

Eco-Smart Model Village To Improve Livelihoods Among The Rural Community

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Abstract:

The Indian Himalayan Region is geographically and culturally diverse area that span across the northern part of India. It is home to several states, including Jammu Kashmir, Himanchal Pradesh, Uttarakhand, and parts of Arunachal Pradesh, Sikkim, and Northern West Bengal. The region known for its stunning natural beauty, with the Himalayan Mountain range serving as the backdrop to the lives of person who inhabit this area. Livelihoods in IHR are closely tied to the environment, culture, and the specific needs of the local communities. The natives of Himalayan region face many social, economic, and environmental obstacles. It has always been a difficult task for them to manage natural resources effectively while also securing their livelihoods and protecting the environment. They have limited livelihood options which are based on traditional methods. Farming is the main livelihood activity of IHR, which is dominant by the women of this region. Despite being leaders in performing farm-related tasks, it is ironically that they are left out and ignorant of the most recent technical improvements. Most of the agriculture is subsistence farming, which cannot feed and sustain the ever-increasing population. In addition, forests fulfil a significant portion of local necessities. Typically, men migrate to plain areas in quest of better job opportunities. The women with their children and old parents staying at their natives with much drudgery with entire socio-economic responsible of the family.

I. Introduction:

Livelihoods in the Indian Himalayan region is frequently constrained by the rough terrain, crop raiding by wild animals, limited infrastructure, and extreme meteorological conditions. As a result, sustainable development and conservation initiatives are becoming increasingly important to preserve the fragile ecological, support local communities' livelihoods, and minimize migration numbers in the area. In Himalayan region, to provide sustainable rural development and livelihoods opportunities has always been a topic of concern for policymakers, planners, and researchers and development organizations. The life of mountains and obstacles of highlanders are quite different from rest of other regions. They have a strong bonding with nature and forests. Though, understanding of available resources is especially important in the context of mountain communities. Nonetheless, the dynamics of Himalayan rural development are complex, and one approach cannot succeed in another rural setting. The concept of carrying capacity of natural resources has been advocated with other livelihood approaches. Over the years, many initiatives have been taken by keeping Gram panchayat as planning entity. However, none of these tactics were proved successful and terminate before their time. The reason behind it was lack of understanding of the dynamics of natural and human resources. Eco village is an emerging concept still in the process of being developed. Through the Eco village Concept, it intends to demonstrate a model of environmentally sustainable development in active collaboration with village people that reflect their concern and respect for the environment. Environmentally sustainable and ecologically oriented eco villages shall be focused towards developing low impact lifestyles that reduce the "ecological footprint". The 27th state Uttarakhand is characterized by fragility, natural disasters, climatic induces and inaccessibility of connectivity that limits the livelihood opportunities of its inhabitants considerably marginal. The small and rain feed ladder like land holdings distributed over rugged terrain with limited produce of cropping pattern and scope to practice market oriented modern farming practices has limited people under a subsistence economy and their dependence continues on the forests and other natural resources for livelihood. The livelihood of rural people in the region is mostly dependent on low product agriculture, horticulture, animal husbandry associated with various natural resources. However, on a regional scale the farm produce meets only about 2-6 months of the annual food demand of the people. The age old traditionally customs that youth migrates to the plains areas of the country for searching better livelihood opportunities, hence the economy of the state known as **Money Order Economy**. The women in absent of her counterpart bear the drudgery almost all the household chores, fodder collection and known as backbone of hill agriculture. Thus, to supplements adequate technology support with skill and

capacity building with R&D activities with available natural resources the livelihood enhancement of the marginal communities could be restore to self sufficient mode of economy.

II. Methodology:

For selection of study site and to convert into model villages for community-led planning using the defined selection criteria a numbers of visit made to different villages in Jhakholi block. After a brain storming session with the director and group head CSED of the Institute a cluster of 16 villages were selected for baseline survey. Village selection finalized through standard criteria fulfilment adopted for eco smart villages. Identified stake holders to facilitate our purpose of study and make their villages in eco smart villages with consistent good rapport. Frequent Visit with participatory approaches to these villages for ground verification and research mapping. Modules for baseline data collection/ resource base map prepared for data collection are being carried out through questionnaire survey. Meeting with elected villages' representatives to get support in implementation of R & D activities and demonstrated training related to action plan. The line departments of state government were links to the villages for converting model village plan. Baseline dataset and resource use map generated by selecting participation of village people through standard social survey tools (PRA, RRA, FDGs etc.) Determine the efficacy (ecological & socio-economic) of various interventions relating to land, water and forest capacity building program, sustainable employment & income generation, E-kiosk etc, through need-based assessment (SC-ST/BPL/Widow single households etc) are priorities for implementation of short term & long-term interventions through participatory method with the stakeholders. Baseline survey and action plan prepared with the help of primary data collection method (door-to-door) and social survey tools.

Village selection criteria:-

The village selection criteria were considered of *Sansad Adarsh Gram Yojana* (SAGY), NITI Ayog and other Govt. Departments guideline. The guidelines shows the following criteria's to make a eco smart villages.

1. Altitude
2. Population
3. SC/ST population
4. Road/Market connectivity
5. Irrigated land
6. Wasteland/cultivable waste
7. Forest Area
8. School
9. BPL Families
10. Rain fed cropland
11. Sanitation

With the help of above criteria a the following villages were selected for development action plan: -

1. Kothiyara
2. Chandi
3. Bachwar
4. Barsir
5. Dhankurali
6. Jakholi lasya
7. Kapaniya
8. Bajira

Study Area: -

The Jakholi Block is located between the coordinates 30° 37' 08.88" to 30° 15'13.47"N and 79° 03'43.79" to 78° 50'07.97"E in district Rudraprayag Central Himalayas in India. The annual average rain fall is around 1850–2000 mm with temperature ranging from – 5 to 15 °C in winter and 20 to 35 °C in summer (High land to lower hills). The total area is about 504 km² including 133 villages, with a total population of 74,759. There is 34,126 male and 40,633 female. Most of the inhabitants lives in villages, and few families are shepherds and stay mostly in alpine areas (*Bugyal* and *Kharka*) for 7 – 10 months a year. Most of the younger generation, especially men, migrate to cities in order to find employment. Women and elderly people live in the villages. Inhabitants are generally belonging to three major cast group, Jajman, Brahman and Oji (about 65%, 15%, 20% respectively), and Hinduism is the major religion among the inhabitants. Most people speak Garhwali and Hindi is the secondary major language of the region. Mountain terrace farming is abundant in region, with three crops a year: Rabi (October–April/May e.g., Wheat, Barley, and Mustard), Kharif (April–October e.g.,

Rice, Corn), and Jayad (May–October e.g., Cucumber, Pumpkin, Beans). The land pattern for agriculture is ladder like terrace and known as *Sera* (low land) and *Ukhad* (dry hilly land).

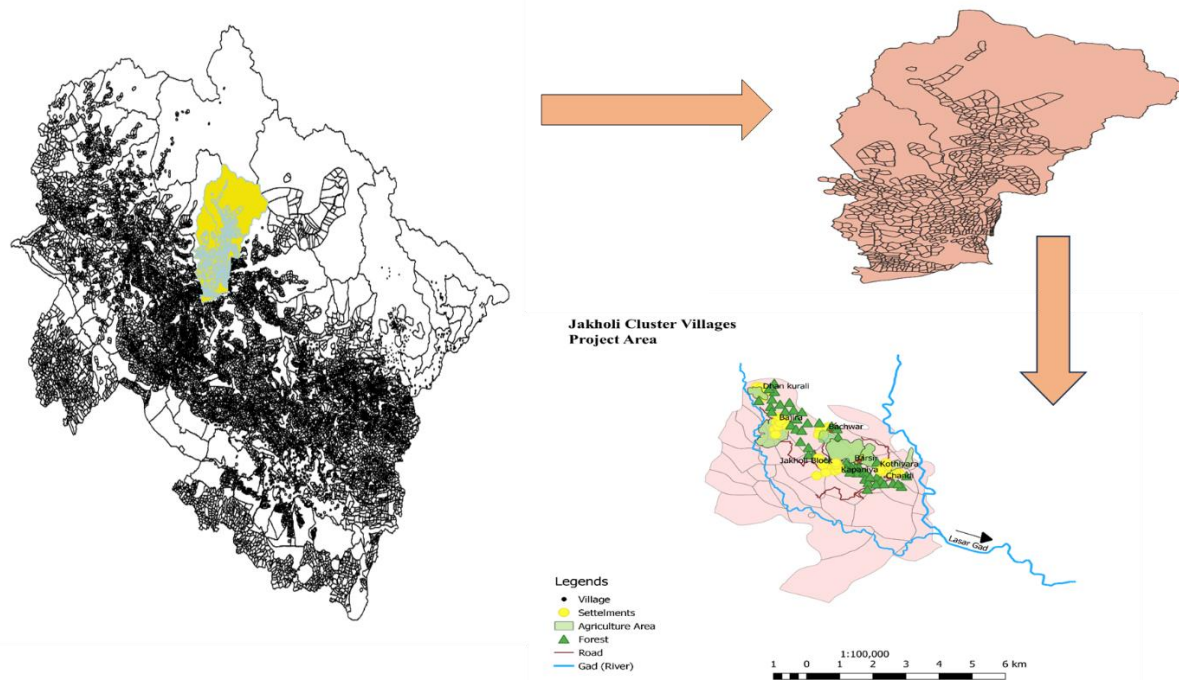


Figure 1 Uttarakhand Map

III. Finding & Results:

Therefore, for sustainable development of the region there is a need to undertake a holistic approach and integrated planning to improvise all relevant sectors simultaneously for addressing the issues of sustainable livelihoods of rural communities with considering the vast diversity in topography, natural and cultural landscape, climate, water availability etc, in the region with location specific management plans. At this juncture when development is constrained by resource depletion and environmental degradation in the Uttarakhand, the role of appropriate technologies and hill specific best practices which are promote and ensure ecologically sound and sustainable development. There is a need to speed-up and up-scaling of technologies that can be transferred to the rural users in a manner that prove cost-effective and environment-friendly with easy to practice for their ready acceptance and adoption. Use of locally available resources, both material and manpower, is pivotal for the success of such endeavours. Also, a treasure of traditional knowledge and wisdom available with the rural communities need to be utilized to manage their natural resources and environmental protection. Therefore, it is envisaged to follow a community-led bottom-up approach to identifying priority goals and to create livelihoods opportunities at village level. Therefore an integrated, efficient and participatory approach for the village development shall place all sections of society at the centre for driving the entire developmental process of the villages / village clusters with following goals:

- Skill and capacity building of target rural communities of IHR to secure livelihoods and improve quality of life through integrated natural resource management.
- Develop and demonstrate eco-smart model villages / village clusters through community participation and synergy building with the schemes of Govt. Line Departments to achieve ecological and economic security. A village can be re-designed to resilient (sustainable/eco) village by adopting the components and its sub-systems with a defined goal that perpetually assist sustainability of the rural setting. Of concern are three interwoven systems: environment, society and economy, forming a complex super system coined eco-social triad (Bloesch et al., 2015b). The intersection of sustainability, economy, environment and equality are necessary for the creation of a sustainable community. All dimensions should be integrated into the natural world that facilitates a healthy human community and development leading to ecologically harmonious and economically viable communities with the eventual aim to sustain themselves infinitely (Kasper, 2008; Fotopoulos, 2000; Kirby., 2013). The components that can be considered in the context of ecovillage are listed below (Fig 1).
- Sustainable Water Management
- Sustainable Agriculture

- Sustainable Infrastructure
- Sustainable Energy Management
- Sustainable Health
- Sustainable Waste Management
- Sustainable Empowerment

Table: 1

Sr.No.	Village	Altitude(ft.)	Population	Road/Market connectivity	Irrigated land/ Landholding	Forest Area (hac.)	Schools	Sanitation
1	Kothiyara	5,479	403	Minor district road	9.6	1.2	3	Medium
2	Chandi	5,231	368	Minor district road	6.3	1.1	0	Low
3	Bachwar	6,733	350	Kutchra	11.2	8.9	1	Medium
4	Barsir	5,765	722	District road	22.9	0	6	Medium
5	Dhankurali	5,678	367	No	3.4	2.4	1	Medium
6	Jakholi Lasya	5,589	661	District road	17.4	39.5	4	Medium
7	Kapaniya	5,543	598	Kutchra	15.1	3.9	1	Medium
8	Bajira	5,715	964	State Highway	16.2	9.5	5	Low

Table 1- Village Selection Criteria

Selected villages action plan and baseline data collection done in December 2020- March 2021. Some villages' socio-economic data given below:-

Table : 2 (Baseline Survey)

S. No.	Village	Households	Population	BPL Families	SC/ST	Livestock	Milk Production	Land holdings
1	Bachwar	74	344	15	15	341	195	241
2	Bajira	242	1056+		346+	1023+	216+	436+
3	Barsir	163	722+	12+	106+	436+	123+	612+
4	Chandi	77	366	49	41	142	64	606
5	Dhankurali	70	350	24	0	816	130	424
6	Jakholi	144	661+		212/03+	652+	126+	428+
7	Kapaniya	152	986+	71	5	729+	107+	516+
8	Kothiyara	72	403	42	38	109	129	215

Figure 1

Findings: -

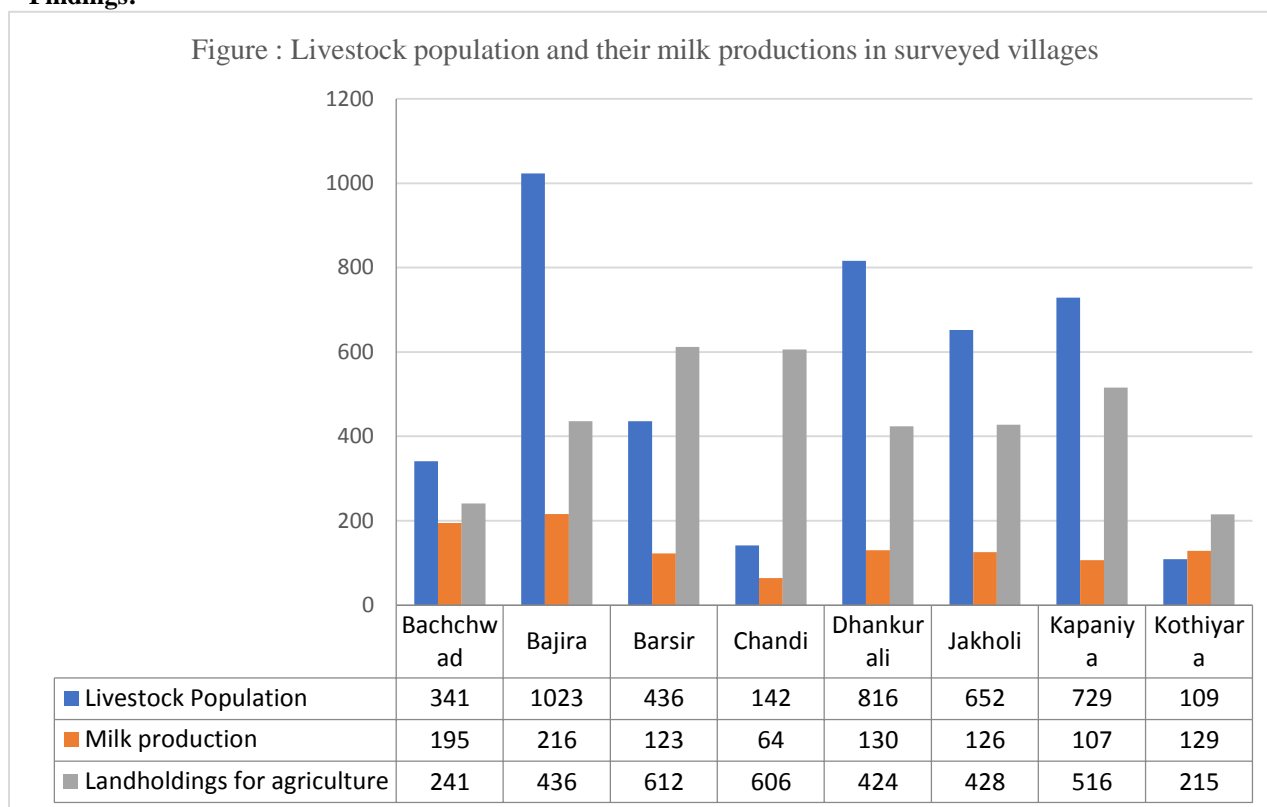


Figure3- Livestock, Milk Production, Landholding Data (Source- Primary data collection)

In baseline household survey it is observed that there are so many natural and human resource in the studied areas. There are natural resources available such of land, water (dhara), mixed forest and physical resources like cropping pattern, horticulture productions. There is also availability of human resource for skill development and capacity building who are able potential and curious for the training programs. In these areas, there are so many citrus fruit plants and villagers have large quantity of harvesting. The wholesale buyers come from plain area and take these fruits at a lower rate (1-2 rupees per piece). Villagers' are selling it at a lower rate because it is perishable fruits and there is no market links or networking for its processing. If there are any institutional value addition unit then the local have a good price for their products. There is also animal husbandry with good dairy production but due to absent of SHG and non existencethe dairy or milk product processing units either they exchange among them self or miss using for consumption. So, if there are value addition program than a huge scope employment and income generation could haveimprove through giving MSP for their products and market linkage. To coordinate all these activities the following action plan shall be adopt to make a eco smart villages in the Jakholi block.

Action Plan:-

For all these problems the solutions and scopes shall be adopt:-

- Soil Test/ and Soil Health Card to farmers
- Skill and Capacity Building raining in sustainable livelihood enhancement.
- Introduction of Bio briquettes to reduce women drudgery.
- Bi-compost community Pit
- Value addition in citric fruit and SHC for Dairy Products
- Swatchhta Abhiyan (degradable bio degradable bins)
- Livestock Development through line dept.
- Organic Farming in poly house/net house for off season cultivation
- Seed Bank

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