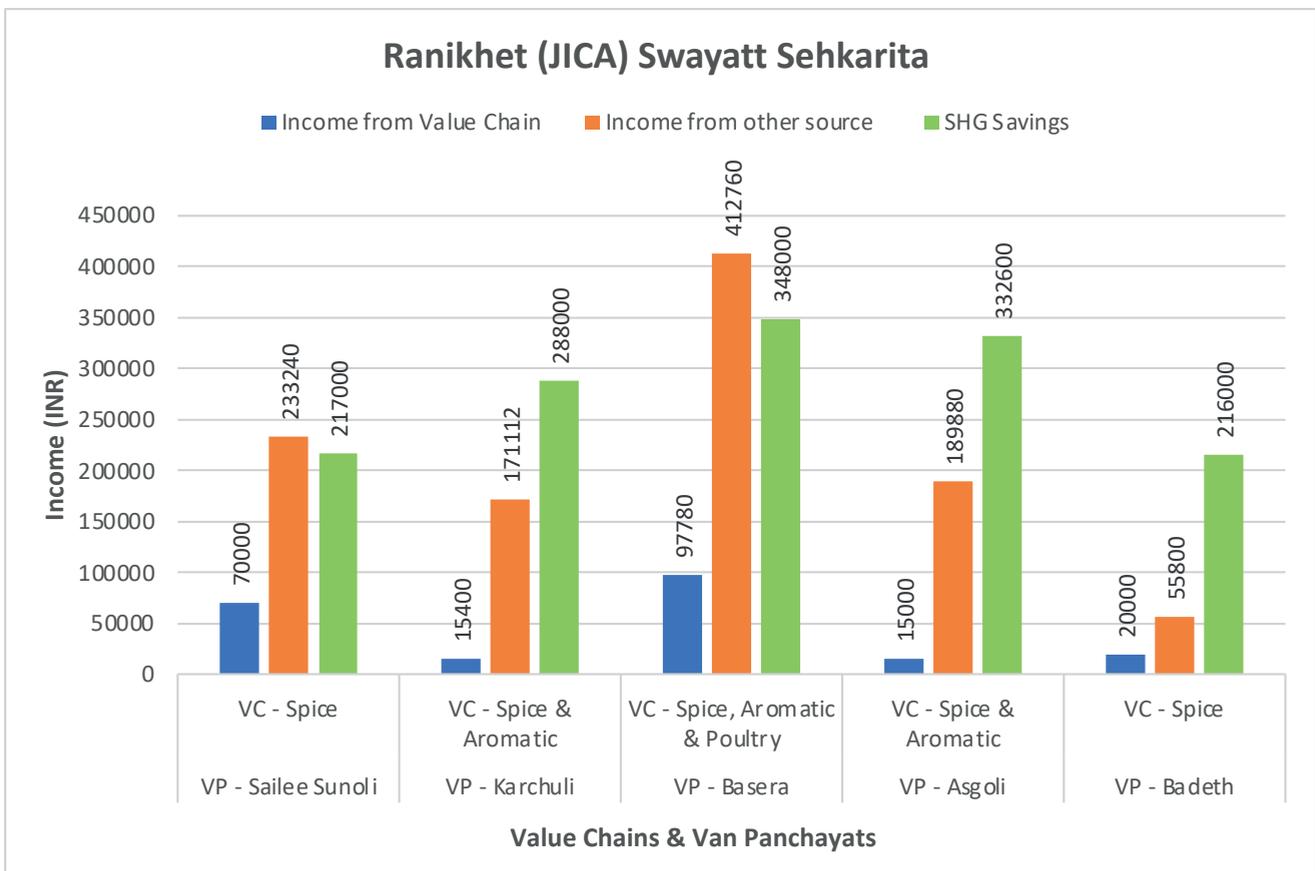
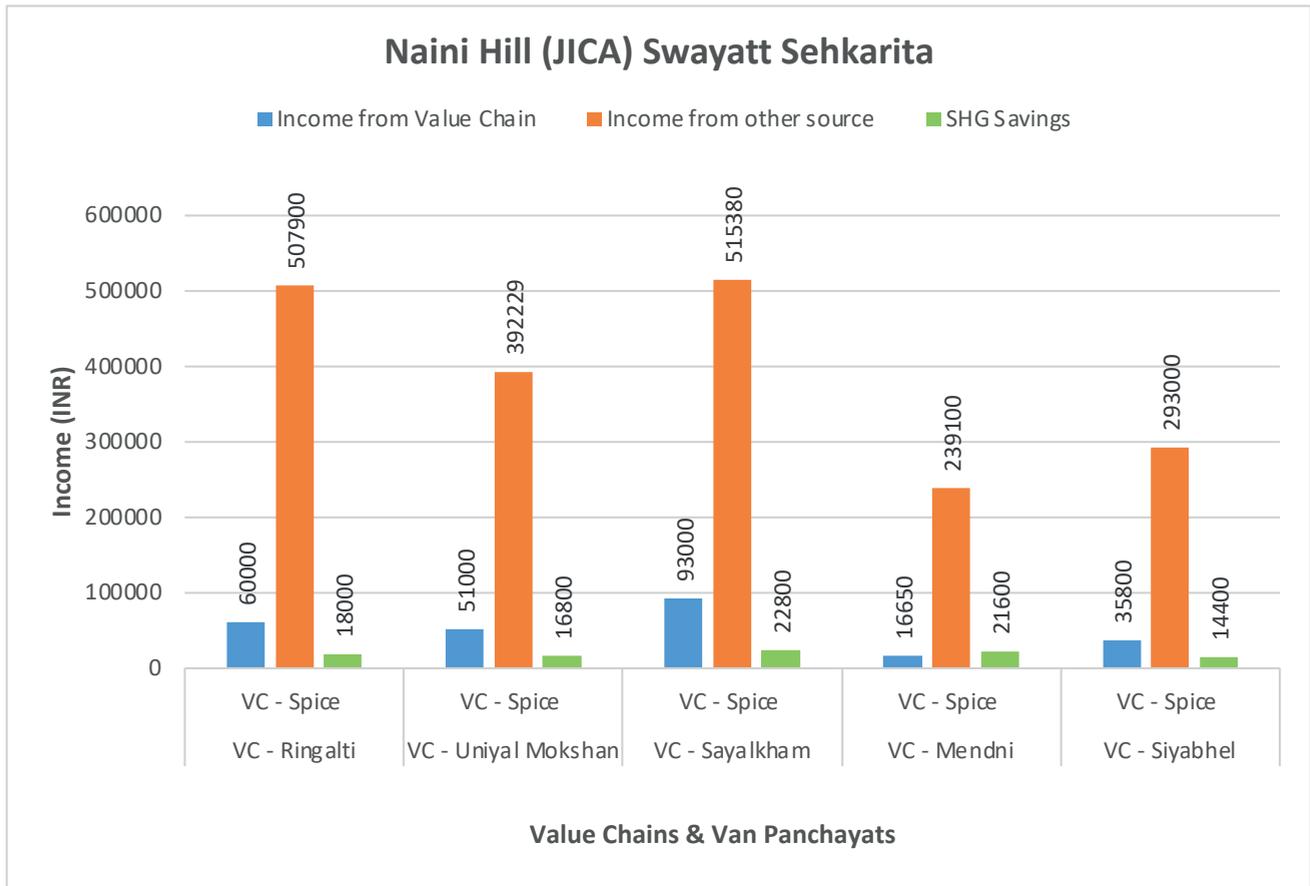
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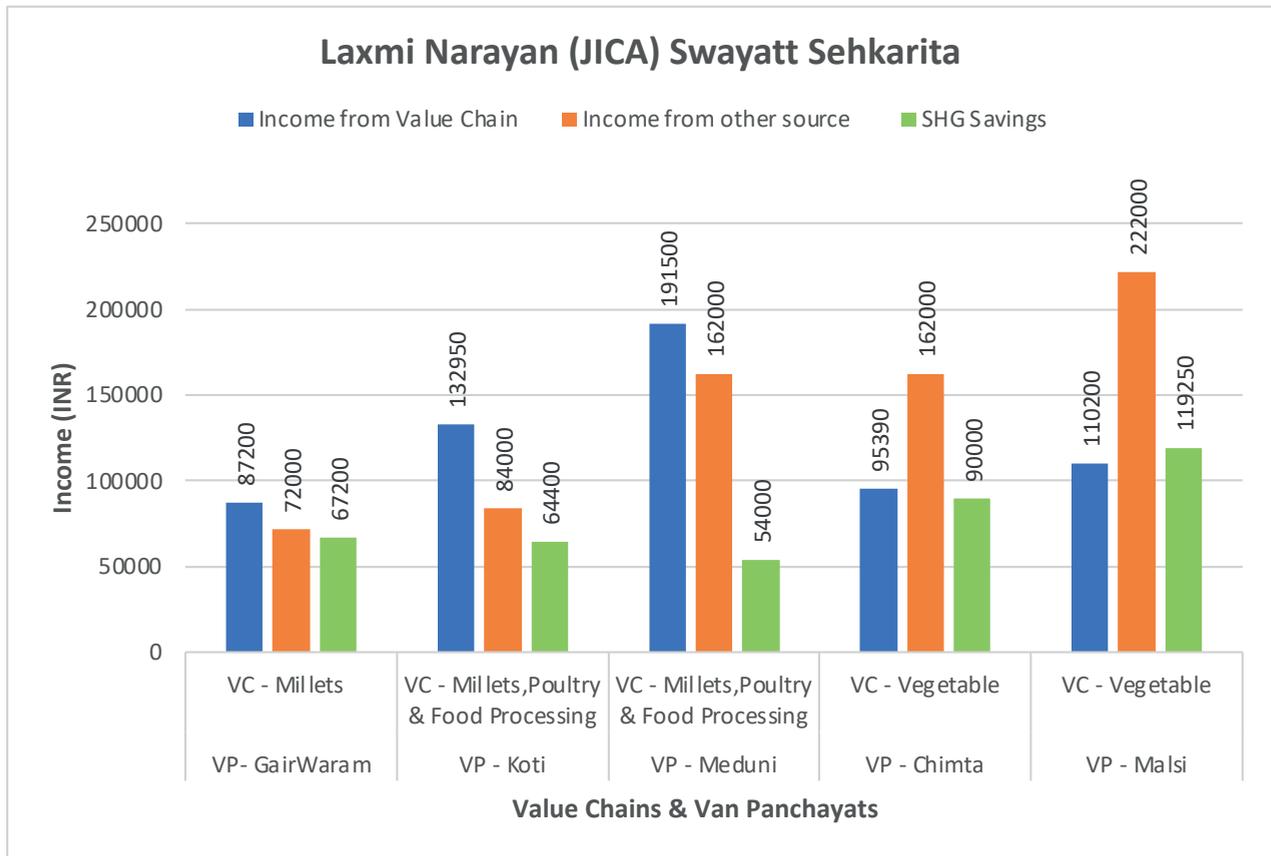
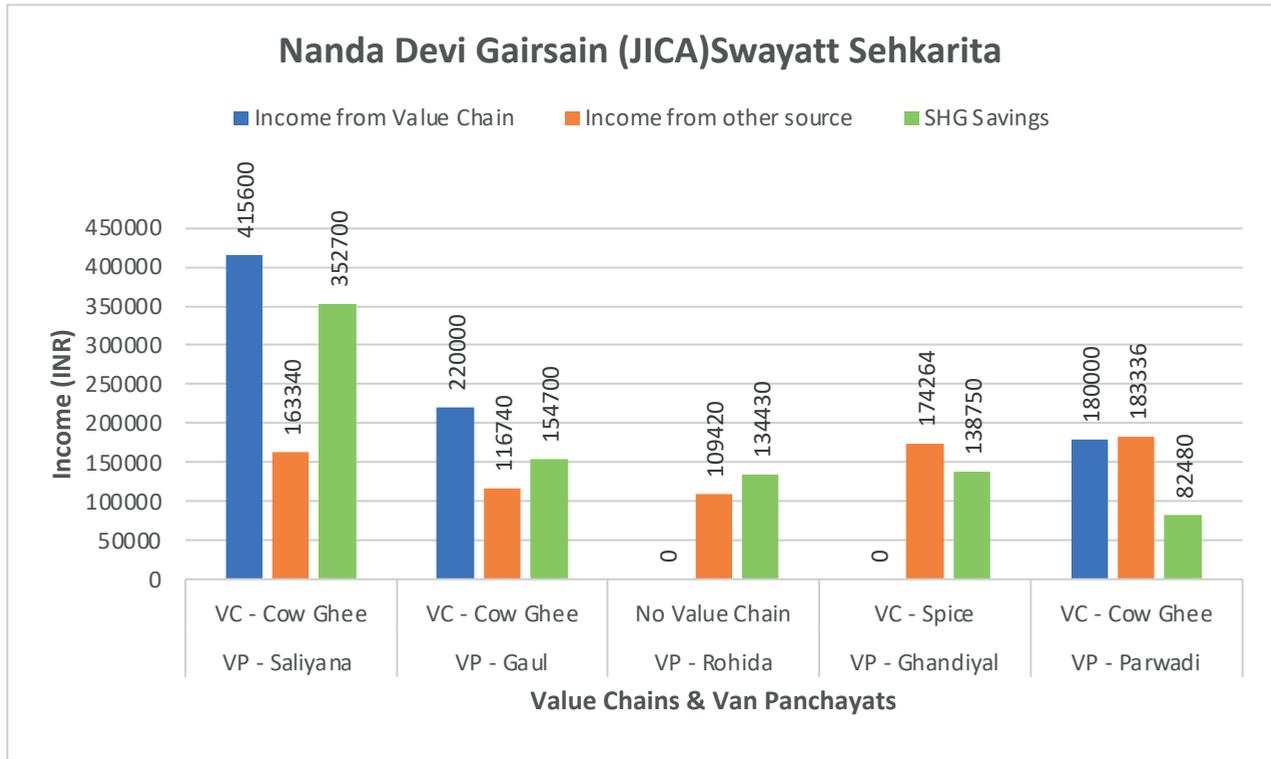
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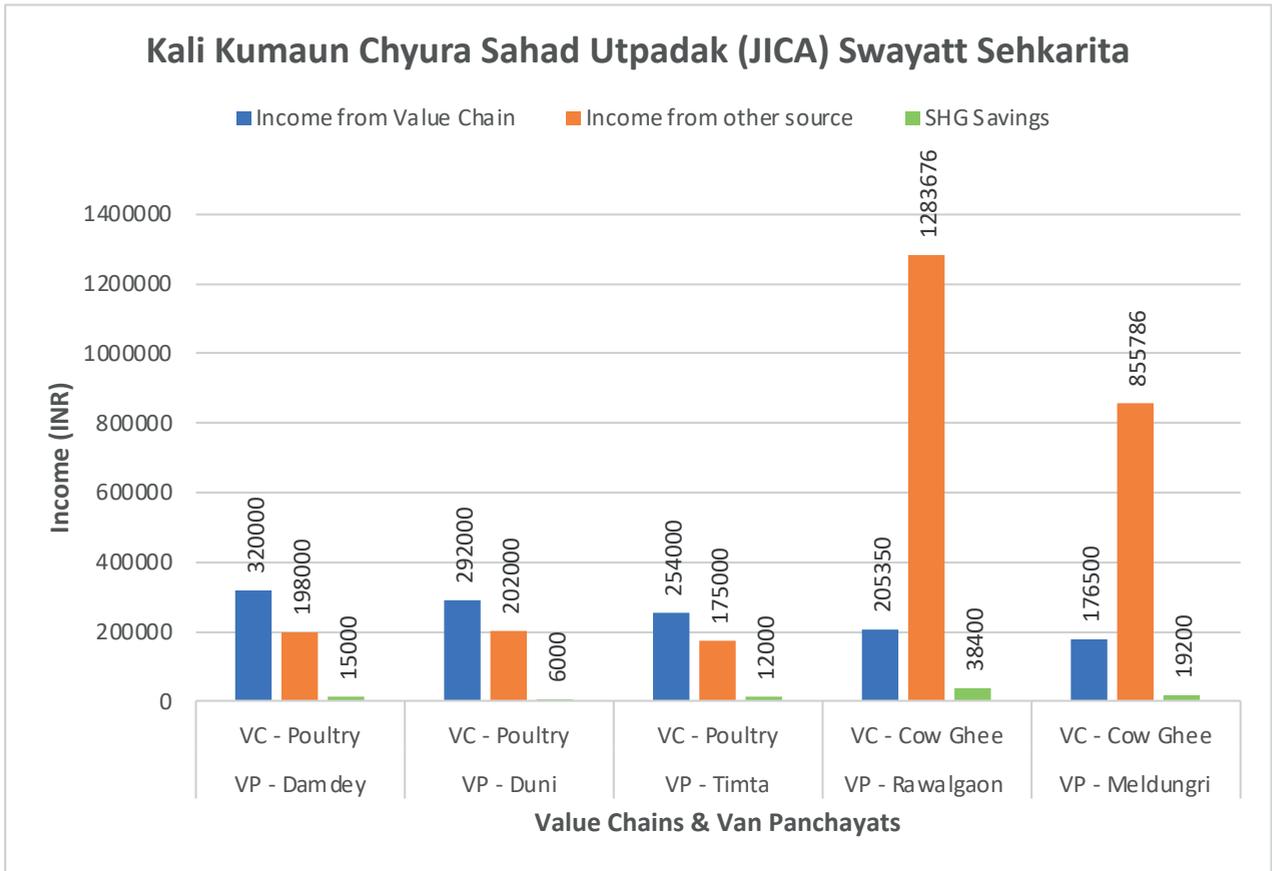
Appendix 1 continued



Appendix 1 continued



Appendix 1 continued



Appendix 2: Annual turnover of various value chains implemented under UFRMP-JI

Implementation of Value Chains till March 2023-24									
S. No.	Name of Federation	Name of Value Chain	Sanctioned Amount (INR)						
			Grant	Internal debt	Convergence	Bene-ficiary contribution	Project Cost	Turnover of Value Chains	Loan Repayment
1	Jagnath (JICA) Swayatt Sehkarita	Poultry	566780	228000	91500	372100	1258380	2456600	99906
		Medicinal & Aromatic Plants (Jageshwar Range)	361500	94500	181000	668000	1305000	158000	94500
		Goatry	1905875	2080000	154000	6709000	10848875	2125500	2080000
		Medicinal & Aromatic Plants (Gananath Range)	370000	0	39000	587000	996000	116000	0
		Spice Production (Gananath Range)	494000	79000	281000	847000	1701000	334050	79000
		Spice Production (Jageshwar & Kosi Range)	277000	91000	323000	960000	1651000	455100	91000
2	Baba Baghnath (JICA) Swayatt Sehkarita	Spice	772000	604000	2765000	1889000	6030000	633000	445603
		Dairy	6629000	0	482000	215000	7326000	3372000	0
		Mushroom	227000	0	850000	56000	1133000	80200	0
3	Sarmool (JICA) Swayatt Sehkarita	Pithiya	242000	0	674000	395000	1311000	180000	0
		Lehberry	285000	0	1506000	0	1791000	370000	0

Appendix 2 continued

S. No.	Name of Federation	Name of Value Chain	Grant	Internal debt	Convergence	Beneficiary contribution	Project Cost	Turnover of Value Chains	Loan Repayment
4	Dhaulnag (JICA) Swayatt Sehkarita	Spice	184000	290000	1220000	941000	2635000	370000	289573
		Poultry	416000	263000	1554000	75000	2308000	436000	263000
		Red Rice	730000	0	382000	150000	1262000	777000	0
5	Naini Hill (JICA) Swayatt Sehkarita	Poultry	360350	192750	41000	1018775	1612875	282000	192750
		Spice	1021000	1040000	1203000	6015000	9279000	2393000	652795
6	Ranikhet (JICA) Swayatt Sehkarita	Poultry	517645	299355	3877322	85530	4779852	2074595	299355
		Spice	715300	440300	1514660	1094500	3764760	1784970	423414
		Red Rice	286000	0	1013094	617155	1916249	305822	0
		Cow Ghee	1021000	308000	4961000	60000	6350000	2671130	277500
		Medicinal & Aromatic Plants	491000	0	388755	63000	942755	113570	0
7	Nanda Devi Gairsain (JICA) Swayatt Sehkarita	Cow Ghee	685500	157500	2202000	60000	3105000	1353250	157500
		Spice	714000	266000	2211000	908000	4099000	36960	180420
8	Champawat (JICA) Swayatt Sehkarita	Goatry (Devidhura)	1630500	1527500	112000	6336000	9606000	1020700	1527500
		Poultry (Lohaghat)	383165	214725	61350	1288195	1947435	280400	214725
		Goatry (Lohaghat)	1804500	1722500	126000	7363000	11016000	1512900	1722500
		Spice (Devidhura 1)	329000	61000	84000	492000	966000	408150	60900
		Spice (Bruskhola)	324000	49000	187000	488000	1048000	427800	12800
		Spice (Reetha Sahib)	452960	92800	340200	1026500	1912460	1080880	71200
		Spice (Birgul)	429000	286000	910000	1339000	2964000	1350400	234600
		Spice (Lohaghat)	391000	78000	127000	945000	1541000	428300	32800
		Cow Ghee (Lohaghat)	1012000	360000	75000	3817000	5264000	559910	217500

Appendix 2 continued

S. No.	Name of Federation	Name of Value Chain	Grant	Internal debt	Convergence	Bene-ficiary contribution	Project Cost	Turnover of Value Chains	Loan Repayment
9	Naina Devi (JICA) Swayatt Sehkarita	Tejpat (Naina Devi)	300019	0	0	211236	511255	716250	0
		Fruit & Spice (Bhateliya)	1325926	44361	608537	3009719	4988543	2406770	44361
		Mushroom (Nau-chuchi-yatal)	244905	48300	3750	852624	1149579	1166040	29400
		Mushroom (Junestate)	205465	39900	6250	704341	955956	801950	39900
		Spice (Khairna)	576540	406700	1334100	2339580	4656920	3394150	387150
		Spice (Jurasi)	672395	451415	1470345	2548420	5142575	2571430	449815
10	Maa Barahi (JICA) Swayatt Sehkarita	Tejpat (Maa Barahi)	105446	0	0	321008	426454	550950	0
		Goatry (Bhidapani)	1895100	1950000	142500	5448210	9435810	2578500	1820000
		Goatry (Kotla)	1698305	1722500	125875	5214330	8761010	2873000	1708500
		Turmeric (Pokhri)	566950	290000	1303500	1790570	3951020	372100	229440
		Spice (Khansyu)	405290	289900	939600	1490180	3124970	1708550	251500
		Cow Ghee (Kwedat)	1007100	397500	37500	3658200	5100300	478850	397500

Appendix 2 continued

S. No.	Name of Federation	Name of Value Chain	Grant	Internal debt	Convergence	Bene-ficiary contribution	Project Cost	Turnover of Value Chains	Loan Repayment
11	Kali Kumaun Chyu-ra-Sahad Utpadak (JICA) Swayatt Sehkarita	Poultry (Pithor-agarh)	331700	186375	913019	53250	1484344	1821550	186375
		Goatry (DD Haat)	2067000	1950000	8349100	142600	12508700	2339900	1109550
		Spice (DD Haat)	501000	568000	687130	963125	2719255	339850	567675
		Goatry (Pithor-agarh)	1993000	1950000	7623600	142500	11709100	1974600	1584000
		Spice (Gangolihaat)	726000	456000	2648780	1474200	5304980	1748600	456400
		Poultry (Gangolihaat)	256000	144000	1316219	41250	1757469	925700	89250
		Spice (Pithor-agarh)	412000	260000	1391560	831975	2895535	188260	242250
		Spice (Gangolihaat Range - Dasaital)	398000	354000	1848620	1135650	3736270	1163200	353550
		Cow Ghee (DD Haat)	926000	315000	3901000	37500	5179500	865795	315000
		Cow Ghee (Pithor-agarh Range)	798000	165000	3655000	37500	4655500	710300	165000
12	Mussoorie	Ginger	607000	1722000	4089000	3556000	9974000	5348627	1721500
		Peas & Beans	1196000	0	172000	3663000	5031000	1890409	0
		Tulsi	483000	0	31000	724000	1238000	50000	0
13	Tehri Dam (JICA) Swayatt Sehkarita	Mushroom	86000	127000	595000	423000	1231000	377016	103905
		Spice	1594000	1289000	5165000	3499000	11547000	4591335	1270000
		Red rice	635000	120000	999000	447000	2201000	982100	99992
		Rajma	850000	84000	1724000	65000	2723000	1023500	79580
		Millets	1459000	5000	2680000	184000	4328000	2320650	0
		Food Processing	522000	371000	1713000	1250000	3856000	1398331	0
		Millets Chain 2	1002000	3000	1966000	139000	3110000	1748000	0

Appendix 2 continued

S. No.	Name of Federation	Name of Value Chain	Grant	Internal debt	Convergence	Bene-ficiary contribution	Project Cost	Turnover of Value Chains	Loan Repay-ment
14	Henw-al Kunj (JICA) Swayatt Sehkarita	Dairy	735000	1000000	2627000	1637000	5999000	4856487	878700
		Spice	1296000	1750000	4064000	5817000	12927000	1404726	1141465
		Fruit Pro-cessing	553000	452000	1519000	2081000	4605000	103816	557995
15	Devkunj (JICA) Swayatt Sehkarita	Goatry	1768000	1657500	122000	6878000	10425500	1871864	1657500
		Fruit Pro-cessing	1124000	426000	1219000	2765000	5534000	1493901	426000
		Millets	1198000	4000	169000	2231000	3602000	3080090	4000
16	Trishuli (JICA) Swayatt Sehkarita - Dewal	Goatry	1099100	1105000	3678000	81000	5963100	208500	1035000
		Fruit Pro-cessing	910000	917000	4236000	3089000	9152000	255190	440000
		Millets	1453000	4000	2648000	184000	4289000	1917710	4000
		Poultry	244000	129000	435000	37000	845000	33470	80000
17	Lakshmi-narayan (JICA) Swayatt Sehka-rita - Narayan-baggad	Spice (Attagad Range)	819000	554000	2079000	1355000	4807000	71150	201863
		Spice (Ased Simli Range)	336000	237000	1585000	785000	2943000	45710	233655
		Fruit Pro-cessing	515000	203000	936000	689000	2343000	99300	203000
		Millets	1351000	3000	2011000	140000	3505000	1374190	3000
		Poultry	186000	84000	284000	24000	578000	32500	81375
		Vegetable	497000	109000	1173000	59000	1838000	240800	110240
18	Malan Ekta (JICA) Swayatt Sehkarita	Spice	260000	280000	896000	1180000	2616000	549432	280000
		Turmeric Second	232000	162000	517000	927000	1838000	1107996	162000
		Turmeric First	298000	315000	1022000	1780000	3415000	1240065	315000
		Cow Ghee	1230000	383000	60000	4862000	6535000	2651880	382500
		Millets	1057000	1307	57000	822000	1937307	774648	1310
		Lemon-grass	7897000	0	0	2644000	10541000	255438	0
19	Kanav Ghati (JICA) Swayatt Sehkarita	Herbal Tea	1446000	608000	219000	4832000	7105000	1326342	399551
		Spice First	293000	398000	1269000	1662000	3622000	1109643	398000
		Spice Sec-ond	714000	1443000	4603000	5956000	12716000	1808468	1397100

Appendix 2 continued

S. No.	Name of Federation	Name of Value Chain	Grant	Internal debt	Convergence	Beneficiary contribution	Project Cost	Turnover of Value Chains	Loan Repayment
20	Tarakund (JICA) Swayatt Sehkarita	Goatry	1938500	2080000	152000	7005700	11176200	1162000	1722500
		Millets	1311000	4000	183000	1492000	2990000	4765000	4000
		Red Rice	500000	370000	1194000	315000	2379000	630000	84854
		Turmeric	383000	242000	294000	109000	1028000	1080000	242000
		Fruit & Food Processing	337000	203000	76300	734600	1350900	474000	203000
		Cow Ghee	840000	390000	10000	162000	1402000	410000	390000
		Poultry	137000	66000	18750	132188	353938	243000	65625
		Total	84831816	42114688	126732916	155746211	409425631	118051766	36527667

Appendix 3: Livelihood Improvement Model

Section 1: General Information (Demography)			
1.	Submitters' Name:		
2.	GPS Location:		
3.	Forest Division:		
4.	Cluster level Federation:		
5.	Name of the Van Panchayat		
6.	Name of SHG:		
7.	Members in SHG:		
Section 2: Details of the Respondent			
8.	Name of the Respondent:		
9.	Age (in numbers):		
10.	Gender:	Male	
		Female	
11.	Total no. of family members:	1 to 10 years	
		11 to 17 years	
		18 to 60 years	
		Above 60+	
12.	Community:	Gen	
		SC/ST	
		OBC	
		Others	
13.	Education	Primary	
		Secondary and Higher Secondary	
		Graduate	
		Post Graduate	
		No Formal Education	
		If others? Please specify.	

Appendix 3 continued

Section 2: Details of the Respondent							
14.	Primary source of Income:		Agriculture				
			Horticulture				
			Livestock				
			Ecotourism				
			Non-Timber Forest Products				
			Manual labor				
			Regular Job				
			If others, please specify.				
15.	How many household members have migrated from the village?						
	Migration Reason		Work				
			Disaster				
			Developmental Activities				
			If others? Please specify.				
16.	Land Holding (Nali):		Owned Land (Hectares/Nali):				
			Leased Land (Hectares/ Nali):				
17.	Annual employment generation (in days) from SHG activities:						
18.	Do you have any Livestock?		Yes ()		No ()		
	If yes, please specify.						
			No. of Cow/Buf-falo				
			No. of Goat/ Sheep				
			No. of Poultry				
			No. of other livestock's				
Section 3: Details of Value Chain activities							
S. No.	Value Chain	Annual Income		Annual Production (No./Kg)		Profit	
		Initial Year	Now	Now	Initial Year	Now	Initial

Appendix 3 continued

a.	Spice					
b.	Himalayan Honey					
c.	Goatry					
d.	Poultry					
e.	Cow Ghee					
f.	Millets					
g.	Mushroom					
h.	Dairy					
i.	Herbal Tea					
j.	Tej Patta					
k.	Pithiya					
l.	Lehberry					
Section 4: How much in total did you borrow from different sources in last one year?						
19.	Sources	SHG				
		Bank				
		Cooperative Banks				
		Money lenders				
		Relatives				
		Friends				
		Others				
a.	Amount borrowed from SHG in INR					
b.	Amount borrowed from Bank in INR					
c.	Amount borrowed from Cooperative Banks in INR					
d.	Amount borrowed from Money lenders in INR					
e.	Amount borrowed from Relatives/Friends in INR					
f.	Amount borrowed from other sources in INR					
g.	Rate of Interest (per annum) INR					
h.	Remaining Loan INR					
i.	What was the purpose of loan?					

Appendix 3 continued

Section 5: Energy Consumption			
20.	Rank your source of energy consumption for lighting (1 to 5):	Electricity	
		Solar	
		Kerosene	
		Candle	
		Gas lamp	
		Torch/Emergency light	
21.	Rank your source of energy consumption for cooking/energy:	Wood	
		LPG	
		Others (Dung cake, electricity, etc.)	
22.	To what extent do you rely on forest resources (Timber/Medicinal Plants/Fuelwood/Fodder, etc)?	Low	
		Moderate	
		High	
		Very High	
		Not at all	
23.	How has your reliance on forest resources has changed due to JI-CA-UFRMP-JICA initiative?	Increased	
		Decreased	
		No change	
		Unsure	
24.	Have you noticed any changes in the availability of important forest resources over the years?	Increased	
		Decreased	
		Unsure	
		No change	
25.	What would be your alternative livelihood options for the future?	Agriculture	
		Handicrafts	
		Ecotourism	
		Livestock	
		Others (please specify)	
If Others? (Please Specify)			

Appendix 3 continued

Section 6: Challenges & Recommendations (Focus Group Discussion)			
26.	What challenges do you face in pursuing JICA-UFRMP-JICA alternative livelihood activity?	Fund availability	
		Human-Wildlife conflict	
		Disease/pest control	
		Cooperation among SHG members/leadership issues	
		Timely support/cooperation from Forest Department	
		Availability of market	
		Opportunity of equitable trade/involvement of middleman	
		Scope of value addition	
		Storing/Packaging of the produce	
		Unpredictable weather/natural disasters	
		Compensation/Bima	
27.	In your opinion, what are the significant positive impacts of the JICA-UFRMP-JICA model in your SHG?	Economic empowerment	
		Social values and trust	
		Cooperation and mutual support	
		Monetary safety net	

Appendix 3 continued

28.	How has the SHG helped you be empowered?	Enhanced self-esteem	
		Financial independence	
		Better healthcare	
		Greater voice in the family	
		Greater voice in the community	
Section 7: Monitoring (Focus Group Discussion)			
29.	How do you monitor and evaluate your progress?		
30.	What lessons have been learned, and are there any recommendations for improvement in this model?		
31.	What recommendations do you have for ensuring the long-term sustainability of the JICA-UFRMP-JICA alternate livelihood model after JICA departs?		
32.	What challenges do you face when linking/selling/trading your produce in the market? (Backward and Forward market linkages)		
33.	Do you have any challenges regarding the repayment of your UFRMP-JICA loan?		
34.	Please tell us any other things that we have not discussed above that you think are important for us to know.		
35.	Any recommendations to improve this process?		
Section 8: Submission Reviewed			
36.		Details corrected?	
37.		Photograph of the Respondent	



Building Sustainable Livelihoods

Located in the central Himalayas, the state of Uttarakhand is rich with biological diversity and forest cover. Close to 69.4 % of the population in rural areas depends on forest resources for its subsistence. However, the over use of these resources has led to biodiversity loss and posed challenges to the livelihoods of forest fringe communities. In 2015, the Uttarakhand Forest Resources Management Project (UFRMP), in collaboration with the Japan International Cooperation Agency (JICA), started an initiative to ensure sustainable forest management that conserves biodiversity and improves the livelihoods of local communities. The study puts a spotlight on an alternate livelihood model that emphasises sustainable management of natural resources and reduces the community's dependency on forest resources.



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