



# Stories of Success

*narratives from a sacred land...*



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# Preface



All through the human history narratives of successes have remained the most powerful and interesting ways of convincing and enlightening the audience about innovative interventions which brought positive impacts on quality of life of masses. Such narratives, often termed as success stories, prove to be the effective tool for motivating people from different spheres and levels of society. More importantly, such narratives of successes may emerge from efforts of an individual, a groups and an organization. The way these stories reveal the success journey of concerned individuals, groups or organizations, it helps a larger section of society to easily relate to with this journey. In other words, it leads to mass sensitization and mobilization.

Notwithstanding these facts, skills and interests for capturing impact oriented interventions are not that common. Therefore, such successes; particularly the ones emanating from small interventions in relatively remote areas, most often remain unsung. Thus the opportunity, which potentially existed to benefit society at large, is lost without even reaping the fruits. This calls for greater attention from diverse stakeholder groups concerned with broad goals of sustainable development.

Realizing the above, a group of researchers at G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD), associated with first of its kind trans-boundary conservation and development initiative of China, India and Nepal - Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) - got an impetus to respond to this need of capturing and popularizing the stories of successes of 'unsung heroes' in Indian part of the landscape. Idea was to reach people/organizations who have carved their own niche despite of all odds. As this search for locating successful interventions in the landscape progressed, it was realized that there is no dearth of such 'unsung heroes'.

Following an approach that intertwined with first hand observations and information gleaned from diverse sources, including interviews and interactions, group discussions, and views of common people and the experts, an attempt has been made to bring out all that forms ingredients of a success story. Attempt was to capture most of it in real words of the innovator. Task was not easy; especially when the concerned individuals from remote rural settings were not accustomed to face interviews and interactions. Also, their deliberations/discourses were not that structured as we researchers often attuned to. However, this did not deter the team, and journey continued. As an outcome of this journey, we feel extremely happy and satisfied when we see this book in your hands.

As the Director of the Institute and the National Coordinator for KSLCDI in Indian part, and on behalf of the authors, I gratefully thank all those who have been referred as 'unsung heroes' in these stories. Ms Eva Badola, the senior author of this book, and a young researcher, deserves appreciation for leading this task and spending days and nights in remote villages to capture stories.

Finally we hope, you will enjoy reading 'Stories of Success' and get motivated with some of these interventions. Your contribution in turning these 'unsung heroes' of the landscape into 'most celebrated' one is solicited.

A handwritten signature in blue ink, which appears to read 'Dr. P.P. Dhyani'. The signature is written in a cursive style and is positioned above a horizontal line.

July 2017

Dr. P.P. Dhyani  
Director GBPNIHESD



## STORIES OF SUCCESS

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01



# Cucumber Growing: Intensifying Farming to Marketing

**B**asant Ballabh Pandey, a 59-year-old farmer, practices intensive farming by growing cucumber in a small area of 8 to 10 *naalis*. Every alternate day, he supplies 1 to 1.5 quintals of local cucumber to Pithoragarh market, which lies at a distance of 12kms from his farm.

Intensive farming is a term which is not often associated with hill agriculture. Farming in the Himalayan Mountains is generally characterised with low agriculture outputs due to small inputs of fertilizers, labour and machines on a comparatively large field. But Basant proved an exception to this norm. Without prior training or highly-mechanised agricultural equipment, he has accomplished what previously seemed impossible: he has turned the cultivation of cucumber into a profitable business.

The man has now become a point of motivation as well as envy for regional cultivators as he launches his long, green, fleshy *kakkari* (cucumber) at least a month before its peak season. This helps him fetch the highest profits during the 3-month cucumber season, which normally lasts from June to September. The price of cucumbers in Pithoragarh varies from 40 to 60 rupees a kg, depending on the month of purchase as well as the supply and demand ratio. This decent-paying rate and the huge demand for cucumber in the market is the prime reason that Basant opted to grow cucumbers. In fact, he finds cucumber farming more profitable than peas, which he sows in about 7 *naalis* in the last week of September. Besides profitability, cucumber is a heavy watery fruit and can be stored for even a week in case of an emergency. However, Basant prefers selling his cucumbers in time so that his customers can relish the fresh, juicy flavour as they nibble its pieces in their salad. It is also the key ingredient of *Kumauni Raita* prepared by grating cucumber and mixing it with curd and a paste of mustard seeds. The fresh, tangy *raita* is a favourite accompaniment to most dishes in any Kumauni household.

→ \**Naali*, a common unit of land measurement in Uttarakhand hills is approximately 200sqm of area (Fertiliser Statistics, 2006-07, The Fertiliser Association of India, New Delhi)

# CUCUMBER FARMER

## ‘खीरा’ एक लाभकारी उत्पाद

यह एक ऐसे किसान की कहानी है जिसने खीरा उगाने के पारम्परिक तरीके को अपनी मेहनत तथा समझ से नकद आमदनी बढ़ाने के छोटे व्यापार में परिवर्तित कर दिया। बसंत बल्लब पांडे अपने कृषि के अनुभवों से पारम्परिक बीजों से पौधे तैयार करते हैं तथा जैविक खाद का प्रयोग करके जमीन को उर्वरक बनाते हैं। खीरे की अनगिनत बेलों को उलझने से रोकने के लिए विस्तृत जाल का ताना-बाना बड़ी तकनीक से बुनते हैं। उनके उगाये हुए खीरों की बाज़ार में बहुत मांग है और उन्होंने अपने खीरों के लिए बाजार में स्थान बना लिया है। ज्यादा माँग होने का मतलब है कि और भी किसान इसे अपना सकते हैं। पहाड़ों पर खेती के लिए छोटे तथा बिखरे हुए खेतों की वजह से खीरा उत्पादन एक अत्यंत सफल परीक्षण है। छोटी से छोटी जगह से अधिकतम उत्पादन का उन्होंने एक बेहतरीन नमूना तैयार किया है।



The consumption level in Pithoragarh town itself is so high that Basant does not need to venture anywhere else and his produce is sold out within a 15km radius. This also saves transport expenses, making the business more remunerative. Demand for Basant’s cucumbers starts pouring in with the start of the season. Basant maintains a well-planned marketing network using mobile communication that connects him to 15 shopkeepers in the main market. The evening before he is to supply his produce, they are able to tell him how many cucumbers they need. This helps him get a rough estimate of the quantity he needs to carry to the market. Basant then unloads his produce in a vegetable shop near the *Nagar Palika*, which becomes a common point for all the interested shopkeepers to pick up cucumbers as per their requirements. Often it happens that demand far surpasses the produce; making Basant feel that had he been having more resources, his profit would have multiplied. Adequate labour too would have helped him to sell his produce directly, thereby fetching him higher financial gains. For example, cucumbers sold from farmer to trader at 60 rupees per kg are further sold to end-users at 80 rupees a kg during peak seasons. This results in the major monetary margin going into the pocket of intermediaries while the real toilers; the farmers, get neglected in the market supply chain. A ‘farm to table’ approach is one aspect on which more work needs to be done at policy and ground level.



Agriculture is among the oldest occupations in human history. Farming is both the art and science of growing plants. It includes multi-process steps of ploughing land, sowing of seeds or transplanting seedlings, raising the fertility level of the soil by adding manure, imparting adequate irrigation and then harvesting and storing the produce. The chain does not end here; packaging and marketing are the other essentials involved in the commercialisation of agricultural products. These dynamic agro-procedures are knowledge that one inherits from ancestors or learns from personal experiences. Basant’s systematised and scientific methodologies are less dependent on training and more evolved from learning and self-experience.

Basant prepares the seedlings by himself using native seeds sown during the period between the last week of February and



first week of March. Using local seeds for cultivation could be the best technique of keeping our traditional seeds alive. Not only are they more adaptable to the farmer's local weather but also less prone to diseases. This could be one of the reasons why out of 150 to 200 seedlings planted by Basant, more than 150 survive, resulting in a success rate of more than 75%, with minimal or no use of pesticides. Within a period of 20 to 25 days, the saplings are ready to be transplanted. Cucumber, being a fruit bearing plant, consumes comparatively higher feed especially during planting and early fruiting time. Before transplantation of seedlings from the seed bed, Basant prepares small pits where he mixes cow dung with the soil and leaves it for 15 to 20 days, giving the soil a compost texture. The raised seedlings are then transplanted to these carefully spaced pits. Proper spacing of plants is quite important, else the tendrils may entangle with each other, making harvesting difficult. According to Basant, it takes roughly 45 days for cucumbers to get ready for harvesting and by the early June, his cucumbers are ready to be launched in the market.

Basant chooses organic fertilizers over inorganic ones by adopting an on-farm composting method. In the periphery of his land is a *Banj* Oak forest whose dried leaves are used as one of the components in making natural compost. Another resource he uses are his two cows whose dung and urine are mixed with the dry leaves to form a semi-liquid. This mixture is then kept in a huge pit dug in the ground, which is covered with polythene and left to form moist-nutritive compost within three months. Basant informs that since these summer-growing climbers are heavy feeders, one plant consumes around 30 to 35 kg of compost throughout its lifetime.

Cucumber does not need a lot of attention once they are firmly rooted; however a steady water supply throughout the season is necessary for successful fruit bearing. Basant's land is now equipped with a good irrigation facility. But there was a time when he and his wife used to carry water manually from a

rivulet 400m away. That was 24 years back when he started with a few cucumber climbers on an experimental basis. But now for more than a hundred plants, he needs water supply in great volumes. Basant calculates that at least half a litre of water is required to keep each plant slightly moist at all times. At present, he has managed to build two tanks with storage capacities of 12,000 and 6,000 litres, which cost him 70,000 and 13,000 rupees, respectively. The smaller tank was built with monetary help from a local NGO, Himalayan Seva Samiti (HSS). These tanks are connected through a pipeline to a small stream flowing at one end of Nakina village. Basant's land lie in a small hamlet called Patauji in Nakina village and is a few metres away from Nakina stream. But this Nakina *naula* or stream is not perennial and dries up during the non-monsoon periods. In the absence of a good irrigation system, reliability on rain increases. Sharing his experience, Basant tells that regular rain at a steady pace helps to develop fruits of a good quality and size. So with the arrival of monsoon, productivity increases owing to ample water availability whereas summer leaves Basant with a mere 500 litres of water. Considering these conditions, a rainwater harvesting programme can be introduced in the area for farmers like Basant.

One of the major breakthroughs that catapulted him to success was Basant's use of a net that allows his plants to thrive and be harvested easily. Just like any other climber, cucumbers have the tendency to spread and therefore need some kind of support. This could be in the form of a trellis or nets strung up between poles. Basant uses a netting technique to render these climbing plants ample sunlight and air. Cucumber, being a summer fruit, needs at least 8 hours of daily direct sunlight. The location of Basant's field on the top of a hillock, *i.e.* 100m above the Nakina-Digtoli road, serves as an ideal place for these plants to flourish. Also, proper air flow through the dense climbers reduces susceptibility to fungal infections. Basant avoids buying market manufactured mesh; instead he prefers

a handmade net formed with a network of jute threads. A net of dimension 30ftx15ft requires one bundle of jute thread. Each bundle weighs about 6kg and each kilogram costs him about 75 rupees. This net can be used for almost 2 seasons; however, a few kilograms of extra rope sometimes need to be added to compensate for damage caused in case of heavy rain. Basant's prime reason for selecting jute is its cost-effectiveness and durability. Aluminium wires costing 80 rupees per kg get heated up easily in the sunlight and burn the climbers at certain points while Nylon threads priced at 130 rupees per kg are costly and disfigure in the heat, thus making both of them unviable and unfit.

Apart from building structures for the climbers, hiring farm labour is another land-related investment in cucumber farming. Basant usually hires labour on daily wages of 300 rupees. Agriculture, which was earlier a family enterprise where the entire family worked together in the fields and relied solely on family labour, is losing its sheen. Basant, living in a nuclear family, has only his son and wife as key helpers, leaving him dependent on outside labour. Though cucumber farming is comparatively less labour-intensive; Basant still requires helping hands during tilling, manual weed removal and net preparation.

Systematic spacing of plants, timely pruning and developing a netting system simplifies the harvesting process. Netting helps cucumber to spread vertically and horizontally above the ground; hence the fruits dangle down the threads, making the plucking process easy. Basant, instead of snapping the fruit off the climber, uses a sharp knife to cut the fruit attached to the stem. Picking the fruits at the right time and of the right size is essential for ensuring the fresh flavour. Over the years, Basant has acquired the ability to predict the plucking time of the cucumber by observing its size and colour. He usually

picks a cucumber before its weight exceeds a kg. It takes him around an hour and a half to assemble the plucked fruits every alternate morning and another hour for cleaning and packing; thereafter it is ready to be carried to the market.

Basant is a man possessing the true traits of a progressive agriculturist. Farmers from Pithoragarh town, Bin, Gurura, Sintholi and nearby villages have started approaching him for farming tips and techniques after hearing about his groundbreaking work. The impact factor can be gleaned from the fact that many farmers have started using nets to support climbers like bitter melon, bottle melon, zucchini etc. The growing popularity of his work has started drawing the support of politicians and government officials. Recently, during a Plantation Programme conducted in Nakina under the KSLCDI (Kailash Sacred Landscape Conservation and Development Initiative) Project, the CDO (Chief Development Officer) Mr. Ashish Kumar also visited Basant's land. Moved with his innovative initiatives, the State has promised to provide Basant with training and infrastructural support like a mushroom growing room, three organic composting pits and a water storage tank, eligible under a developmental scheme.

Basant feels highly grateful to the government's generous gesture but at the same time he has developed his own linkages to try his hand at Poultry Farming. Exhibiting his characteristic self-dependency, he has started constructing space for Broiler and Kuroiler chickens and plans to install a Hatching Machine for eggs.

Adoption of a systematic methodology to develop a high yield farming system on a limited area, without any or negligible prior training or support is the main feature of Basant's cucumber story. If Basant's efforts continue like this, his farm could soon be set up as a role model for motivation and emulation for farmers from all over the hills and even beyond.





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# Nakina Van Panchayat: Community Approach for Forest Management

Since time immemorial, mountain communities have been dependent on agriculture and forest resources for their sustenance and income generating activities. For them, land, water and forests are not merely natural resources to be exploited and benefited from, but an integral part of their indigenous cultural practices. Unfortunately, they are also the community most vulnerable to climate change, globalization and non-sustainable development. The fragility of the Hindu Kush Himalayan ecosystem and prevailing penury; further add to their misery. Only efficient management and continual maintenance of their natural resources can ensure sustainability and the future security of mountain people. And who could better manage the local natural resources than the local community itself!

*Van Panchayats* or Village Forest Councils are among the best examples of community management of natural resources. *Van Panchayat*, a specific term used for the Forest Protection Committee whose administrative unit comprises locally elected community members who are responsible for the management of activities related to the *Panchayat* forest. These forests are the common forests that are accessible to the local people to meet their fodder, fuel, timber and other daily requirements but in a strategic and controlled manner. The smoothness with which a *Van Panchayat* functions is highly dependent on the willingness of the village community to participate. The Nakina *Van Panchayat* is one such example of a well-organised and administered *Van Panchayat* running with the collaborative effort of its people, the government and non-governmental organisations.



# NAKINA VAN PANCHAYAT

Nakina is a village in Gorang valley, 11 km away from Pithoragarh town and situated at an altitude of 1684m above sea level. The village has access to its own forest, which covers a geographical area of 114 hectare. Of this, 94 hectares come under the Village Forest Council or *Van Panchayat*. The Nakina *Van Panchayat* methodically works with the help of nine *Panchs* (the sub-heads) and a *Sarpanch* (the main head) who are locally elected members. The elected body with the partnership of the village community administers the community forest. 72-year-old Jagdamba Prasad Joshi, the *Sarpanch* of Nakina *Van Panchayat* for the fifth year running, proudly informs, “We manage our forest resources so well that we have never had to dedicate our forest to the deity”. Dedicating a forest to a deity or ‘*devta*’ for a particular period of time is a self-measure taken by villagers independent of governmental laws. Such ‘dedicated’ forests represent a form of Nature worship and go hand-in-hand with biodiversity conservation. But the fallout of this practice is that these forests are kept intact for many years with little or no accessibility even to the villagers to enjoy their own resources. “We can’t pluck even a single leaf from these forests. How can a marginalised person survive in such conditions?” a local driver asks me, pointing to a ‘dedicated’ forest on the way. Unlike Nakina, neighbouring villages such as Chhanapande, Dhunga and Ratwali have dedicated their forests to the *Devta*.

Conveying the importance of an efficiently managed community forest, Mr. Joshi says, “Fuel and fodder; these are the two important requirements of mountain people and our *Van Panchayat* effectively provides it”.

## नकीना वन पंचायत

नकीना वन पंचायत ग्रामीणों द्वारा अपने वन संसाधनों की सफलता पूर्वक प्रबंधन व दोहन करने की एक कहानी है। अपने वन संसाधनों के प्रयोग को लेकर वन पंचायत सरपंच जगदम्बा प्रसाद जोशी के नेतृत्व में नकीना के ग्रामीण आपस में बैठकर छोटे बड़े नियमों को निर्धारित करते हैं तथा समस्त ग्रामवासी बड़ी कड़ाई से इन नियमों का पालन करते हैं। अपने वनों के संवर्धन के लिए सारा गांव एकजुट होकर प्रतिवर्ष वृक्षारोपण करता है। सूखे की स्थिति से निपटने के लिए वर्षा जल के संग्रहण हेतु समस्त ग्राम वासी सामूहिक श्रम दान से तालाब खोदते हैं। जंगल में आग लगने की स्थिति में सम्पूर्ण गांव एकजुट होकर फायर ब्रिगेड की टीम की तरह काम करता है। वन पंचायत से चारे तथा ईंधन के स्रोतों का दोहन नियम पूर्वक होता है। वन संरक्षण, सम्बर्धन व सतत् उपयोग की अपनी इन परम्पराओं के चलते नकीना वन पंचायत स्वतः ही सफलता की एक कहानी के रूप में उभरी है।



The backward and the scheduled caste form 80% of Nakina’s population, out of which almost 22% lack cooking gas facilities. Hence, fuel-wood is an essential requirement of villagers, which is often met by collecting fallen wood and twigs from the *Panchayat* forest under the *Panchayat*’s vigilance. The *Van Panchayat* also has the right to allot one or two down-trodden trees in a year to the needy villagers for house construction at reasonable rates. According to Mr. Joshi, a mere 30 rupees is usually charged for a good bundle of dry wood and 325 rupees





for a fallen dead tree. This money, along with the contribution of *Van Panchayat* members, acts as a monetary resource to run the Village Forest Committee.

The Nakina *Van Panchayat* forest is a mix of both pine and oak trees. The fallen dry leaves, especially the needles of pine are highly inflammable. So in order to prevent incidences of forest fire, the Panchayat practices a rotation system of collecting dry needles and leaves. These are used by villagers as bedding for their livestock. Fallen oak leaves, pine needles and other dried leaves can be collected but extraction of fodder leaves like Napier grass, Bhimal (*Grewia optiva*), Khadik (*Celtis australis*), Falyaat (*Quercus glauca*) and timber are restricted without the *Van Panchayat's* prior permission. Offenders in such cases are strictly penalised under *Van Panchayat* rules. Hence, the laid Rules and Regulations act as an effective method to check the indiscriminate felling of trees.

Sustained access to fodder is essential to feed livestock. To this end, Nakina *Van Panchayat* allows access to fodder leaves and grasses for four to five days almost every month. The collected grass is stocked in a common storehouse and later distributed equally among the community. Every measure is taken to ensure equal distribution of fodder and avoid partiality in any form. Apart from the 94 hectare *Van Panchayat* forest, 20ha of forestland is left free for grazing purposes without any restrictions. These are called '*Gauchar Panghats*'.

"Be it daily household requirements or any occasion, meeting the fuel and fodder requirement is our responsibility. Thus, if one tree is used, hundred more are planted by us," says Mr Joshi spelling out his *Van Panchayat's* visionary approach to sustainable usage of forest resources. The whole village enthusiastically participates in plantation activities conducted in their forest. This includes digging of pits, planting of Falyaat (*Quercus glauca*), Koeraal (*Bauhinia verigata*), Bhimal (*Grewia optiva*), Padam Paaya (*Prunus cerasoides*), Haradh (*Terminalia chebula*), Reetha (*Sapindus Mukorossi*), Utees (*Alnus napalensis*), Ainyar (*Lyonia ovalifolia*), fruit bearing trees like blackberry etc. and providing organic manure to these plants. Local NGOs like Swati Gramodyog Sansthan and HSS (Himalayan Sewa Samiti), Pithoragarh have also rendered their support to Nakina *van panchayat* by providing plants and planting

techniques and some financial assistance. Regular training of *van panchayat* members are conducted by the Forest Department. Under one such programme at FRI (Forest Research Institute), Dehradun, training on Forest Panchayat management, plantation techniques and fire control methods was imparted.

Forest fires cause major havoc in the hills of Uttarakhand. Hectares of green cover get ravaged during wild fires, adversely affecting their biodiversity. Frequent surface fire has always been a matter of concern for *Van Panchayats*. "Whenever a forest fire breaks out in the locality, the whole village becomes anxious. The situation worsens in summer since water is scarce then and it becomes difficult to douse the fire," a profound feeling of distress was evident in Mr. Joshi's voice.

Under these situations, controlling the fire is tedious work, especially in the absence of sufficient resources. Villagers often lack professional fire fighting equipment, protective clothing and first aid kits; making their situation extremely dangerous. Despite these ordeals, *Van Panchayats* have proved more successful in checking forest fires than any other institution. The villagers are more connected to their ancestral forests and have acted as co-managers of forest wealth for years. They are therefore, more aware of traditional indigenous methods that have been practiced from old times to prevent and control forest fire incidences. Often, basic tools such as shovels and rakes are used by villagers to make a fire line; a gap in between vegetation or any other combustible material, which acts as an obstacle to the spread of fire. Jagdamba Prasad Joshi, however, feels that a blend of modernised fire fighting techniques and mechanized equipment with traditional knowledge is essential for any *Van Panchayat* to be efficient in dealing with fire crises. Highlighting the importance of community-based fire management, he tells that he notices forests under the jurisdiction of *Van Panchayats* suffers less damage during wild fires compared to those under Reserve Forests. The likely reason for this could be the active participation of local people who immediately come forward to douse the flames since their natural resources are directly under threat. Mr Joshi also feels that the ideal situation would be the existence of a standard fire fighting plan carrying preventive and remedial methodologies that could be executed through a joint collaboration between the *Van Panchayat* and the Forest



Department during a fire crisis.

Historically, the local people have always been the guardian of their forest. But with the establishment of the British Raj during 1880s, the hill people lost authority and a fully fledged control over community forests. Unjust rules and imposed restrictions over use of forest resources by British rulers gave birth to civil unrest in Kumaon and Garhwal hills. In order to calm down the protest against the administration and in search of new favourable options of village participation, a Kumaon Forest Grievance Committee was established. Based on recommendations made by the committee, Forest Panchayat Act (Forest Council Act) of 1931 was passed. The 1931 *Van Panchayat* rules had undergone several changes over the decades. However, many administrative, financial and punitive powers are lying in the hand of Van Panchayat.

As an aware and knowledgeable *Sarpanch* who retired from the army, Mr. Joshi informs that the Nakina Van Panchayat was constituted in 1952. "Initially for a year or two; the Van Panchayat concept remained unacceptable to Nakina villagers," he recalls, "they claimed their personal rights on their ancestral land." But with time, Nakina villagers realized the benefits they could accrue by working collectively to manage their forest resources. Along with Nakina, *Van Panchayats* of nearby villages like Digtoli, Sinchaura, Majhera and Gurura were formed around the year 1952.

Be it any organization, institution or community; effective leadership plays an important role in mobilizing people and developing the right strategies to yield a productive outcome. Apart from establishing links with local NGOs, Jagdamba Joshi joined hands with various stakeholders, including the forest department and research institutes such as G. B. Pant National Institute of Himalayan Environment & Sustainable Development. In May 2016, With massive intervention by Forest Development construction of three artificial lakes was carried out on a wide plain of 10 hectares atop a hillock. The hillock, at an altitude of 1950 metres, comes under a small hamlet called Aitola and forms a part of the Nakina *Van Panchayat*. Out of the 3 lakes, the larger one has a dimension of 80mx80mx5.5m whereas the other two are 50mx50mx5.5m in size.

This hilltop has a distinct feature; it is surrounded by Digtoli,

Nakina, Bhurmuni, Talli-Malli Seem and Agar villages along with various hamlets like Dadi Patta, Jhunkoli etc. It therefore serves as an ideal place to carry out a geo-hydrology based Spring-Shed Management approach. The KSLCDI supported systematic geo hydrological studies. The basic idea behind forming these recharge ponds is to rejuvenate nearby springs and increase the water table by tapping maximum runoff water during rain. The project aims at reducing the water scarcity in Nakina and nearby villages in the near future.

Jagdamba Joshi can be regarded as one of the initiators of this visionary project. He was aware of the fact that his village lacked appropriate means and resources to recharge their long-lost water sources. Standing on the site, he recalls his childhood days when he used to swim in the naturally filled ponds that dried up 50 years back. Also, the primary channels that served as the main water supply to surrounding villages, shrank within a span of 25 years. But he also knew that intervention of artificial recharge techniques in his area could replenish the aquifer level again. Having been exposed to various places in the country while serving in the Indian Army, Mr. Joshi had seen a number of water conservation structures such as surface reservoirs, dams, percolation tanks etc. built under various Groundwater Recharge Programmes during his posting in Satara, Maharashtra. Now, having involved various agencies under the rejuvenation programme, the spirited *Sarpanch* can happily visualize a future Nakina in which there will be no dearth of water.

A proud *Sarpanch*, Jagdamba Joshi points towards his *panchayat* forests as he says, "This forest is a miraculous gift of Nature to us and we have utilized it well by protecting it and yet making it productive for us".

In all aspects, Nakina *Van Panchayat* is an impeccable example of a community's dedication to protect, restore and sustainably utilize its forest resources.

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## STORIES OF SUCCESS

*narratives from a sacred land...*

03



# Innovating Chyura: Practices for Socio-Commerce and Conservation

**C**hyura, or *Diploknema butyracea* is a deciduous tree stretched across Sub-Himalayan belt up to an altitude of 1500 metres. This medium-sized fast growing tree can attain 20 metres in height and 1.8-3 metres in girth (Nautiyal and Kandpal, 2010). It grows wild in Pithoragarh, Almora, Bageshwar and Nainital districts of Uttarakhand and is sometimes cultivated in certain parts of the state. Chyura can be termed as a multipurpose tree since each of its parts is utilized. Its wood is used as fuel and timber, leaves are used as fodder while the fruits are edible. But the most significant parts of chyura, whose utilization has changed rural economy in certain places, are its seeds and flowers.

Chyura trees start yielding fruits generally between five and nine years of age. The fruiting time of chyura is April to July and the fruit is fully ripe by June/July. The innermost core of the chyura fruit contains a seed with a thin but hard, brown, glossy coating and within it rests its kernel. These seeds are used for oil extraction while seed residue could act as a mosquito repellent when burnt. The flowering season of chyura begins from November and lasts till January (Koirala, 2009).

Chyura flowers are white or pale yellow pigmented flowers with a pleasant fragrance and are the point of attraction for foraging bees in search of pollen and nectar for preparing their food. Nectar, the source of carbohydrates for bee colonies is a complex sugar that enzymatically (enzymes from a bee's gland) converts into simpler sugar whereas the pollen, a source of protein, after going through a fermentation process with bee saliva and honey, becomes the bee bread for young bees (MAAREC, 2015). Bees busy carrying pollen in the hairy receptacles (pollen basket or corbicula) on their hind legs, are unaware of the important role they play as pollinators. By transferring pollen from the male part (stamen) of a flower to the female part (stigma) of the same or other flowers of the same species, they enable fertilization. Bees feeding on chyura flowers can be seen carrying white-yellow pollen back to their hives. The flowers are also a good source of nectar for them. A mild flavoured, light yellow coloured chyura honey is obtained from bees foraging on chyura flowers. In fact, Nepal is launching chyura honey as a brand in its domestic market.



# CHYURA

## कल्प वृक्ष-च्युरा

पिथौरागढ़ जनपद के नेपाल से जुड़े भू भाग में बहुतायत में मिलने वाले बहु उपयोगी च्युरा वृक्ष को कल्प वृक्ष की भांति माना जाता है। इस वृक्ष की लकड़ी जलाने के लिए, पत्तियां चारे के लिए, फल खाने के लिए तथा फूल शहद उत्पादन हेतु प्रयोग में लाये जाते हैं। इस वृक्ष का सबसे महत्वपूर्ण हिस्सा है इसका बीज एवं फूल। इन दो के बेहतर प्रयोग से 'चिया' संस्था ने पिथौरागढ़ जनपद के च्युरा प्रचुर क्षेत्र में बसने वाले ग्रामीण समुदायों की आर्थिक स्थिति में बदलाव लाने की महत्वपूर्ण पहल की है। च्युरा के बीजों से पारम्परिक रूप में तेल निकाला जाता रहा है, जिसे ग्रामीण खाना बनाने में इस्तेमाल करते हैं। साथ ही इसका उपयोग सौन्दर्यवर्धक व औषधीय उद्योगों में किया जाता रहा है। विगत वर्षों में इन सब के मानकीकरण के फलस्वरूप 'चिया' ने ग्रामीणों को बाजार से मिलने वाले आर्थिक लाभ से जोड़ दिया है। च्युरा के फूलों पर मधुमक्खियां रस व पराग के लिए बैठती हैं, इसी कारण च्युरा बहुल क्षेत्र के ग्रामीण पारम्परिक रूप से मधुमक्खी पालन करते आए हैं। च्युरा शहद का उत्पादन बढ़ाने हेतु आधुनिक मधुमक्खी पालन की सुविधा एवं प्रशिक्षण 'चिया' द्वारा दिया गया। इसके परिणाम स्वरूप च्युरा आधारित स्वादिष्ट एवं औषधीय शहद को बाजार में सफल रूप से स्थापित किया जा सका है। उत्पाद से बाजार तक के लिए जरूरी ज्ञान व कौशल वर्धन हेतु ग्रामीण समुदायों को 'चिया' द्वारा प्रशिक्षित कर सफल प्रयास किये गये हैं। 'चिया' द्वारा स्थापित च्युरा मूल्य शृंखला एक सफल व प्रेरणाप्रद प्रयास है।

**CHEA and the Chyura belt:** Popularly known as the Chyura belt, this tract stretches across 14 villages of Pithoragarh district. Chyura trees grow in abundance in Gogana (Tok: Kanth and Mulakot), Kitholi (Tok: Harkante), Bera, Jamradi, Nisni and Selguwani villages lying within an area of 15 to 20 kilometres. These six villages have been taken up as Pilot sites for chyura products and the chyura honey value chain by CHEA (Central Himalayan Environment Association), Nainital for the past four years under the KSLCDI (Kailash Sacred Landscape Conservation and Development Initiative) Project, with funding from ICIMOD (International Centre for Integrated Mountain Development), Nepal. CHEA has formed a total of 14 SHGs within six of its pilot villages which together work under a Cooperative named 'Pancheshwar Ghati Swayatt Sahkarita'. All the chyura products and traditional millets and pulses are being sold under this Cooperative. The entire profit from sales is distributed among the beneficiaries through cheque or electronic transaction of money into their accounts. Eight out of the total 14 SHGs have only women members. This highlights the special emphasis given by the association to promote women's participation.

Traditional knowledge is basically a reservoir of facts and skills lived and practiced through ages by a community during the processes of their interaction with the natural resources in their surroundings, in the course of their survival. In a way it is an indispensable property that has survived, evolved and passed from one generation to another. People, especially elder



one, can be explored as they are the existing link between the past and the present. The information attained from them can be interpreted scientifically. The chyura tree, for instance, was traditionally finding its use in beekeeping and as vegetable fat in the chyura belt. It might have not been taken at commercial level then but an involvement and dependency was always there. So subconsciously, a natural attachment of the people to the tree and its habitat has developed. Hence, it becomes easier to connect them with environment management practices.

In fact, the awareness of the utility of chyura trees goes way back, before any project intervened or global exposure paced up. In a conversation with an elderly woman; Dharma Devi



functional mill in Kanth charges around six rupees for grinding one kg of kernel. According to Dharma Devi, about 15 kg of kernel gives her eight to nine litres of oil, which is more than 50% of the weight of the kernels. Generally, the oil yield is said to be 60-66% of the weight of the kernel (Kunwar, 2015).

Chyura oil extraction has been a part of Dharma Devi and other aged women's indigenous house practices. It was and is still being used by almost every chyura belt villager as cooking oil for vegetables and *paranthas*. One can relish the puffed *puri* fried in chyura oil that leaves a slightly bitter or rather a strong flavour in the mouth, at various ceremonies and marriages.

In the course of our conversation, Dhrama devi added humorously "Chyura ghee is poor man's butter". Her words are an indication of the dependency of the chyura belt's mountain community on this significant commodity. The market rate of Chyura Ghee is around 120 rupees per kg, but it costs them much less because of their nearness to the raw material. The only prime investment is hard work, in which the villagers generally don't lag behind. But the quantity of ghee produced in Kanth has reduced in comparison to earlier times, probably because of better road facilities and improved financial conditions that have made branded refined oils easily accessible to villagers. Another reason that explains the reduced involvement of Kanth villagers in chyura ghee making could be the inability of fewer trees to meet the growing requirements. Owing to the fact that the chyura tree population is less within Kanth and seeds need to be searched for in outlying forests, a slight reluctance has developed among the villagers.

In a meeting with a French researcher; Ms. Clarisse Askinazi, she pointed out her comparative observations on people's involvement in processing of chyura products in Kanth Tok and Jamradi village. She mentioned the fondness of Jamradi people towards chyura ghee making, for which the motivational factor could be the closeness of Jamradi village to forests with an abundance of chyura trees. Also, Jamradi is quite far from Pithoragarh town where the main market is, while Kanth, being the nearest to Pithoragarh among the chyura belt villages, is only at a distance of 25kms. It is interesting to note how the remoteness of Jamradi has contributed to developing self-dependency among its people for fulfilling their vegetable oil requirement. Clarisse, being an Anthropology student, is studying the traditional relationship between villagers and the chyura tree and the manner in which this relation has evolved or changed with the passage of time. She finds people calling this butter tree their 'Family tree', which is probably a gesture of gratitude for the products every part provides. It still holds importance in their life but in the old times of poverty and remoteness, the tree was nothing less than a boon for them. However, as the village population grew and forests started shrinking, the idea of conservation was born. People realised that economic benefit from trees could only be obtained if its numbers are increased or at least kept intact. Hence, about 10 years back, they started taking initiatives like planting chyura trees within their personal territories and avoiding the felling of green wood.

CHEA intervened as a not-for-profit organisation working on livelihood improvement activities, in the times when chyura knowledge and its associated practices were confined within personal spaces. It provided an integrating platform through formation of Self-Help Groups, giving elders the opportunity to share this indigenous knowledge with newer generations. In an

of Kanth Tok, the entire traditional history of chyura oil extraction was revealed. She narrated the collection of the oval shaped berries from the nearest community forests close to village Bera, which involved picking the fruits from the ground that dropped off naturally after ripening. Kanth has relatively fewer chyura trees compared to Bera and Jamradi, due to which she had to travel some distance in search of a higher quantity of fruits. She tells how she and her family savoured the sweet creamy taste of the pulp while its seeds were cleaned and boiled to soften their covering, after which the kernel could be easily liberated by simply pressing them on the floor. Since chyura seeds cannot be stored for more than a week, the process of taking out the kernel needs to be done at a fast pace to avoid further deterioration. However, once dried, the kernel can be stored for two to three years.

After the almond shaped white kernels were obtained, they were dried in the sun to remove the moisture content and then roasted. The roasted kernels were then pounded using *Okhal* (grinding stone) to form a crushed material. This crushed material was then boiled with water in a container. After the hot water cooled and settled down, the so formed paste was taken out. This paste was then kept in a white cloth and pressed by hands till tiny drops of oil trickled down. In some cases, the paste was again reused by drying and then crushing to form a powder. This powder was kneaded continuously with warm hands to give it a soft texture. Lukewarm water was then poured on it and the ghee was skimmed out after cooling. Chyura oil has a tendency to solidify at normal temperature and hence is often termed as Ghee.

The entire process of chyura oil extraction was labour-intensive, especially in the absence of mechanised equipment like the *Chakki* (grinding mill). The oldest machine recorded in the chyura belt is only about 25 years old at village Himtadh, but it is not functioning currently. Even the grinding mill in Kanth was installed by an individual only 10 to 12 years back. The



era of globalization and industrialization, handmade products are gradually losing their place in the market. Dearth of natural resources, an alarming rate of migration and low cost artificial products flooding the markets are affecting the rural handmade industries. Unable to take a commercial form, these products have been gradually relegated to being mere showpieces. In such critical conditions, a revival agency is required that could promote and support the handmade productions. CHEA is one such agency working with this perspective. It is providing technology, training, exposure visits and more importantly, a market identity to chyura products. Showcasing chyura products with the tag 'handmade', in local, national and international fairs has been its key marketing strategy.

But to commercialise a product, its production quantity needs to be increased, which in turn requires raw material. Since chyura raw material was traditionally extracted from the wild, dependency on forests was not at all a sustainable approach when practiced at the commercial level. To that end, the concept of Plantation and Nursery development was introduced in chyura belt villages. Though chyura cultivation on personal land started way before CHEA approached the belt, it was earlier undertaken on a more individual basis. CHEA organised the community to work together for increasing the chyura tree coverage area. So far, about six nurseries have been developed in the entire belt. These nurseries are made by the villagers themselves using their native seeds to produce at least 2000 saplings in one nursery.

Mr. Mohan Chand Bhatt, who works for CHEA in the chyura belt, informed that around 2000 rupees are invested by the organisation to bear the cost of equipment and other necessities needed in Nursery development. But the entire supervision

is done by the villagers. The quality of the nursery is very dependent on the level of care provided to it. Protecting the plants from animals and meeting the water scarcity problem are some challenges faced during nursery development. Within a span of two years, each plant can be sold by the villagers at 15 rupees per plant, either to customers or back to CHEA. The purchased plants are used by CHEA in their plantation sites. Even during plantation activities, villagers are not kept aloof. CHEA involves them in the planting process by hiring them for manual work like pit digging and planting. Thus the plantation programme becomes a medium for incomes for the villagers and also a source for disseminating awareness on the conservation aspect of chyura trees.

In an effort to keep the rich traditional knowledge on chyura oil extraction intact, CHEA has avoided undue mechanization in the process. However, to ease the exertion of hand grinding, it has acted as a medium for providing a grinding machine in Nisni village. According to Mr. Dhiren Joshi; another CHEA employee, a partial monetary contribution of around one lakh rupees was given by ICIMOD while the remaining cost of 70,000 rupees was managed by Nisni villagers. Nisni, being about three kms away from the road, is more dependent on homemade vegetable fat and earlier had to rely on machines at Kanth and Khitoli to grind their chyura seeds.

Chyura ghee has immense potential for being used in a wide range of industries like pharmaceuticals, cosmetics, confectioneries etc. With the intention of providing an additional income-generating opportunity, CHEA has ventured into chyura soap making. Their soaps have become a point of attraction in the handmade industry. Currently, the cosmetic market is witnessing a craze for herbal and natural

products. Following this market trend, CHEA is attempting to launch chyura soaps under the tag of natural/chemical-free products. But marketing strategies aside, chyura soaps are actually made using natural ingredients where chyura oil accounts for 30 to 40% of the entire composition.

Demonstrating the entire procedure, Mr. Bhatt added 40% of chyura oil while the rest of the oils like castor, coconut, rice barn and palm oils were added in lower quantities to form a solution of 100gm with distilled water. Chyura oil previously added to the mixture was 30% but owing to market demands as well as availability, its percentage was increased to 40% on an experimental basis. Another reason for increasing the percentage of chyura oil was the high market price of other oils. In fact, CHEA has invested 50,000 rupees on a standardised formula that would involve 60% of chyura oil usage. So, every

step is being taken to make the soap production more cost-effective. To add aroma to the solution, Lemon essential oil is added and the solution is then stirred vigorously with a wooden stick-like equipment. No machine is used for the stirring process to ensure a completely handmade procedure which could be replicated by villagers in their homes. The mixture is then poured into rectangular wooden boxes to settle down and take shape. After cooling for 24 hours, the solidified mixture is carefully scooped out and cut, using a wooden cutter. The cutter easily divides one rectangular soap cake into four smaller pieces, while the rubber inner lining of the wooden boxes gives a neat edge to the scooped out cakes. Five such boxes and one cutter have been especially imported from the United States of America through an online order at a cost of about 50,000 Indian rupees.

## Chyura Soap Preparation Process



A solution of 100 grams with 40 grams of chyura oil in its composition requires monetary expenditure of 28 rupees. But each 100 gram solution produces 50 soap cakes and each cake is easily sold at 50 to 60 rupees at exhibitions and at 40 rupees each when sold in bulk to shopkeepers. This makes chyura soap a profit earning by-product, provided proper marketing is done and demands are met on time. Members of Self-help Groups have shown their keenness and enthusiastically participate in the soap-making procedure as well as its marketing. CHEA has tied up with big training institutes of Delhi and Mumbai, where SHG members along with CHEA employees, are sent for training and learning methods of soap-making. They are also involved in the trading process, so that they can learn marketing skills. In a recent development, around 300 soaps were made and sold at a handicraft fair in Nepal. Mr. Bhatt cheerfully tells that the soaps were marketed successfully, due to which, international orders are continuously pouring in.

Chyura belt holds a traditional history of beekeeping for Chyura Honey. Early man was a forest dweller. Hunting in the wild for centuries, he later developed the skills of agriculture and animal rearing. He also gradually learnt to tame the once wild insects; bees, and domesticated them for their wax and honey. Hence, the practice of Apiculture or beekeeping developed. Traditional beekeeping is one among the old practices carried out in chyura belt. The idea of beekeeping probably came when its inhabitants noticed the nesting colonies of wild bees in the hollowed-out chyura trunks in the forest. Replicating the idea from nature, hollowed logs of chyura trees were kept in and around the homes and the right-sized holes were made on

them to provide entry and exit for the bees. They called them 'Dadhe' which were in some way close to a bee's natural way of living. Gradually, more feral bees searching for suitable places to nest started flying towards human habitation. They made void walls, eaves of the building and any other 'leave me alone' location their new home. Since a hollow trunk is not always easy to find, beekeepers started carving cavities called 'Jale' in the walls of their houses. These traditional hives, *Dadhe* and *Jale*, are still used in chyura belt villages like Kanth. But unfortunately, honey harvesting in traditional hives is often accompanied by destruction of the comb and killing of some adult bees and broods.

Chyura belt beekeepers generally do not adopt any strategy to entice the bees to nest in the wall and log hives. Instead they collect them from the wild. A beekeeper, Basant Singh from Kanth tok, explained how he captures already established bee colonies from chyura forests. Chyura trees have a tendency to grow in shadow valleys or on riverines, and Kanth is situated at a height with a river running down its slope, along whose banks lie most of the chyura trees. So a majority of the farmers, including Basant, get their initial resources like colonies and queen bees from these forests, by either cutting tree limbs with nesting colonies or by smoking out a colony and directing the bees towards a container. For transferring the bees, the container's open end is directed towards the already made hives.

Chyura belt villagers still believe in collecting indigenous wild bees rather than buying the exotic ones. They feel these bees are more resistant to disease and better adapted to survive



prolonged winters. *Apis cerana indica*, the small sized, swift flying bee with low stinging tendency is found in this area. The bee has a small foraging range (within one kilometre periphery of the hive) and produces less honey compared to European honey bees; *Apis mellifera*, but its nesting habits (small-sized colonies within any cavity), adaptability to changing climatic conditions and better immunity make it the ideal bee to be reared in the mountains (Koetz, 2015). Boasting about the surviving ability of this species, Basant says it can find its forage even in times of crisis while *Apis mellifera*, used for commercial honey production in plainer areas, requires more forage and its hives need to be often moved to high nectar sources.

But *Apis cerana* are prone to swarming and absconding. Swarming is a natural duplication process through which bees form newer colonies. This is often due to overcrowding, which causes the workforce to split into groups and formation of a new queen bee. More than half of the swarm leaves the old hive in search of a newer hive with their old queen. This phenomenon, locally termed as “*Bak chhoot*” weakens the strength of a colony. The loss of bees is not so favourable for beekeepers and they need to be gathered back before the swarm flies to distant areas. Basant informs that the time of swarming is usually February-March or October-November. During this time, he uses his own technique of throwing water or ash up in the air to prevent these insects from flying. The captured swarms with their queen are then kept in a new hive.

Almost all the 50 Kanth families have been practicing the art of beekeeping inherited from their forefathers. But around 20 families have taken it to a commercial level. They have been given beehive wooden boxes by CHEA at a subsidised rate of 500 rupees each. Basant demonstrated the functioning of these movable-frame hives consisting of a series of wooden boxes stacked on top of each other. The lower portion is the brood chamber where the queen lays eggs and the brood develops.

The brood chamber consists of brood frames which usually have some pollen and honey as food for the next brood cycle. Above this chamber lies the queen excluder. It is basically a grid with a hole and the hole is designed in such a way that it allows smaller bees *i.e.* the workforce to enter but not the larger-sized queen. This stops the queen from laying eggs in the top chamber which is called ‘Super’. ‘Super’ or the honey chamber has movable frames in which bees make their combs. These movable frames carrying honey combs can be easily taken out and placed in a honey extractor without destroying the comb. This saves bees the time and effort of rebuilding their comb, making it possible to harvest honey more frequently.

The peak season of harvesting chyura honey generally begins from the middle of October and can last till early December. However, if forage sources are abundant, then honey can also be taken out in the months of February and March. A single comb, due to movable frames, can be used three or four times for honey extraction, provided proper care and sanitation is maintained. In the absence of hygiene, bees are at high risk of infestation leading to either death or absconding from the hive by the entire colony. The phenomenon of absconding is locally called “*Ghar Chhot*”.

Basant seems well-versed with the function of each chamber, probably because he has four years of experience with these boxes, along with training imparted by CHEA. Continuing the traditional beekeeping legacy, he is still using two *Jale* and one *Dadha* but his commercial income is generated through the eight boxes he owns. Each box yields an average of 3kg honey in one harvest. Since honey from a single box can be extracted two to three times in a single season, his annual production from one box, including both the harvesting seasons (Oct-Nov and Feb-March), varies from 15 to 20kg. However, a fully loaded box (having approximately 25,000 *Apis cerana*) can give him up to five kg of honey in one single harvest. Basant notices





about three times increase in his annual honey production with the introduction of modern beehives. In fact, Mr. Bhatt claims that the annual production which was once a mere five kg with conventional hives, has increased to 25 to 30kg with the introduction of modern hives and training by CHEA. CHEA has also provided beekeeping protective equipment like bee protection hat and gloves to the beekeepers along with a swarm catcher bag.

Value addition simply means adding value to a product in the form of a distinct characteristic so that it becomes a more desirable commodity in the market. It is easy to launch a brand successfully if it has some unique values that set it apart from regular products.

CHEA is working in the direction of making its products more alluring through attractive packaging. The main feature of chyura products and by-products is originality and purity. The packaging design of chyura honey is decent yet offbeat. It has a simple, white, oval-shaped label that mentions that the production is done by marginalised hill beekeepers through traditional organic practices, along with the altitudinal range of the area where honey harvesting is being done. Words like 'natural product', 'organic practices' and the 'Kailash: truly sacred' logo add more appeal to the chyura honey packages. Raw turmeric (straight from the farmer's land) is also being value-added in chyura soaps. CHEA is now planning to launch Turmeric Chyura Soap as a beauty bar in the market. So far, the association was selling these products through SHGs but now it is in the process of licensing its products so that commercialised trading of chyura products under a brand name can be done.

CHEA is helping villagers from its pilot sites through SHGs in every possible way. It is purchasing their chyura products (ghee and honey), providing them technical guidance and

training on chyura tree cultivation, honey processing and soap making, establishing marketing linkages for their products and finally, distributing the profit among the SHG members. In the website of CHEA, one can find 'Rural Livelihood Initiative' as one of the thematic areas it is working on. Their web page highlights beekeeping under 'Non-Farm Sector', an important means of mitigating the rural mountain community's poverty. Be it promotion of chyura products, conserving chyura traditional practices with the intervention of appropriate modern technologies or developing secondary livelihood opportunities, CHEA is making every effort towards the socio-economic development of people residing in the chyura belt of the Kailash Sacred Landscape.

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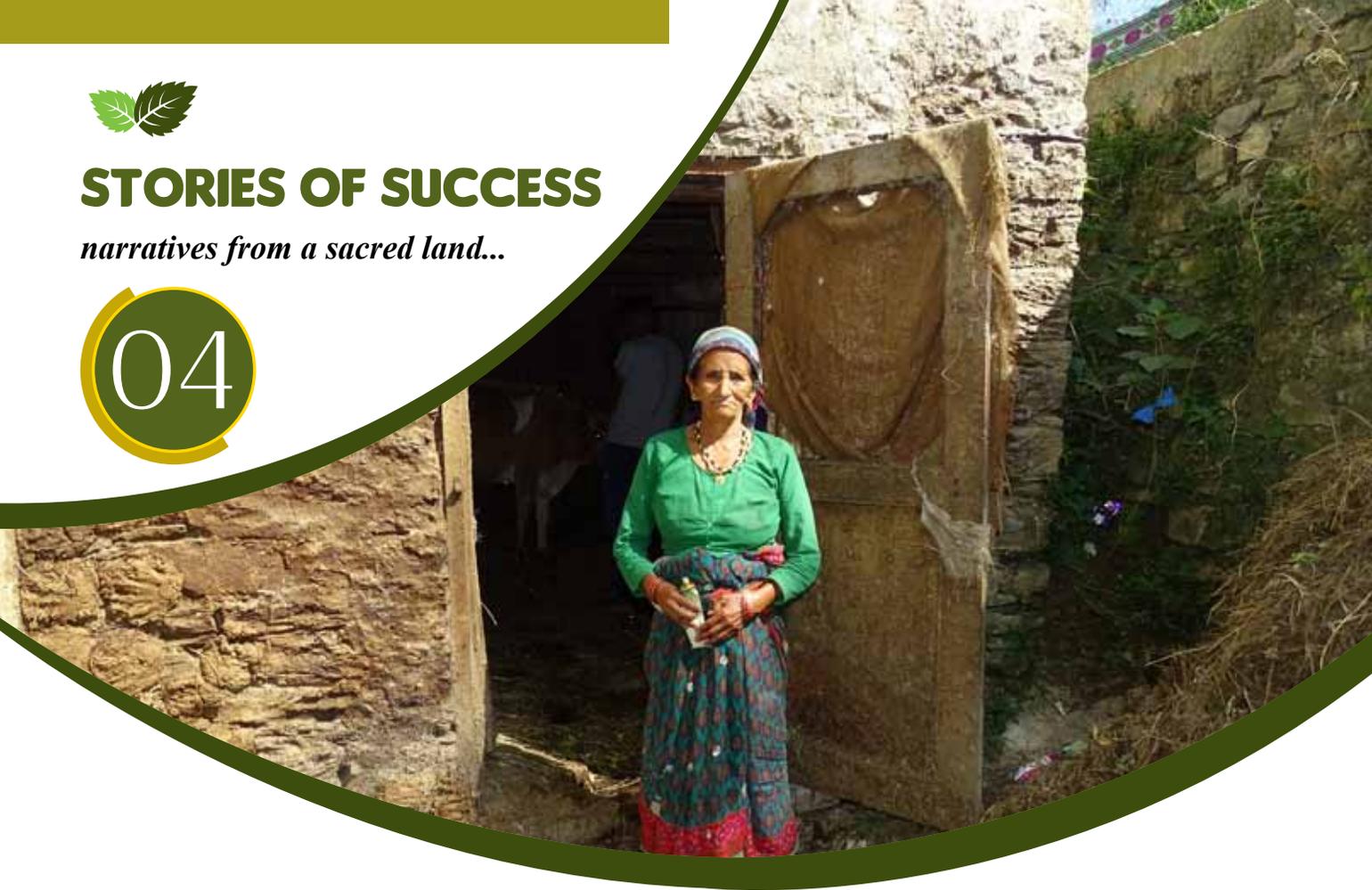
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## STORIES OF SUCCESS

*narratives from a sacred land...*

04



### Dairy Farming:

# An Option to Livelihood and Farm Manure

Uttarakhand, a Himalayan state carved out from the hilly part of Uttar Pradesh in the year 2000 is located in the northern part of India. 70% of Uttarakhand's population is involved in agriculture and animal husbandry. In fact, as per the 2007 livestock census, the state has 2.24 million cattle, 1.22 million buffaloes, 1.34 million goats and 0.29 million sheep (ILRI, 2012). But unfortunately, despite the large number, productivity is quite low. Rearing milching livestock and poultry has been more of a backyard practice than a commercial activity.

Traditionally, livestock farming in Uttarakhand has been practiced as a part of mixed crop-livestock farming. A state where 88% of farmers have small marginal landholdings, livestock and agriculture share a dynamic relationship. Bulls plough the field as most of the agriculture process is un-mechanized, whereas the cow dung is a source of organic manure for fields. In turn, the crops provide post-harvest residue to the livestock. Apart from dung, composted chicken manure adds to the fertility of the soil. In this way, a lot of resources get utilized through inter-exchanges on the farm.

Historically, animal husbandry in the Uttarakhand hills has been more of a caste based activity. Poultry and goat farming were confined to marginal classes while the higher classes of the society reared cattle like cows and buffaloes to obtain dairy produce. But in all cases, livestock farming by the different sections of society was practiced at a non-commercial level, intended to fulfil family needs.

The cow, which is a sacred animal to the Hindu community, not only provides them milk, fuel and fertilizer but forms an integral part of their religious activities. In Pithoragarh, it is a traditional practice to carry milk, curd and other milk products as an auspicious gift to the daughter's home after she gets married. But with shrinking agricultural land, livestock rearing practices have reduced. Increased educational awareness in the hill regions of Uttarakhand has prompted a huge rural to urban migration. Pithoragarh district, with only three developed towns and more than 1675 villages has a high average literacy rate of around 82.5% (Census, 2011). It is not surprising to find in many of the families people are bureaucrats or in white collar jobs. The working requirement and changed lifestyle has automatically developed a reluctance to engage in physical labour in the fields. Forests and grazing land that once covered Pithoragarh town can be now seen veiled with concrete buildings.

# DAIRY FARMING

The only people practicing pastoral farming in town are the older generation who still feel the connectivity with their land and land-related traditional activities. But as the towns started flooding with more occupants, the demand for meat and milk products increased. Local cows that had a low milk yielding capacity of around 3 litres a day with a lactation period of only 5 to 6 months were unable to meet the growing dairy demands. As a result, farmers started buying superior animals from Uttarakhand's *terai* belt. These hybrid dairy cattle were capable of producing up to 30 litres of milk a day with proper management and quality fodder. But the *terai* animals, accustomed to subtropical and sub-humid climatic conditions, were unable to cope with the temperate cold conditions of higher mountains. The cattle were thus more prone to diseases in comparison to local breeds and did not prove successful for hilly areas. The livestock department, which was dealing with this situation more than 30 years back, realized that genetics and environmental factors have a key role to play in animal health and milk productivity. Local breeds with disease-resistant traits combined with high milk yielding breeds like Jersey and HF (Holstein Friesians) could perhaps be the answer to the next generation cattle breed, they felt.

Subsequently, they introduced an 'Artificial Insemination Programme' in Pithoragarh district. In the 'Artificial Insemination' (AI) technique, semen carrying the live sperm of a superior quality bull is introduced into the female reproductive tract in order to produce an improved offspring. The department started with the semen of the Sindhi bull and then with that of Jersey and HF. Their initiative of upgrading local cows rather than introducing exotic animals worked successfully. Within a span of 30 years, AI has been introduced in almost all villages of Pithoragarh district. A nominal fee of around 60 rupees is charged for one time AI. The improved cows are so much in demand that around 300 animals per month are sent to other districts of Uttarakhand like Champawat, Khatima, Bageshwar, Almora etc. A cow producing 10 litres of milk per day, which could cost up to Rs 40,000, is now easily available to the other districts at the fairly low price of approximately 25,000 rupees. Dr Joshi, a veterinary officer in Pithoragarh informs that around 4,000 AI crossbred animals exist within a 10km radius of the Veterinary hospital of Pithoragrah town. So far, 16 wards are present at various places in the district to carry out the cattle insemination process. According to Dr Joshi, creating a huge number of healthy crossbred cattle can be proclaimed as one of the basic achievements of the AI programme.

Apart from villages lying within the vicinity of Pithoragarh town, many villages in the remotest parts of Pithoragarh have benefitted from the AI programmes. AI has many advantages; the superior sires from distant places can be made easily available to a wide range of cows. It is a 'door-to-door' AI service to breeders that made it possible to introduce improved genetics in local cows even in remote hilly villages. Also, the expenses of housing a breeding bull are saved. Field workers from the livestock department; popularly known as stockmen, travel to inaccessible areas to carry out the AI technique. One such stockman named Sher Singh, explains how it sometimes becomes difficult to carry semen for AI in villages having no road facility. This is because the semen is deep-frozen in liquid nitrogen and needs certain conditions to avoid any degradation. Despite such delicate conditions, the department has managed to reach villages even at a 4km distance from

## पनपता उद्योग- डेयरी

पर्वतीय क्षेत्रों में दुग्ध उत्पादन की सम्भावनाओं को समझते हुये पशुपालन विभाग, पिथौरागढ़ द्वारा दुधारू गायों की नस्ल सुधारने हेतु कृत्रिम गर्भाधान के अनवरत एवं अथक प्रयासों ने आशातीत परिणाम देने प्रारम्भ कर दिये हैं। यही नहीं, जन सामान्य को डेयरी उद्योग से जोड़ने व अन्ततः इसे प्रभावी बाजार उपलब्ध कराने हेतु प्रशिक्षणों की श्रृंखला भी चलाई जा रही है तथा कृषि एवं चारे की व्यवस्था को डेयरी फार्मिंग से जोड़ने के प्रयास प्रमुखता से हो रहे हैं। भू क्षेत्र के अनेकों कृषकों में सिमस्यू गांव के प्रेमचन्द्र एक उदाहरण के रूप में हैं। इन्हें पशुपालन को एक सफल व्यापार के रूप में स्थापित करने में सफलता मिली है। विगत दशकों में विकास की अंधी दौड़ ने पहाड़ी कृषकों की जीवन शैली को अत्यन्त प्रभावित किया है। खेती से बढ़ती दूरी, तथा पानी व चारे की समस्या ने पशुधन से जुड़ी समस्याओं को और विकट बना दिया है। इन सभी परिस्थितियों से जूझते हुये, विभागीय सहयोग व प्रशिक्षण के बूते पर, प्रेमचन्द्र ने अपनी कृषि भूमि का प्रबन्धन इस ढंग से किया है कि चारे की 80% आपूर्ति उनके खेतों से ही हो जाती है। जनपद में अनेकों अन्य किसान भी इनसे प्रेरणा लेकर व विभागीय सहयोग से डेयरी फार्मिंग से जुड़ते हुये इसे तीव्र गति से आगे बढ़ा रहे हैं।



increased dairy production, one of the prime factors that are inhibiting the pastoral industry from flourishing is the lack of availability of green fodder in sufficient quantity. Except in the monsoon period, there is a dearth of fodder in winter and summer. According to him, green fodder is available only for three or four months in the entire year so the peak season of milk production is from 15th June to 15th October. For the rest of year, there is heavy dependency on fodder from outside, which proves quite expensive. The prime reason for shortage of fodder is the diminished grazing area and agriculture land. Grasslands locally known as *bugyals*, and fodder trees, which have likewise been primary feed resources for dairy cattle, have also diminished. Mr. Punera agrees that the main reason he is able to afford three hybrid cows is because of his agriculture land. Grains, husk and grass from his field serve as feed for his cattle.

However, there are some pastoral farmers like Premchandra of Shyumshi village, who, with the collaboration of the livestock department, have dealt with the fodder inadequacy situation very well and taken dairy farming to a new professional level. Shyumshi lies at a considerably lower terrain with comparatively plainer cultivable land. The nearest market, Bisa Bajet, is connected to Shyumshi by a dirt road approximately 3km long with about three villages *en route*.

For Mr. Premchandra, dairy farming is a full-time occupation. He, like many other pastoral farmers, started with two HF and three Jersey cattle after his retirement from the Indian army in 2010. Premchandra opted for livestock farming despite having a considerable amount of agricultural land. The reason behind his choice is the frequent attacks by wild animals on standing crops in his area. Wild animals attacking crops has become a frequent event in Uttarakhand hills. Animals such as

the road. Sher Singh, who has been working for the past 28 years for the livestock department, took me to several houses in Lanthura village, which have been rearing cattle at the non-commercial level.

Lanthura village, attached to Pithoragarh's main market, is less like a village and more like a sub-town with more than 100 families. Here, about 40 families own two or three cows. Mr. Heera Ballabh Punera, a farmer who owns three cows tells that organising fodder to feed such huge and bulky animals is the main challenge. Dr M. K. Joshi also feels that despite



wild boar and monkeys are the main reason for crop damages, thus affecting the livelihood of farmers. In such situations, he considered livestock as the safest option.

In 2010, in addition to five hybrid cattle, Premchandra purchased eight superior breed local cows. But his animals were unable to withstand the harsh climatic conditions that prevailed due to the torrential rain in June 2013. He faced tremendous loss of livestock and was left with only three local breed calves. He reared the surviving calves for a year without any economic benefits. It was in 2014 that he came into contact with the livestock department for the first time and it was suggested that he improve his cattle breed through Artificial Insemination using Jersey semen. When Jersey semen is injected into local breed cows, the first generation is a crossbreed Jersey while a pure Jersey is obtained in the second generation. Jersey cows are ready for AI within 16 to 18 months whereas local breed cows can take up to 3 years to conceive naturally. His decision of opting for AI proved profitable. He and his family are currently rearing twelve cows, of which nine are lactating. Guided by the livestock department, he has insured all his cattle under the Livestock Insurance Scheme.

The business is flourishing and he has linked up with Uttarakhand Cooperative Dairy Federation; 'Anchal', to supply an average 50 litres of milk each day. Their village has formed a 'Dugdha Samiti', i.e. a dairy committee where milk from his cattle and from nearby areas gets collected. Several milk collection centres exist every few kilometres in the vicinity of Bisa Bajet. Around 50 litres of milk is carried on daily wages to Bisa Bajet market where a van of Anchal Dairy comes to collect the milk. The remaining 20 litres of milk produced by Premchandra's cattle get locally consumed. The money invested in paying labourers to carry the milk is reimbursed by Anchal



at 2.5 rupees per litre. The cooperative is providing a market for dairy to even the remotest areas of Kumaon by purchasing milk at a reasonable rate of 22 rupees per litre. Premchandra even enjoys a cash award of four rupees on every litre of milk he produces under the 'Mukhya Mantri Protsahan Yojna'. However, Premchandra feels that directly selling his thick, good quality milk in Pithoragarh market, which is about 12km from his village, could earn him around 35 rupees per litre. Even cow dung is quite valuable and can be easily sold at 15 to 20 rupees per bag in the main market. Twelve cows produce enough cow





dung to fill at least one average sized tractor within a period of 10 days. But a direct 'producer-to-consumer' approach of marketing is tedious for geographically distant or isolated villages. Though road connectivity to villages has increased in recent years, many resources like transport facility, hired labour or the full-time engagement of at least one family member are needed for an individual to venture out directly in the market. Premchandra calculates that at a small scale level *i.e.* carrying 40 to 50 bags of dung to the market will cost him around 800 rupees, hence leaving a meagre margin of profit. In such conditions, he has developed some techniques to utilize this valuable manure by preparing vermin-composting pits. Here, animal manure and crop residue from his field is decomposed using earthworms to obtain organic compost, which he further uses to nurture his fields. Such compost carries higher value in the market.

Most of the cultivable lands in hilly areas are small and lack irrigation facilities, compelling pastoralists to rely on grasslands and nearby forests to acquire feed for their cattle. But Premchandra has been blessed with ancestral land of 104 *naalis* lying at a comparatively plain terrain with good irrigation facility. Of this, he has dedicated 30 *naalis* exclusively to fodder crops. Following a fodder crop calendar introduced to him by the livestock department, Premchandra manages nutritional and high yielding feed resources throughout the year.

*Jowar* (sorghum), *bajra* (pearl millet), maize, *jhangora* are some cereal crops that he grows during the monsoon. *Jhangora* or Barnyard millet is used as green fodder in its prime season while its seeds and straw are conserved by him for the winters. Barnyard millet is less likely to get fungal diseases and can be stored for longer periods. Premchandra also prefers sowing sorghum as it is a multi-cut variety; that means sorghum can regenerate after its stalk has been cut for fodder while the

second crop/ratoon crop is harvested for grains. This saves time and cost of re-plantation. Also cowpea; a fast growing legume, is sown by him along with sorghum, maize and millets, thus obtaining a leguminous-cereal fodder mixture for rainy seasons. During winters, the reliability is more on rationed grains and dry fodder (crop straw and dried grasses locally called *gajyo*). With the end of winter and onset of spring, berseem and jai are sown by Premchandra. Berseem, a fast growing leguminous forage can be fed in green, dry or silage



form. Jai, on the other hand, is emerging as a fodder oat in the Indian Himalayas. Another source of fodder reliability is the foliage of certain trees grown in his vicinity. *Grewia optiva*, *Celtis australis* and *Quercus leucotrichophora* are the main fodder tree species available in the Shyumshi region. *Grewia optiva*, commonly known as Beul or Bhimal is a small to medium sized deciduous tree, which has milk enhancing properties and high nutritive value as fodder (Mehta et al. 2011). *Celtis australis*, another fodder species whose local name is Kharik or Khrik, is popular because of its pleasant taste and tannin-free quality (Yadav et al. 2015), while *Quercus leucotrichophora* or Banj oak is the most often used fodder tree due to its abundance in nature. Agricultural department and agricultural research institutes and universities like Govind Ballabh Pant University of Agriculture and Technology, Pantnagar helps him obtain high quality fodder seeds and regular technical assistance.

Unlike earlier times when local cattle were set free to graze naturally in pastures, feeding methods have taken a more scientific form with the introduction of hybrids. *Naad*, a cemented structure where fodder is kept for cattle to eat, has many advantages. It reduces fodder wastage and is more hygienic, hence proving economical and decreasing the susceptibility of cows to diseases. However, Premchandra follows a combination of modern and indigenous knowledge to prepare feed for his cattle. Crop residue, green leaves of *beul* and organic kitchen waste are ground with local grains such as *mandua*, *jangora* etc to prepare a paste that his cattle relish chewing. Necessary medicines, whose smell otherwise repel his cattle, are easily mixed in this paste and get consumed readily. With instructions and technical help from the livestock department, Premchandra is able to meet 80% of his fodder needs from his field and nearby vegetation, thereby decreasing his expenditure and dependency on outside fodder. According to him, if a person is aware about the type of fodder he can obtain in a particular time from his surrounding resources and maintain a proper fodder seed sowing schedule, green fodder

will be easily available for him at least once a day.

In recent years, the market price of green fodder has seen a sharp hike. One *mutha i.e* one bundle of green grass is being sold at approximately 25 rupees and its price can touch 60 rupees during the winter. A cow consumes a minimum of five such grass bundles in a day. For villages like Lanthura where agriculture land is next to negligible, raising cattle is an expensive occupation. Ms. Hema Bisht of Lanthura village owns one Jersey and one HF cow. Her monthly requirement of feed for her two cows is two bags of grains and four bags of customised animal food, apart from green fodder. Even Premchandra sometimes has to purchase the animal food in case of crop failure or inadequate grain production. However, being associated with Anchal, helps him to get animal food at a subsidised rate. Each 25kg bag of animal diet costs him 370 rupees, which otherwise costs 470 rupees in the market, thus earning him a subsidy of four rupees per kg.

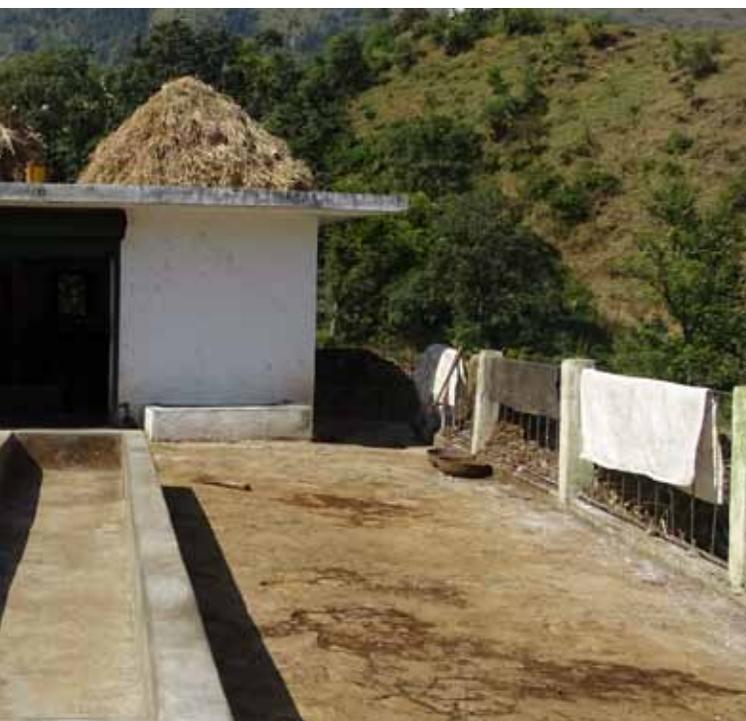
In the past few decades, the agriculture scenario in the hills has changed tremendously, in turn influencing the livestock industry. Bulls, which were once trained to plough fields, have lost their importance with the introduction of mini tractors and power tillers. This has also decreased the burden of rearing the bulls, which were used for only two months in the field *i.e* during the starting of Rabi and Kharif seasons. A trend of hiring bulls on a daily rent of 600 to 700 rupees has recently emerged.

Premchandra, as an aware pastoralist, remains in continuous contact with the livestock department. The department renders regular suggestions on the variety, quality and quantity of fodder that needs to be given, according to the health and need of individual cow. He is also guided and helped on veterinary health issues and methodologies to enhance milk production and improve the cattle breed. Various programmes are conducted by the agriculture department under the 'ATMA Pariyojna' *i.e*. 'Agriculture Technology Management Agency Programmes'. Every year, three to four trainings are imparted where the livestock department acts as the nodal department. Farmers are educated and trained on techniques of livestock rearing and inspiring stories of cattle farmers are narrated to them. Apart from 'ATMA Pariyojna', the department organises miscellaneous training programmes at village, block and district level on monthly basis.

In recent years, farmland lifestyle has been substantially replaced by urban lifestyle. Consequently, in the present scenario; the livestock department has put many fold efforts in reviving the interest of community people in cattle rearing.

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## STORIES OF SUCCESS

*narratives from a sacred land...*

05



# Backyard Poultry Farming: Viable Livelihood Option for Marginal

**C**hicken meat, a rich source of protein, is slowly becoming a part of the *Pahadi* diet. The reasons for this are innumerable: it is easily available, can be purchased fresh, is easy to cook and is the best source of protein at a reasonable price. One can see many outlets and vendors selling live chicks or chicken meat in Pithoragarh market but the current scenario is very different from what it was three decades ago. Mutton of goat and sheep has traditionally been a part of *Pahadi* dishes whereas chicken was less eaten. It was more a subsidiary source of income or food for marginal landholders and agriculture labourers.

A poultry farmer, Bhupender Singh from Balkot village of Pithoragarh recalls how he used to sell seven to ten birds a week to nearby hotels on demand basis. Back in 1980, only a handful of restaurants used to cook chicken and even then only occasionally. But today, one can find chicken dishes priced almost at par with vegetarian preparations in Pithoragarh restaurants owing to increased poultry production.

Chicken accounts for the greatest number in Indian Poultry. In fact, the Indian poultry sector contributes to over 3% of the global poultry population and is the third largest egg producer.



# POULTRY FARMING

India stands at fifth position among the top poultry producing countries. South Indian states like Andhra Pradesh, Telangana and Tamil Nadu, and Punjab in northern India are the major poultry producers in India. On the other hand, poultry sector of Uttarakhand is at a developing stage. *Desi* hens and native chicken called '*Kukar*' in local slang still continue to be reared in backyards of rural families. The egg laying capacity of local hen is far less compared to the hybrid ones. Owing to low production, the local brown-shelled eggs are usually double the cost of hybrid white-shelled eggs, hence making it difficult to sell them in small marketplaces. Also, the poor families sometimes do not have enough food or agriculture waste to feed the chickens.

However, in continuity with the backyard poultry tradition, the Livestock Department has introduced 'Backyard Kukar Palan Yojna'. The scheme aims to provide 50 chicks of superior quality and inputs like net, chicken feed etc to marginal and scheduled classes in the entire Pithoragarh region.

'Backyard Kukar Palan Yojna' intends to inculcate an interest among farmers towards commercial poultry farming. Dr. M.K. Joshi, a veterinary officer in Pithoragarh town informs that in the past 12 years, at least 3000 chicks have been distributed annually among the interested people under this scheme. He tells that the prime reason for encouraging poultry farming is to meet the protein deficiency that prevails in hill diets and to create livelihood options for marginal farmers. Backyard farming requires less investment and can be started on a small scale, thus making it an ideal livelihood option for landless or small landholders.

The market oriented backyard poultry enterprises are flourishing. About a dozen farmers within a 7km range of the livestock department have adopted Broiler and Kuroiler chicken farming. Kuroilers are dual purpose hybrids, producing both eggs and meat. The department is promoting Broilers rather than Layers. Broilers are bred for their meat and reared to reach a specific size while Layers are reared for commercial egg production. The prime reason for not venturing further with the egg producing species is the drastic temperature difference between summer and winter in Pithoragarh. Chicken require

## पाँल्ट्री फार्मिंग - उभरता व्यवसाय

विगत दशकों में पहाड़ों में चिकन (मुर्गी मांस) की मांग तेजी से बढ़ी है। इस मांग की आपूर्ति मुख्यतः मैदानी क्षेत्रों से मुर्गियाँ लाकर की जा रही है। अतः क्षेत्र में मुर्गी पालन की सम्भावनाएँ काफी अधिक हैं। यद्यपि मूलतः पहाड़ों में मुर्गी पालन को परम्परागत रूप में हेय माना जाता रहा है। तथापि विभागीय संरक्षण व प्रोत्साहन ने इस मनःस्थिति से लोगों को बाहर निकाल कर पाँल्ट्री (मुर्गीपालन) को लघु उद्योग के रूप में सक्षम बनाने में अहम भूमिका निभाई है। आर्थिक रूप से कमजोर एवम् अल्प भूमिधरों को अपने घर के पिछवाड़े में मुर्गी पालन की तकनीकी से रूबरू कराकर मूलभूत तथ्यों की जानकारी हेतु विभाग द्वारा प्रशिक्षण एवम् उत्पाद को निश्चित बाजार उपलब्ध कराने का विभागीय प्रयास सराहनीय है। व्यवसाय से जुड़े आर्थिक लाभ को देखते हुये धीरे-धीरे मुर्गी पालन काफी सदृढ़ता के साथ आगे बढ़ रहा है। वर्तमान में पिथौरागढ़ जनपद के ग्रामीण क्षेत्रों में भी यह उद्योग काफी लोकप्रिय होता जा रहा है। बहुत सारे किसान इसे अपना चुके हैं, और मिल रहे लाभों से प्रसन्न हैं। विभागीय सहयोग व प्रोत्साहन से जन साधारण के आर्थिक उत्थान की यह एक सफल कहानी है।





an ambient temperature between 11 and 26°Celsius to lays eggs and an extreme hot or cold season can affect egg productivity. Also, Layers start producing eggs when they reach 19 weeks of age and continue laying eggs till they become 78 weeks old. So, raising Layers means proper care and medication for almost 1.5 years. A Broiler on the other hand is comparatively easy to maintain and is ready for dispatch in less than 40 days.

Reminiscing about his 35-year-old journey as a poultry farmer, Bhupender Singh says that it was very rare for a vendor to sell chicken or local eggs. Claiming to be one of the first initiators of professional poultry farming in his area, he ventured into this industry with 100 broilers and some layer chickens, despite the risks involved. The source of broiler chicks for his farm is an outlet of Venky's (India) Limited in Dehradun from where he gets Cobb breed chicks at 28 rupees each. The cost of transporting them from Dehradun to Pithoragarh, which is a distance of approximately 457km, is an added two rupees per chick.

Balkot village so far has three large-scale farms with chicken numbering from 1000-3000. Bhupender Singh owns the biggest chicken farm in his area dispatching 1500 chickens in

one batch within a span of 25 to 40 days. With the departure of one batch, another batch of chicks is made ready to move in. Broiler starts selling from the 25th day as it reaches a weight of 1kg and it takes hardly a month to reach 1.5 to 1.75kg of weight. For functions and on special demand, the broilers are slaughtered after 40 days, giving an average live weight of 2.4kg. Usually 2 to 2.5kg of feed gives chicken a weight of around 1.5kg. The cost of the feed ranges from 14 to 30 rupees per kg in the market, depending on the quality. Some nutritional supplements of protein and vitamins also need to be added depending on their weight, age, variety and weather conditions. The livestock department provides information to him on this subject.

Chicken meat in Pithoragarh market seems to be quite in demand nowadays. New shops have emerged in recent years and around ten bulk purchasing outlets have developed. The shopkeepers who had been selling mutton for years have started keeping chicken too. Bhupender Singh gets a market price of 90 rupees per kg through these outlets. However, he is aware that selling meat directly to customers is another profitable means as the rate of meat revolves around 120 to 150 rupees



per kg. Adopting a direct ‘producer-to-consumer’ approach of marketing, he has opened a chicken shop in the middle of the market, which is looked after by his son.

Despite being a business with low capital investment, there are certain basic necessities of poultry farming that need to be met. A large coop is required for the birds to have proper ventilation because the ammonia build-up from their droppings can be quite injurious to their lungs. While insulating the coop floor with a thick layer of wood shaving will protect the birds from cold, it also makes cleaning the excreta easier as the droppings mixed with wood shaving can be used as manure in fields. The health of the birds is very dependent on coop maintenance, cleanliness and regular medication. Bhupender Singh remains in continuous touch with doctors from the Veterinary hospital, who visit the birds whenever necessary. Having faced tremendous losses during the Bird flu epidemic of 2006, Bhupender Singh knows the consequences of medical negligence.

Guidance from the livestock department, combined with years of personal experience, has helped him deliver lavish-sized healthy chicken on a monthly basis. On being asked about the future of poultry farmers like him in the upcoming

decades, Bhupender Singh answers that he finds a lucrative business opportunity in poultry, especially for hill people. There are several reasons behind his belief. One is that chicken are quite susceptible to diseases and heat stress in high temperatures and humidity but the climate of the mountains is comparatively pleasant and less polluted, making poultry less prone to a catastrophe. In fact, the survival rate of his chicken is almost 99%. The second reason is the increasing climate unpredictability which is making agriculture a risky sector, hence poultry has emerged as a ‘less dependent on monsoon’ alternative livelihood option.

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## STORIES OF SUCCESS

narratives from a sacred land...

06



# Water Crises: Combating through Rainwater Harvesting

**R**aigarh Siari, a village comprising of 72 families lies in block Barinag of District Pithoragarh. A veritable example of how local motivation and timely intervention can upgrade human lives, this village has successfully channelled rain water to address its severe water crunch.

Right from the road, water harvesting tanks are visible in the compound of each house. A closer look reveals numbers allotted to each tank, with the last one numbered 42. Each tank bears the names of the executing organization 'Water and Education Committee, Raigarh Siari' (Jal Evam Shiksha Samiti, Raigarh Siari) and the associate organization, 'Himalayan Gram Vikas Samiti' with finance from 'Sir Ratan Tata Trust, Mumbai'.

Ascending some 300m from the road, the house of Neema Devi can be seen. In her courtyard, I spot tank no. 22. As I walk up to her house, I find her sitting in the veranda with two more village ladies, Mamta Devi and Hema Devi. Soon, an interaction with them revealed a story behind these tanks: "It all started with the formation of four SHGs in Raigarh Siari in 2009, incorporating women in it," recalls Neema Devi. Each member contributed 3,000 rupees and by 2010, a total of 33,000 rupees had been collected for implementing rain water harvesting system in the village. Hema Devi, a member of one such SHG tells "People were very sceptic about the benefits of harvesting rainwater, so they were not ready to invest any money." Finally, about 25 families got ready to lend their support to the initial phase of tank construction.

"In the early phase of any project, it is difficult to convince people, especially when some monetary contribution is expected from them," says Mr. Chandra Prakash Tatradi, a 72-year-old man who is the Sarpanch of Raigarh Siari's *Van Panchayat*. He is also the chairman of its 'Jal Evam Shiksha Samiti' i.e. the executive committee under which the tanks were built. According to him, "introducing a new concept to a village demands some kind of assurance and confidence-building amongst villagers". He, however, firmly believes that only when people are made stakeholders in a project, do they start taking responsibility for the project.

Realizing that the confidence of the villagers must be won, the 'Himalayan Gram Vikas Samiti' (HGVS), which has been involved in harvesting rain water for more than 20 years, took the initiative of taking a few villagers on an 'exposure visit' to Kotula, Munsiyari. Talking about this visit, Laxmi Dutt Bhatt, the Programme Coordinator for HGVS, said, "The villagers visited all

the 24 sites of Rainwater Harvesting tanks in Kotula. They saw the successful working of these tanks and perceived how much these tanks had benefitted the people of Kotula". Now convinced, the beneficiaries contributed Rs. 3000 each, while the remaining (Rs 37,000 per tank) was paid for by HGVS. Within a span of three years (2011 – 2013), 42 tanks were constructed in the village.

The rooftop rainwater harvesting system follows a simple mechanism. Rainwater gets collected on a flat or sloping roof surface and then travels through a downtake pipe to a small steel bucket where a filter is attached. The filtered water finally gets accumulated in the huge concrete tank. Each tank has a water carrying capacity of 7.5 thousand litres. A tap connected at the bottom of the concrete structure allows the villagers to easily access the water whenever required.

"I use this to meet all my daily water requirements," says Neema Devi, pointing at her tank. Earlier, her whole family including the children had to walk half a kilometre to the village spring and manually haul buckets of water over that distance. Now she has water stocked in the tank, which gets full with 3 months of rain. Thanking the programme, she says, "I am glad I made the tank. Families that didn't participate in the programme repent now since it is quite expensive to build one on personal expenditure."

Highlighting the water situation of Raigarh Siari, Mr. Bhatt tells that the village does not have any natural water source nearby that has at least nine lpm (litres per minute) flow rate. Given such acute water shortage conditions, Raigarh Siari was perhaps the best place for HGVS to introduce a rainwater harvesting system.

Besides Raigarh Siari, HGVS has successfully implemented water schemes in several villages of Munsiyari, Berinag and Gangolihat Blocks. So far, it has contributed to the construction of 112 rainwater harvesting tanks.

Another impressive intervention by HGVS in the field of rainwater harvesting is evident in village Naag of Gangolihat Block, located at an altitude higher than 1860m. Naag is not accessible by road. The last kilometre is a steep climb up to the village. It is a small village comprising just 20 families. At the

## वर्षा जल संग्रहण

बढ़ती हुई जनसंख्या तथा प्राकृतिक संसाधनों पर बढ़ता दबाव पहाड़ों में कई प्रकार के पर्यावरणीय समस्याओं को जन्म दे रहा है। इसमें से एक है पानी की कमी जो कि एक विकट संकट का रूप ले रही है। पहाड़ी क्षेत्रों में वर्षा की कमी या फिर एक साथ बहुत सारा जल बरस जाना दोनों ही खेती एवं जनजीवन के लिए हितकर नहीं हैं। ऐसे में वर्षा के जल को संचित करके दैनिक उपयोग में लाया जाना एक विकल्प के रूप में उभरा है। हिमालयन ग्राम विकास समिति (एच.जी.वी.एस.) नामक संस्था ने पिथौरागढ़ जिले के राई गढ़सारी और नाग गांवों को सूखे की स्थिति से निपटने के लिए वर्षा जल संग्रहित करना सिखाया। यह प्रयास एक अनुकरणीय उदाहरण बन कर उभरा है। इस संस्था द्वारा ग्रामीणों के सांकेतिक अनुदान से सम्पूर्ण गांव को वर्षा जल संग्रह टैंकों से आच्छादित कर दिया गया है। प्रारम्भ में लोगों ने योजना में आशंका जताई, लेकिन धीरे-धीरे लगभग सम्पूर्ण गांव, कुछ घरों को छोड़ कर, टैंक निर्माण में संलग्न हो गया। इसी प्रकार नाग गांव में एक बड़ा टैंक निर्मित किया गया। आज ये दो गांव ही नहीं वरन् क्षेत्र के अधिकांश गांव वर्षा जल संचयन से पानी की आवश्यकता पूरी कर पाने की सम्भावना को समझ गये हैं। वर्षा जल संग्रहण का यह नमूना जल संकट से घिरे अधिकांश पर्वतीय गांवों के लिए आशा की किरण बनकर उभरा है।





water slides down and accumulates in the ducts lining both sides of the slanting roof. These ducts are connected through pipes to the tank. Water from both the sources; *i.e.* rain and spring, flows through a conventional sand-gravel filter before it collect in the enormous storage tank.

A few metres away from the main collection tank is a supply tank. The carrying capacity of this supply tank is 4000 litres. Since 2008, the tank has been supplying 20 litres of water to each family every day.

According to Gopal Ram, a 62-year-old man from Naag, “summer is the time when water scarcity is at its peak. Even in these conditions, the tank has provided a continuous supply of water to us for past many summers.” Adjacent to the collection tank is an engraved stone that reads the name of the key contributors and an expenditure of 9.15 lakh to build this majestic tank. I couldn’t help but notice these valuable words inscribed on it, “water conservation is akin to prosperity”. Mr. Bhatt informed that the tank was constructed with a monetary contribution of 4, 50,000 rupees from the ‘Samaj Kalyan Vibhag’ while the remaining expenditure was borne by HGVS. He further added, “This project was the first of its kind in the region”.

Mr. Rajendra Singh Bisht, President of HGVS, is the brain behind these remarkable rainwater harvesting projects. Recalling a visit in 2002 to Alwar in Rajasthan, Mr Bisht shared that he was inspired by the programmes undertaken for rejuvenation of the Arvari River. On being asked why he thought implementing rainwater harvesting in mountainous regions such as Gangolihat was important, he explained, “The Middle Himalayas are facing the worst water scarcity crisis at present. Water sources are shrinking, the water table is depleting and many sources have become points of water disputes”. A Water Source Survey conducted by his team in Gangolihat block, way back in 1992 made him realize these gruesome facts. “Villages that had been involved in paddy

highest point in the village, one can see a gigantic tank 18m x12m x 2.4m in dimension, with a storage capacity of four lakh litres of water.

This tank receives its water supply from two sources. One is a seasonal spring that runs from July to October while the other is rain water. Naag resident, 32-year-old Dhani Ram explained the functioning of the tank. A pipe in the seasonal spring directs the spring water into the tank. The tank has been covered with a sloping roof-like structure of tin so that rain



sowing had stopped such practices within a span of 20 years due to water shortages in their area,” he rued. Many rivulets, like ‘Bhanar Gadh’ of Gangolihat, which had been supplying water to its nearby villages, had dried up owing to deforestation and continuous construction in the region. “Therefore, tapping rain water and developing proper water storage facilities is the only option left for dealing with the Himalayan water crisis,” he concluded.

From 1996 to 2002, HGVS has successfully implemented eight ‘Peyjal Schemes’ in the catchment area of Bhanar Gadh. Working with the Gram Panchayat and Jal Nigam Board, it has executed several ‘Swajal Projects’ (Uttarakhand Rural Water Supply and Sanitation Project) in various villages of Berinag, Gangolihat and Munsiyari blocks of Pithoragarh district. In fact, Rankot village in Bara, Munsiyari block was declared the first ‘*Nirmal Gaon*’ of the district in 2004, owing to the constant efforts of HGVS. The NGO has worked in almost 75 villages in this direction.

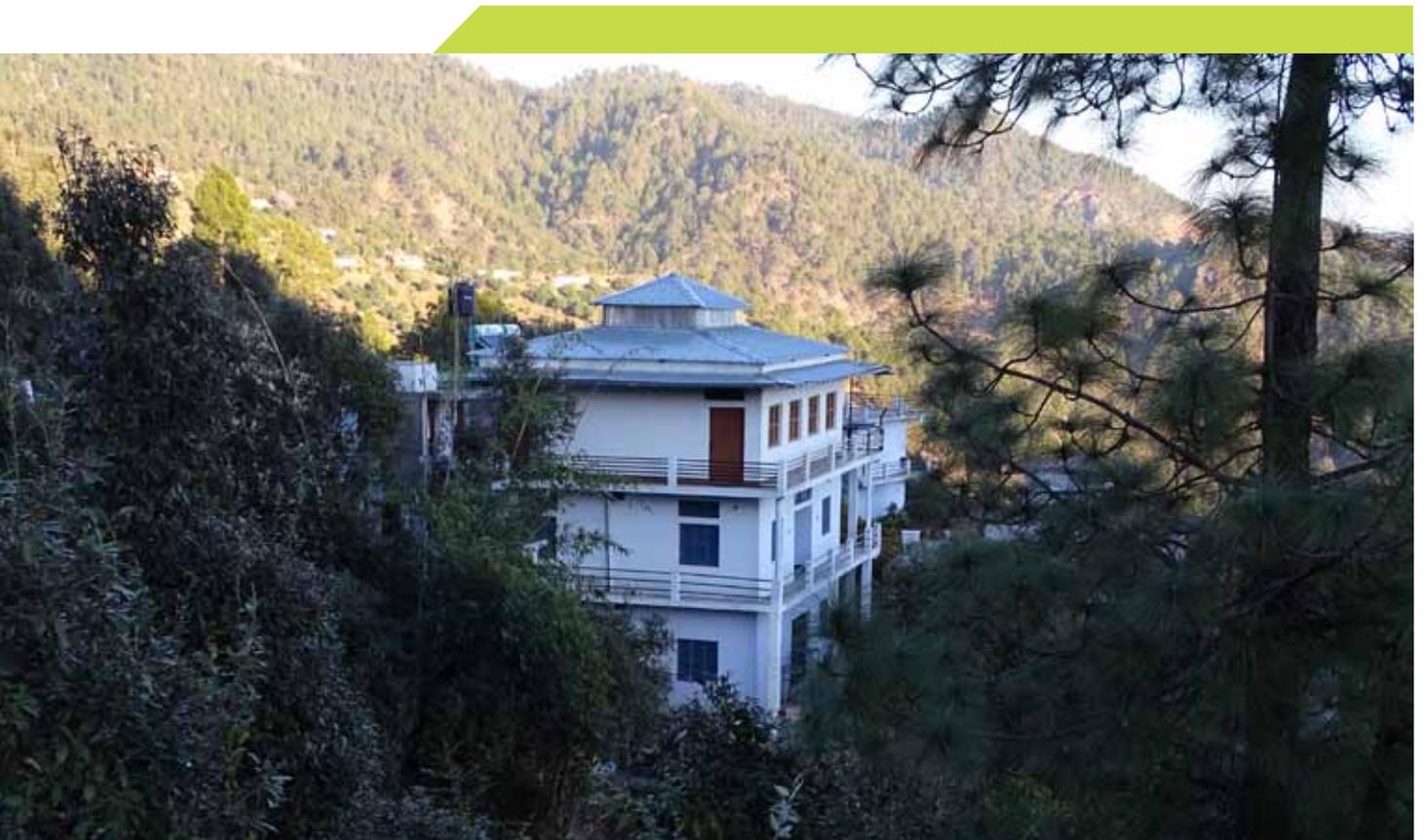
Years of experience in modelling water supply and sanitation plans has made Mr. Bisht realize that streams, lakes and rivulets are shrinking at an alarming rate. Apart from surface water, the ground water table is continuously dropping due to the decreased infiltration rate of water into the soil. This has and will further strain the water disputes in the upcoming future. In Mr. Bisht’s opinion, besides long-term soil water conservation programmes which take years to fructify, there is an urgent need for quick, efficient and cost-effective water harvesting techniques. He has already demonstrated his water management philosophy by constructing a water source collection chamber and a reservoir at Lwisar village with a small fund of approximately 50,000 rupees and within a span of 15 days.

A spring at Lwisar village was tapped by forming a small collection chamber that acts as a gravity filter. After the solid



particles settle down in the collection chamber, the filtered water is directed towards the reservoir.

Popularly hailed as ‘*Swajal Wale*’ (the swajal people) by villagers due to the numerous ‘swajal’ projects implemented by them, HGVS; under the leadership of Mr. Bisht, is enthusiastic about future projects. With an ambitious agenda to reach as many beneficiaries as possible, Mr Bisht signs off by saying, “The dream is to conduct such rainwater harvesting programmes on a wider scale and for a much larger population.”





## STORIES OF SUCCESS

*narratives from a sacred land...*

07



# Kumaon Namkeen: Linking Traditional Mountain Crops to Entrepreneurship

**L**ike any hill town in India, Pithoragarh market has undergone various level of development in the processes of globalization. On entering Pithoragarh market, one encounters shops of various local brands of Namkeen. Namkeen basically in hindi is a generic term for savoury salty snacks. Indians for having great fondness for tangy spicy food consume Namkeen probably more than people in any other country. It is a tea time favourite in most households and a great accessory to fun times and bonding for families, friends and strangers. The snacks in their varieties exhibit an arena of Indian food culture festivities since most of the popular commercial snacks had been originated from home.

Like any sector Namkeen market in India can be divided into two sectors, organised and unorganised. Organised sector is usually ruled by the big players. By having high mechanised production and packaging techniques, they capture large market. On the other hand, the unorganised sector who comprises of small-scale homemade traditional industries usually sells through small outlets. The big brands have swept the snack industry in recent years. However, with the increasing awareness on marketing strategies and the introduction of various helping schemes launched by Indian government for small scale enterprises, these unorganised sectors are seen coming forward by organising themselves in every way. They are working very hard to establish their name in this competitive world.

Every successful brand big or small has a story behind it to tell and so is having “Kumaon Namkeen”.

Kumaon Namkeen, a popular name in Pithoragarh market now, had started its journey at a very small scale, way back in 1994. The beginning, however, was not that rosy. Based in Pithoragarh, Devki’s husband used to run a small restaurant. However enormous losses in this venture brought the family to virtual penury. Living hand to mouth and in dire straits, the sole aim of the family was to survive any how earning their bread and butter by getting on to some other work. It was the time when Devki Devi, a lady of indomitable courage not only entered into this profession of Namkeen making but carved an important space for her product in the market. Success story of “Kumaon Namkeen” revolves around Devki Devi. She rallied her husband and four sons in this venture. Her entrepreneurial leadership developed it into a family business.

# KUMAON NAMKEEN

## कुमाऊँ नमकीन

कुमाऊँ नमकीन एक ऐसी महिला उद्यमी देवकी देवी की कहानी है जिन्होंने अपने अथक परिश्रम एवं अटूट साहस से इस उत्पाद को ना केवल बाजार की कड़ी स्पर्धा के बीच स्थापित किया अपितु इस घरेलू व्यापार को इस स्तर तक बढ़ाया कि सारा परिवार ही इस उद्योग में रच बस गया। भारतीय परिवारों, खासकर पर्वतीय कस्बों, में चाय के साथ नमकीन का सेवन अत्यन्त लोकप्रिय है। त्यौहारों में तो नमकीन कई प्रकार से बनाई जाती है। नमकीन व्यवसाय में प्रत्येक स्तर के व्यापारियों की उपस्थिति की वजह से कड़ी प्रतिस्पर्धा है। देवकी देवी ने अपनी जुझारू प्रवृत्ति के साथ मात्र 2 रूपये की स्वादिष्ट नमकीन के छोटे पैकेट से बाजार में प्रवेश किया और फिर पीछे मुड़कर नहीं देखा। परिवार की एक मात्र आय होने की वजह से परिवार जनों से भी उन्हें पूरा सहयोग मिला। अपने पति की व्यवसायिक असफलता से सीखती हुई यह महिला एक दिन नमकीन की थोक विक्रेता बन गई। उनके इस प्रयास में एक नया पन्ना सफलता का तब जुड़ा जब उन्होंने पारम्परिक फसलों जैसे, गहत, भट्ट, मडुआ, झंगोरा, मक्का आदि अनाजों से नमकीन बनाना प्रारम्भ किया। आज इन उत्पादों की इतनी मांग है कि उनके उच्च शिक्षा प्राप्त पुत्र भी ई. मार्केटिंग के जरिये इस व्यापार को और ऊँचाइयों पर ले जाने के प्रयास में जुट गये। देवकी देवी का यह प्रयास ग्रामीण पर्वतीय महिलाओं को स्वरोजगार अपनाने हेतु प्रोत्साहित करता है।

With a majestic strength of a family, six of them together with a mere sum of rupee 1,400 moved into this profession. The unemployment allowance that her husband got during those times of difficulties and a sum of 800 rupees which Devki's youngest son received as an award in some function become the foundation amount to initiate their now established business. With a scanty investing capital, the family managed to buy four kilograms each of lentil and gram flour, some hand equipments and basic miscellaneous materials.

In starting days every bit of work from production to selling was done by the family. Devki and her husband whole day toiled in making and packing the Namkeen. A big packet containing 40 small packets of 1 rupee each was prepared. Devki knew instead big; small affordable packets have more chances to be sold out. The initial idea behind selling her Namkeen into small packets was to inculcate a taste for her savoury snacks. The entire package was sold at 26 rupees to the retailers who further sold it packet by packet, earning a profit of fourteen rupees on per packet. This encouraged the shopkeepers to keep her product.



Devki recalls her long burning of candle to seal her poly-packets. "It was messy and unattractive as compared to those glazing with mechanically sealed packets in the market", she grumbled. Thereafter, 4 of her sons back from their schools used to carry those packets to the retailers of Pithoragarh market. The strategy was to cover small shops rather than targeting a particular big one. Initial times were disappointing and stressing for the kids who were breaking down from the unwelcoming responses of the shopkeepers. It was a herculean task to prove credentials of a tasteful Namkeen in a very ordinary packet before the row of glossy Namkeen packets hanging in the shops.

Struggling with marketing challenges and dealing with a terrible financial crunch, the family must have gone through many excruciating days of panic and self-doubt. Still, they

stuck to their belief and continued to target their local market as Devki kept a ray of hope alive in her family. “If not today then tomorrow, people will definitely appreciate our product”, she often uttered her optimistic words while pursuing her children. As a mother, her heart quailed on seeing the gloomy faces of her sons returning disheartened from the market. Her strong determination and compassionate nature kept the family glued together during the hard times.

She was harnessing the experiences ranging from production to marketing. Her mind was working fast upon picking the favourable and dropping the unfavourable factors coming in the way of her business. Her strenuous effort was sure to develop a quality brand product. Struggling and competing, the family continued targeting all the local markets in their vicinity. Good taste wins... Gradually, demand grew and the customers started liking their products. Then accordingly, they raised the packet cost from one to two and finally to ten rupees. As the product fetched some surplus money, the targeted market range started expanding from surrounding to big markets of Nainital, Pillibheet, Haldwani etc. Soon Kumaon Namkeen products were selling like hot cakes across all major exhibitions and trade fairs of northern cities. This was just the commencement of the success awaiting.

The family soon learnt from the sources about the “Gram Udyog Yojna” of government and related loan to it. A loan, sum of 1, 20,000 rupees in 1998 under the scheme was decided to avail for production and packing equipments. Things turned easier and effective with mechanised procedure. Eventually, with increased efficiency they reached to a level to compete with other players in the market. Devki Devi still remembers the discomfort they have gone through while cooking in a hearth burning fuel wood in early days. It was a terrible experience to withstand heat, smoke and fumes for long hours making Namkeen. No gas was available and the family was not in a position to afford a diesel stove then.

Dr. Amit Joshi, son of Devki Devi narrates the journey of Kumaon Namkeen into following two distinct phases. The first phase of production was similar to any other Namkeen enterprise. Gram flour, refined flour and all common lentils were the raw materials initially used. The only difference that distinguished the Kumaon Namkeen from other local brands was its superior quality. But the turning point in Kumaon Namkeen came in 2004. It was at an exhibition in Haridwar, that a professor from Govind Ballabh Pant University happened to visit to their stall. He was so much impressed with the quality and flavours of the Namkeen that he suggested them to explore the local grains into making Namkeen. He said, “Refined grains as ingredients are what every snack company is doing. Why don't you break from the ground and use the different coarse traditional grains of the mountainous region”. The traditional grains of the mountains! Their mountains had always produced millets and beans that were not commonly available in the rest of the country but these had always only been used in their local traditional cuisine. Could they really make and sell snacks out of these? The idea of replacing conventionally used grains with less popular traditional grains seemed exciting, but it was also risky and full of uncertainties. Kumaon Namkeen by that time had earned some good credential in the market. To give a new level to their business Devki's husband somehow started feeling that only a unique food product could earn them a distinct recognition in snack industry.

Devki Devi explained that they did not straight away jump



to produce Namkeen in bulk. But rather first experimented with soya bean and *mandua* (finger millet) and waited for the responses of the customers. Once positive responses started pouring in, more traditional ingredients were put on trial. After several hits and trials, errors and corrections, through various experiments, a variety of Namkeens from traditional grains and lentils like *mandua*, *jhangora*, *gahat* and *bhatt* had finally come out in good quality and this process was their brand secret. This led to the success as their unusual products found many avid buyers. The snacks were applauded for their feisty taste and health benefits. People from the Plains were especially appreciative as the rough grains were found to have a high nutritive value. Kumaon Namkeen was now present at exhibitions in Dehradun, Haldwani, Almora, Pilibhit, Rudrapur, Haridwar, Kotdwar, Rishikesh, Allahabad, Banaras and Bareilly among others. These exhibitions hyped the Namkeen in proliferating more into wider areas.

Until now, some quintals of raw material from nearby villages of Pithoragarh were being managed to buy. But now the demand for Namkeen was escalating. Meeting the demand means supply at a faster pace which in turn means more requirement of raw material. Acquiring raw material in adequate quantity for the production had in itself become a challenge. Garhwal and Kumaon mountains are facing migration issue gravely. Agriculture land is continuously shrinking and villagers seem reluctant in growing their traditional crops. For generations, indigenous crops like *mandua*, *jhangora* had been grown in small rain fed hilly fields. *Mandua* or finger millet is a nutritious whole grain that is being cultivated in India for past 4000 years. While *jhangora* is a type of barnyard millet normally growing at an altitude varying from 400 to 2100 metres and often used as a substitute of rice in hilly regions of Uttarakhand. Millets, the oldest domesticated cereal grains are basically small seeded grasses that can survive in hard conditions having dearth of moisture and soil fertility. Such crops which were once a part of subsistence farming are now at decline. The farmers are still growing these traditional crops but in small quantity for they do not look at it as a cash producing crop.

Since Pithoragarh did not produce enough of these grains, the family now had to source raw material from far flung places. *Bhatt*, Soya bean and *mandua* are being brought from Mathkot Valley of Chamoli district, *gahat* from Champawat while *makka* (maize) and *jhangora* are being procured from Dewal in Garhwal. Transporting these grains from such distances



adds significantly to their cost. As I sat with them munching on their delicious *mandua* sticks, Devki's son explained how a kg of *mandua* that costs 14 rupees became four times more expensive after including transportation, cleaning, processing and cost of labour. Selling a material after its processing and value addition is in itself is a huge profitable business. Establishment of processing units within the source area of raw material can decrease transportations cost as well the associated risk involved, in it. A kilogram mixture of ingredients (grains/lentils, oil, seasoning and other herbs) yields around 700 grams of Namkeen. From the manufacturing unit that is devki's home, the Namkeen is sold at 220 rupee per kg while in exhibitions its price increases to 240 rupees due to transportation cost.

"There is never a compromise with quality, whatever be the quantity to supply", Devki Devi proudly tells when I complimented on the flavour of her products. "My husband who has been in the restaurant business for long, very well knows that only a standardised product can succeed in food market. If ever the production is not up to the mark, he insists on remaking it." Confident in risk taking, they are now introducing Namkeen made from maize as new value addition to their chain of Namkeen. It is this attention to quality and willingness to innovate that has made Kumaon Namkeen such a favourite with buyers. The snacks are so much in demand; they now have a growing list of clientele who are sent parcels of Namkeen regularly.

Most of kumaon Namkeen clients are non localities. Rightly said, self possessions are often undermined. Often native productions or native places are left uncared in the wake of looking out for newer excitements. But nowadays reversal has stated from attraction for urban life and glamour for exotic products. But Dr. Joshi, an erstwhile teacher at Lucknow University, cut short his promising career and moved back to his hometown in the year 2000. He had realised that there was so much to do in the hills so he opted for his family business. He feels that Kumaon Namkeen has given him and his family an identity, hard won. Self business gives him a creative freedom and an immense scope to achieve new heights. He can be seen as a role model for youngsters who desires to be entrepreneurs within their home town. Explicating the current unemployment scenario amongst youth, he tells how big cities are continuously flooding with youngsters in search of job opportunities. If this continues, a point of extreme saturation in jobs will come. A big city does not necessarily guarantee a

big opportunity. Opportunities need to be created else talent may waste up in meagre and unsatisfying jobs. If employment through entrepreneurs in hilly areas could be developed, the migration will automatically get checked. Devki Devi shares the same ideology.

On a loan of 6, 00,000 rupees in 2010, Kumaon Namkeen purchased a mobile van to outlet their production in local market of Pithoragarh. A driver, helper and a salesman were employed. Due to surging up of some parking issues, the van ran only till January 2016.

Information technology has changed completely the market scenario. Pithoragarh up to a great extent is well connected and people have access to information technology. Dr. Joshi, a young doctorate is very well aware of the use of communication technology i.e. internet, mobile phones, social and electronic media to the advantage of their business. He deliberates upon his experiences in business that how information technology is helping to establish direct market linkages eliminating unwanted intermediaries and other unethical practices that pop up to rampage ones profits in distribution system. Now one can access to ones buyers directly. The net payments have removed unwanted delay. Information technology has speeded the business in every way from production to end results. Two ways of dialogue has opened up. Producer can approach the buyers and vice-versa. Though their products are available in Delhi and across all major northern cities under 'Jai Golu Dev Agro Food Marketing Company Pvt. Ltd', Dr. Joshi is now planning to launch a website with their own domain name, 'Kumaon Namkeen'. He is confident that the website accessibility will further increase the number and widen the range of buyers and perhaps soon these products might be seen in the big grocery shops of India's mega malls! However, they are already active on social media with a popular Facebook page and a presence in online marketing websites such as 21food.com and India Mart. The hard work, sheer grit, determination and innovativeness of the Joshi family have already won them several admirers and accolades. Their work has been highlighted by many newspapers including The Tribune and Amar Ujala. In 2004, Devki Devi was awarded the National Micro Entrepreneur Award. She followed that up with the Teelu Rauteli State Level award in 2008, the National Productivity Award in 2010 and the State Level Micro Entrepreneur Award in 2013.

Talking to them, I can't help feeling a deep sense of satisfaction and pride in the accomplishments of this simple hill family. My eyes fall on the now colourful and professionally packed products of Kumaon Namkeen displayed in front of me. A wide variety like *mandua* sticks, *mandua* and soya chips, soya mixture, and *gahat* spicy beckon me temptingly. "Why the name 'Kumaon Namkeen'?" I asked, eyeing the packets, on which Devki answered "Our lush green Kumaon hills are deserting. The name in itself is a witness that new avenues of development that are more based on local resources can easily be explored in hills".

Introspecting one such successful home based enterprise, some questions emerges up.... Can snack food enterprises trigger interest of people in growing traditional crops as a cash crop? Can more schemes be launched that focus on utilizing locally available resources discouraging exotic elements in the environment, bringing direct benefits to locals, and proving more environment friendly? Can hill society work by itself and for itself in a sustained manner to make a blueprint of its own development?



## STORIES OF SUCCESS

*narratives from a sacred land...*

08



Rekha Bhandari:

# A Dynamic Entrepreneur, a Progressive Farmer and a Social Leader

**R**ekha Bhandari, like any other village woman, can be seen engaged in her household chores, livestock rearing and other agriculture activities. Watching her, one would think that she is exactly that; an ordinary hill woman. But nothing could be further from the truth. Rekha Bhandari wears many caps, juggling her roles of a traditional wife, mother and daughter-in-law with her passion to create a better life for herself and her fellow villagers.

Her village Jajurali, at an altitudinal range of 969-1070 metres, comes under the Pithoragarh district and is situated roughly 35 kms from Pithoragarh town. Jajurali would have been a hill village like any other but for Rekha Bhandari, whose visionary thinking and reformist actions have revolutionised the economy of her village. As one enters the periphery of her home, a green board displayed in her veranda announces “Jajurali as a beneficiary village in the ‘Off-season Vegetable Production Value Chain’ under the KSLCDI (Kailash Sacred Landscape Conservation and Development Initiative) Project”.

On stepping into her home, I see awards and appreciation letters gracing her walls; a strong testimony to the fact that the woman I am about to meet is no ordinary woman. Her exceptional journey started in 2002 when three SHGs (Self Help Groups) were formed in her village. To her utter surprise, Rekha was chosen as the President of one of them. Still as humble as she was then, she says that the villagers must have had some faith in her, which is why they made her the president. This was just the beginning. With an important post in hand, she started keeping herself abreast of upcoming government schemes that might prove helpful to her village community. One such scheme was the ‘Pashu Chikitsa Adhikari Scheme’ that she learnt about in May 2003. Under this scheme, six BPL/ SC (below poverty line/ schedule caste) farmers would be given high milk-yielding cows at just rupees 18,000. This involved a trip to Haryana where the farmers could themselves select the desired cow. Despite being an alluring scheme, the BPL/ SC families in Jajurali could not afford to buy one. Rekha took an important step at this point; she contributed 15,000 rupees from her SHG, ‘Chetna’ and managed to convince the other SHGs to contribute 3,000. Her efforts paid off and by 2006, they had succeeded in getting good quality cows. As the calves grew to adulthood, dairy production in the village increased manifold.



# SUCCESS WOMEN

Rekha informs me that they even managed to hybridize their cows with high quality bulls. This resulted in an upsurge in their daily milk yield. Being a true visionary, Rekha soon started collecting the extra milk from around 100 households of her village with the help of a few women. Ignoring taunts of how the “daughter-in-law of a rich man wanted to get richer by selling milk”, she mobilised some 20 members from the three SHGs and got ready to start her next venture to improve the lives of her fellow villagers.

With the guidance and help of the NGO ‘Swati Gramodyog Sansthan’, Pithoragarh, it was only a matter of time before she had inked a deal with the Uttarakhand Co-operative Dairy Federation, ‘Anchal’. Starting with a supply of minimum 20 litres of milk a day, the deal later grew to 80 litres. At present, her day begins at 4 a.m. with milking the cow, feeding fodder to the cattle and collection of milk from the entire village with the help of a few women. Thereafter, two women, hired at a salary of Rs. 1000 a month, carry all the milk to the road where a van receives all the collected milk from Jajurali and adjacent villages.

Only an aware woman has the capability to improve the quality of her family’s life and in Rekha’s case, the entire village was her family. But awareness grows with time and exposure. Highlighting the fact that she was constantly on the lookout for ways to benefit her villagers is the following incident: One afternoon in September 2006, on their way back from a dairy training programme at the GB Pant University of Agriculture and Technology, Pantnagar, Rekha, along with some members of NGO Swati, stopped for lunch close to the Haldwani market. Incidentally, her eyes fell on a sack of large cardamom. Out of curiosity, she asked the shopkeeper its price. His answer completely shocked her! “700 rupees a kg,” he replied. She had recently exchanged two and a half kg of this same cardamom for five kg of black gram! “Had I been aware of its market value, I would have never given such a precious spice at throwaway prices to some vendor,” she rued. But back in those days, village women were mainly confined to their homes and had little or no exposure to the market or the outside world. Rekha too, though bolder than many, was still a product of those times

## रेखा भण्डारी-

### सफल महिला उद्यमी

यह कहानी है एक चहुंमुखी प्रतिभा की धनी ग्रामीण उद्यमी महिला रेखा भण्डारी की। उन्होंने अपने गांव जजुराली में रहते हुये कृषि के क्षेत्र में अनगिनत प्रयास किये। पर्वतीय समुदायों के लिए बनी विभिन्न विभागीय योजनाओं से ना केवल स्वयं अपितु सम्पूर्ण ग्रामीण वर्ग के उत्थान के लिए अग्रणी बनी रहीं। उन्होंने गायों की नस्लों को सुधारने की सरकारी योजनाओं से लेकर पैदा होने वाले अतिरिक्त दूध को एकत्रित करवाकर डेयरी उद्योग स्थापित करने तक का सफल परीक्षण किया। बड़ी इलायची को आर्थिक रूप से फायदेमंद फसल देखकर गांव वासियों को इस फसल को अधिक मात्रा में उगाने के लिए प्रोत्साहित किया। यही नहीं, उन्होंने पहाड़ी क्षेत्रों में सीढ़ीनुमा छोटे खेतों में जुताई करने के लिए मिनि ट्रैक्टर का इस्तेमाल करना भी ग्रामीणों को सिखाया। एक सफल परामर्शदाता के रूप में रेखा भण्डारी महिला समूह को सदा एकजुट करती रहीं। उन्होंने गांव में फैली नशे की लत से ग्रसित ग्रामीणों की दशा में सुधार के लिए अनेक सामाजिक प्रयास किये। विषम परिस्थितियों के बावजूद बड़े साहस से उन्होंने समाज में नशाबन्दी का आंदोलन चलाया। इससे उनकी लोकप्रियता इतनी बड़ी कि उन्हें निर्विवाद सरपंच चुना गया। रेखा को उनके अत्युत्तम प्रयासों एवं विभिन्न सामाजिक कार्यों के लिए कई पुरस्कारों से अलंकृत किया गया है।



and circumstances. All that, however, was about to change. The first thing she did on reaching home was to inform all the other villagers about her discovery. She encouraged them to begin viewing large cardamom as a cash crop and started actively working towards it. Now, Jajurali village grows large cardamom on at least 20 to 30 *naalis*. “Today its price has jumped to 1500 rupees per kg,” she informs me happily. From a minor incident to entrepreneurship, Rekha’s ambitions escalated in no time.

By 2008, she brought the first wheat crusher machine to her village. It was the same significant year; 2008, when she, along with other villagers, opened the shop ‘Mahila Prayas’ at Pithoragarh market. This shop was a result of the collective efforts of the villagers and NGO Swati, for which NABARD (National Bank for Agriculture and Rural Development) funded fifteen months rent, material and human resource to establish the shop.

The impetus for the shop was Rekha’s keen observation. Over the years, she had seen her villagers growing a considerable quantity of vegetables, spices, pulses, black soya beans, turmeric, rice etc. After self-consumption, a significant portion of the produce remained unutilised and was soon wasted. No effort was made to sell it. The establishment of ‘Mahila Prayas’ was an important initiative in this direction. It was to be a one-point place where outsiders could directly pick up local produce and products.

Though the word ‘Mahila Prayas’ translates to ‘efforts by women’, the initiative by no means discounts the support of the Jajurali men. In general, hill women are often overworked because they are responsible for their households as well as much of the agricultural work, with men very reluctant to share the workload. This shop, however, provided an opportunity for both men and women to participate equally and harmoniously. Rekha is a firm believer in cumulative participation of both genders. This inculcates an equal sense of responsibility, she feels.



By this time, the number of SHGs in her village had grown from three to ten with about 80 members. That the shop was a success is evident from the fact that the shop account, which started from 50 paisa per kg of commodity grew to a sum of 15,000 rupees by 2011. This money was managed efficiently by utilising 5000 rupees for training purposes and the remaining 10,000 for providing further resources for the shop.

Despite her achievements, the journey has not been a cakewalk for Ms. Rekha. Apart from facing continuous criticism and speculation due to her radical ideas, two of the SHGs in her village dissolved in 2008-09 after programmes conducted by the NGO Swati had concluded. But she continued running her SHG with full zeal and commitment. Her optimistic attitude and hard work paid off. In the present year 2017, 16 SHGs exist in Jajurali village.





skills by introducing the concept of dairy entrepreneurship, implementing the SRI technique in paddy cultivation and developing marketing linkages to sell her SHG products. Her efforts soon started getting noticed, not only at the block level but also at the district level. On 26<sup>th</sup> January 2013, she was awarded the ‘Kisan Bhushan’ at the district level. The recognition of her work on such a distinguished platform reinforced her motivation; her will to contribute to her village welfare grew more intense. Learning as she worked and growing as she learned. Rekha, slowly got accustomed to the Horticulture, Livestock, Fishery and Agriculture Departments and their schemes.

At the end of 2013, she came across a scheme from the Department of Agriculture which was offering marginal categories the opportunity to avail Power Tillers (mini tractors) at a subsidised price of 45,000 rupees. This was a big sum of money for the villagers who were already sceptical about its use. To make matters more difficult, the agreement prohibited resale of the tiller. Operating these mini hill side tractors in fields was a completely new concept for the hill people of Jajurali. A few opposed the idea, convinced that the tillers would not prove beneficial in the hills, but Rekha reassured them, saying, “I will not let your money go waste. Even if it does, it will be my responsibility to repay you”. Confident and determined, she brushed aside all the doubts and visited Kanalichhina which is 30 km from Pithoragarh town. There, demonstrations on working of power tillers were being conducted. She not only learnt how to operate this mini tractor but also made a video of its functioning. Back home, she finally managed to win the confidence of her people. As a result, three SHGs agreed to contribute Rs 15,000 each and a Power Tiller was brought into her village for the first time. Now well-versed with its working, Rekha enthusiastically trained the villagers; including her husband! Recalling this incident fondly, Rekha took a moment to acknowledge her husband’s support. “He stands by all my progressive actions and participates enthusiastically,” she smiled.

In 2010, her SHGs established a link with CBED (Centre for Business and Entrepreneurial Development), Dehradun. CBED provided them with all the necessary techniques and help required to produce vegetables, pulses and seeds. In the same year, they cancelled their tie-up with Anchal; the agency they used to supply milk to, and decided to supply milk directly to the market. Dairy production, its collection, transport and supply was a challenging venture. But with the support of CBED and a loan from Pithoragarh Jila Sahkari Bank, a building and a vehicle was soon managed. To ensure smooth functioning of the dairy business, an SHG was created by CBED by selecting the best members from each of the current and previous SHGs. Ms. Rekha, who had been an active member holds 10,000 rupee share in CBED SHG.

By the end of 2012, Rekha had demonstrated her remarkable





With time, Rekha and her work gained more popularity. Collaborating with 'Lok Vigyan Sanstha' and 'Swati Gramodyog Sanstha', Rekha succeeded in introducing new farming techniques in the agriculture fields of Jajurali. Adoption of intensive farming incremented the production by 60 percent. Crops that conventionally yielded 20 kg per *naali* were now yielding 32. She was fast becoming known as the woman who had helped her village accrue economic as well as social benefits by her pioneer attempts.

This led to an invitation from the Agriculture and Cooperation Department, Gujarat. They wanted to honour her for her contribution to the agriculture sector in her region during their 'Vibrant Gujarat Global Agriculture Summit - 2013'. It was a golden opportunity. India's current Prime Minister, Shri. Narendra Modi, who was the Chief Minister of Gujarat at that time; was to inaugurate the event on 9<sup>th</sup> September, 2013. Going to Gujarat, attending the summit and being awarded, would be a lifetime experience for Rekha. But it would also be her very first experience of travelling out of Uttarakhand State. Not only was she a little nervous about travelling so far, she had the responsibility of her house and cattle too. She was hesitant to leave her cow to the care of others. The cow was very expensive and only allowed Rekha to milk her. Fortunately, her mother-in-law and daughter rendered their full support to her. She still remembers the assuring words of her daughter who was just a little girl at that time; "you should go, you won't get this opportunity again. Please don't worry about the cattle". Now certain about support at home, Rekha went to Gujarat where she was awarded a cheque of 51,000 rupees, a shield and the 'Shreshth Kisan Puraskar'.

Talking to me, Rekha recalls the time she was nominated as Pradhan of her village. It was the first time a woman seat for Pradhan was introduced in her area. She won by 170 votes out



of the 400 cast. Both men and women supported her, leading to her victory.

“We didn’t go for any publicity, “she recalls with pride. As the first Woman Pradhan, it became her duty to resolve the burning issues that were threatening her village. One such issue was alcohol addiction. Alcohol has long been a problem in the hills. It disrupts the peace of families and causes a dearth of economic resources. Women are the main sufferers as men drink away their hard earned money and often become abusive. As a woman, Rekha had felt the pain of her fellow womenfolk and together they had helplessly tried trivial tricks to teach the abusers a lesson. But now, she was in a stronger and more powerful position. It was now possible to control the abuse. Imposing heavy penalties on abusers was one method she implemented to check any ill-treatment meted out by the alcoholic to his family. Though not yet fully eradicated, Rekha feels that she has contributed significantly towards reducing the problem of alcohol addiction in her village. Conducting awareness and training programmes, heading monthly meetings on newly introduced schemes and opening individual bank accounts were among the progressive steps taken by her as Pradhan.

In 2014, her SHGs collaborated with an association named CHEA; Central Himalayan Environment Association, Nainital. She was a new Pradhan at that time but despite being in such a responsible post, she never hesitated to try out new experiments in agricultural fields of Jajurali. Through CHEA, her village learnt seed sowing methods, vermicomposting, and the techniques of organic manure preparation.

Soon, her village was adopted as a beneficiary village under an International Project; KSLCDI, funded by ICIMOD (International Centre for Integrated Mountain Development), Nepal. In primary association with G.B. Pant National Institute



of Himalayan Environment and Sustainable Development, Almora and NGO CHEA as executing organization; the village ventured into Off-season Vegetable production through this project. Under project KSLCDI, activities like seed marketing, organic compost preparation, vermi-beds, poly-houses and poly-tunnel construction, exposure tours and training were conducted. Introduction of modernised techniques resulted in a substantial increase in the production of vegetables like onion, cabbage and capsicum. Almost 15 quintal of green capsicum was sold last season through Rekha’s SHG. Apart from intensifying vegetable and fruit production, the credit of setting up three Biogas plants and 30 water storing tanks for irrigation purposes in the village goes to her and the associated organisations.

On 8<sup>th</sup> March 2016, ICIMOD, Nepal celebrated International Women’s Day with the theme ‘Planet 50-50 by 2030: Step It Up for Gender Equality’. Rekha as Village Head and President of the Chetna Self Help Group (SHG) was invited as a guest speaker for the event. Overcoming the obstacles, meeting the challenges and paving the path of success; all these experiences were shared as Rekha sketched out her phenomenal journey on an international platform.

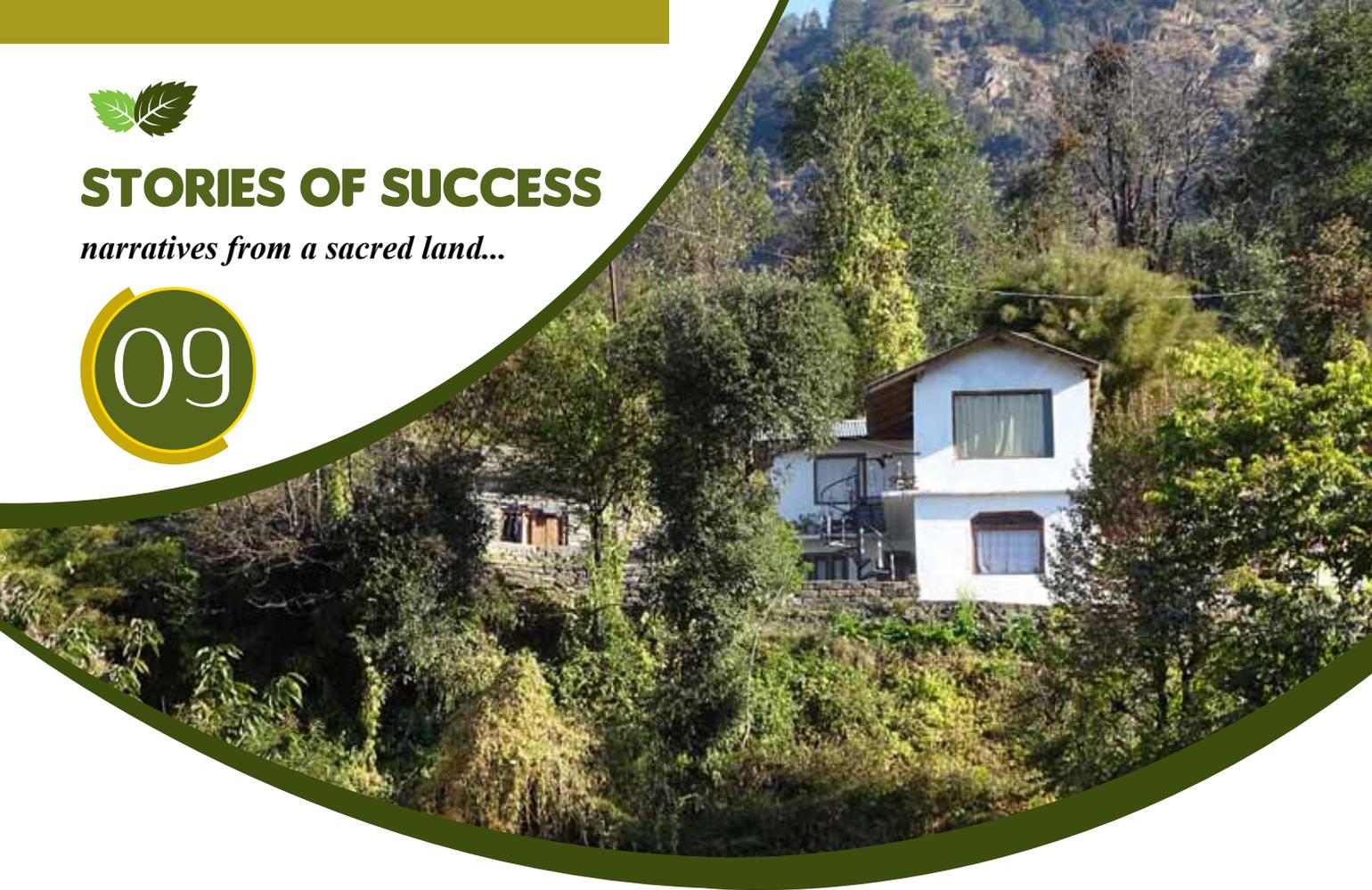
Political representation and the power of economic decision-making to women are some rights necessary for any society to progress and prosper. With equal opportunity and uniform access to resources, a woman has the potential to bring about socio-economic and political development in her community. The success story of Rekha underlines this in every possible way.



## STORIES OF SUCCESS

*narratives from a sacred land...*

09



# Evolving concept of Eco-tourism in the Perspective of Community Home-stay

Indians have their own unique way of living and thinking. In our land of myriad deities, one finds that our values, traditions and spirituality are alive even in this era of globalization. We Indians believe with utmost reverence and faith that 'our guest is equivalent to our God' complying with the sanskrit adage, 'Atithi Devo Bhava'. Instilled then with such values, it is almost unthinkable for most rural folk to reap economic benefits in return for providing food and lodging to a guest. But as commercialisation advanced, professional tourism accelerated in hill areas by the late 20<sup>th</sup> century. Hotels started popping up in every hill station and travel companies emerged in the market. Even tourists started venturing across international boundaries and exploring new places.

The internet and communication technology played a key role here. Websites, travel blogs, pictures in social media etc became a means of arousing interest among national and international travellers. Travel agencies began customising their travel-stay packages according to their customer's needs, hence earning handsomely. The tourists too enjoyed their holidays with utmost luxury. But unfortunately, the local community whose geographical and cultural resources were being exploited did not gain any direct benefit from these tourism practices. They had meagre earnings as porters and guides while the big fish took away the major share. Also, an intense business attitude left no scope for implementation of conservation and sustainable tourism ideas. Tourist hot spots started facing social and cultural ramifications with the influx of anti-social elements. Drug and alcohol abuse and prostitution were serious issues that emerged in some areas. Securing financial wealth at the cost of the environment and losing cultural integrity was a far cry from a sustainable, long-term tourism approach. Even the visitors staying in hotels remained deprived from experiencing closely the native culture and true hospitality of the locals.

Soon, however, the concept of the 'Homestay' surfaced as a new trend in the tourism industry. The idea was to accommodate guests in the houses of the local community, providing them with a homely and secure atmosphere and an opportunity to communicate with their local hosts. This also helped in direct transfer of money from the user to the facilitator, dissolving the role of intermediaries.

As environmental issues like climate change, the energy crisis, threatened biodiversity etc became topics of discussion all around the globe, policy makers and people started viewing homestays as part of Green tourism. It was realized that not only the local



community but the tourists too could be trained, educated and made aware of several aspects of ecotourism. And this could be done, only by inviting tourists, students or professionals to live with the host's family so that a sense of acceptance and respect for each other's culture and resources could be inculcated. Boosting a region's economy but at the same time working in harmony with nature and maintaining socio-cultural integration is a tedious task. A faint line exists between livelihood generation and pure business activities. Only a few can recognize this thin demarcation.

This success story is about the village Sarmoli and its people who have adopted ecotourism and homestays as their livelihood generation activity. As a matter of fact, it is more than a means of income for them. Tourism has brought their village worldwide recognition and given an identity to their culture and community. A sense of self-worth is visible in every individual here. One can find several articles and travel blogs the moment you Google the village's name. Around 2.5 km from Munsiyari town, I had to ascend 500 metres from the road through a stone path to reach this terraced village. However, the village now has access to a road. The breathtaking peaks of the Panchachuli in the background make Sarmoli even more picturesque. Another distinct feature that made my visit pleasant was the high level of cleanliness. Not a single plastic wrapper could be seen lying on the ground and the water in the brook running through the village was crystal clear. This certainly indicated the efficient waste-management undertaken by the villagers.

Sarmoli's history of homestays and tourism goes back to 2003. It all began with the efforts of a handful of Sarmoli women led by a dynamic woman named Malika Virdi. Ms. Virdi came to this land as an outsider back in 1992 but soon felt a sense of belonging with this village. With her partner, Mr. E. Theophilus, she bought some land at the topmost point of the hill and soon became a full-time farmer. As an agriculturist, she experienced a connection with Sarmoli soil and eventually found herself becoming an integral part of the 'Pahadi' (hill people) community. With time, patience and through progressive actions, she soon earned the confidence and affection of her villagers.

In 2003, Malika was elected as *Sarpanch* of the *Van Panchayat* by the villagers. It was during this time, she came up with the idea of homestays and ecotourism. She strongly felt that one cannot expect conservation through isolation. Natural resources cannot be conserved by mere regulations and policies or by depriving the community from their forest resources by creating National Parks and Reserved Forests. As a *Sarpanch*, Malika realized that solely convincing people to safeguard their *Panchayati Bhumi* without showcasing any direct benefits to them will not prove very effective. Thus, her idea was to create such a platform where conservation as well as livelihood practices could complement each other. This idea could be realized only through an approach which was economically viable as well as environmentally sustainable. And she found eco-tourism along with homestays, as the most workable options.

While a proportional representation of women in any institutional or social system is important, what is more important for any system to work long and successfully is the whole-hearted involvement of its women. As first a *Panch* and then *Sarpanch* of the *Van Panchayat*, Malika had seen women members attending *Van Panchayati* meetings as a mere formality. They were hardly given the status of co-partners

## मुनस्यारी 'होम स्टे'

नित नवीन पर्यटन स्थलों की चाह में देश-विदेश के पर्यटक प्रतिवर्ष अत्यन्त दूरस्थ इलाकों तक भी पहुंच रहे हैं। मुनस्यारी, पिथौरागढ़ जनपद का ऐसा ही लोकप्रिय पर दूरस्थ पर्यटन स्थल है। यहां पर बर्फ से आच्छादित पर्वत श्रृंखलाएं, हरे वृक्षों से भरपूर जंगल, व सांस्कृतिक विविधता से भरे गांव सैलानियों के लिए आकर्षण का केन्द्र रहते हैं। यद्यपि खराब सड़क व्यवस्था व दूरस्थता के कारण इस पर्यटन स्थल तक पहुंचना अत्यन्त दुष्कर है। ऐसी परिस्थितियों में पर्यटकों को निरन्तर आकर्षित करने के लिए पर्यटकों हेतु सुविधाओं में नवाचार व विशिष्टताओं का समावेश आवश्यक हो जाता है। इसी बात को समझते हुये मुनस्यारी के सरमोली गांव के ग्रामीण एकजुट होकर मल्लिका विर्दी के नेतृत्व में 'होम स्टे' एवं ईको पर्यटन के क्षेत्र में आगे बढ़ रहे हैं। मल्लिका विर्दी ग्रामीणों को घर की सजावट में स्थानीय हस्तकला की वस्तुओं के समावेश से रूचिकर बनाना सिखा रहीं हैं। उन्होंने अतिथियों को अच्छी सुविधा देने के लिए 'होम स्टे' अवधारणा को ग्रामीण सहकारिता के तहत एक संपूर्ण पैकेज के रूप में विकसित किया है। पर्यटन से आर्थिक लाभ उठाने में सरमोली की ग्रामीण महिलाओं का आगे बढ़-चढ़ कर हिस्सा लेना अपनी सफलता की कहानी स्वयं ही सुनाता है।





and were less involved in significant decision making. So before going ahead with her venture, Malika laid down some ground rules. She thought it was important that the women taking part should be active members of the *Van Panchayat* with due involvement in communal activities organised by the institution. Fortunately, the members of Sarmoli *Van Panchayat* gave their support and 33 families enthusiastically agreed to be a part of this venture. 13 families with adequate home structures opted for homestays, while 20 other families got involved in rendering ecotourism services. “I had never heard of such a concept but I did have faith in Malika *didi*’s strategies, which gave me the courage to pursue the homestay business,” says my host, Kamla Pandey. She has now been extending her hospitality to guests from across the world for the past 12 years.

A remarkable characteristic of these homestays is that they are organised and managed by the women. The reasons for handing over financial and managerial control to women are many: for ages, women of the Himalayas have been physically more active as far as farming, livestock rearing or household activities are concerned. Their whole life is spent around the periphery of their home and fields, but their hard work goes largely unacknowledged and without achieving any monetary benefit. A woman’s control and access to financial resources can become a significant means of her empowerment. As a matter of fact, financial literacy is a tool to self-realization. It brings the decision-making power to the lady of the house, which is quite essential for the well-being of the entire family. The concept of the ‘homestay’ in itself is an attempt to

professionalise a woman’s premises by creating a home space into an industry. During a homestay, tourists with varied geographical and social backgrounds live and interact with the family. This lays the ground for cultural exchanges and even emotional bonding. These interactions give an opportunity to the lady of the house to break out of her environs and peep into the outside world.

Malika strongly believes that while the whole family may possess the house, the real caretaker is the woman who transforms it into a home. She is involved in every minute activity; be it preparing food and bedding for the host or designing and equipping the rooms for her guest. Malika helps in laying down the interiors for the rooms but the real decorators are the ladies of the home, who add the little details and personal touches, giving it an indigenous tinge. With the passage of time, customized facilities have been introduced in guest rooms, like adding western toilets or replacing the Indian ones. By 2010, 25 families in Sarmoli were successfully organising homestays.

Now, tourists with diverse backgrounds and interests come to Sarmoli. Tourism industry in past few decades has taken a dynamic shape; if there are some casual tourists on vacation, there are also those who come with an educational or research motive. Various Indian and foreign universities, and outdoor leadership schools have started approaching Malika for internships, annual summer programmes, educational expeditions etc.

The villages Sarmoli and Jayanti together make a single *Van Panchayat* by the name of Sarmoli. The *Panchayat* has 290 members which is quite a high number in proportion to the



34 hectare *Panchayat* land area. This means that there is a great pressure on Sarmoli's community forest. Hence, it was imperative to reduce dependency on it by looking for other productive options that would ensure forest sustainability. Also, the agriculture fields of Sarmoli are facing a problem common to all of the Himalayas, *i.e.* of animal attacks on crops, which considerably affect their agricultural produce. Hence, a dire need for developing a secondary income generating source was felt.

In 2010, Malika and her companions lost the *Panchayat* elections owing to some political gimmicks. It was then that they decided to form a company called 'Himalayan Ark', which would help the villagers generate a secondary source of income. So apart from homestays, Himalayan Ark started conducting trekking expeditions in and around Munsiyari and its periphery. Therefore, while one arm of Himalayan Ark organised homestays, the other worked on ecotourism.

When I met Malika, she and her colleague Mr. K. Ramnarayan were organising an inter-village community-based workshop on ecotourism. I could see her engrossed in training youngsters and ladies on how to become a trained guide and a good host, while Mr. Ramnarayan (or Ram as he is popularly called) educated them on the various geographical aspects of the Gori Ganga Valley. He enlightened them on its biodiversity (flora and fauna) and diverse habitat system, on agriculture and livestock, on natural hydrology including rivers and glaciers, on historical places and their religious connections, on rural technologies like *gharat* (water mills), on green renewable sources of energy like solar cookers and lanterns and many such diverse subjects pertaining to their geographical region. The

session was accompanied by attractive pictorial descriptions of the various topics, making the awareness programme interesting and interactive. The villagers showed keen interest as they were already aware of these subjects but unaware of the facts associated with them. For example, they might be familiar with a flock of birds flying in their area, would possibly know the local name and have some knowledge about their characteristics, but in order to educate an outsider, they would require the support of some scientific terms that could ease the communication barriers between the tourist and themselves.

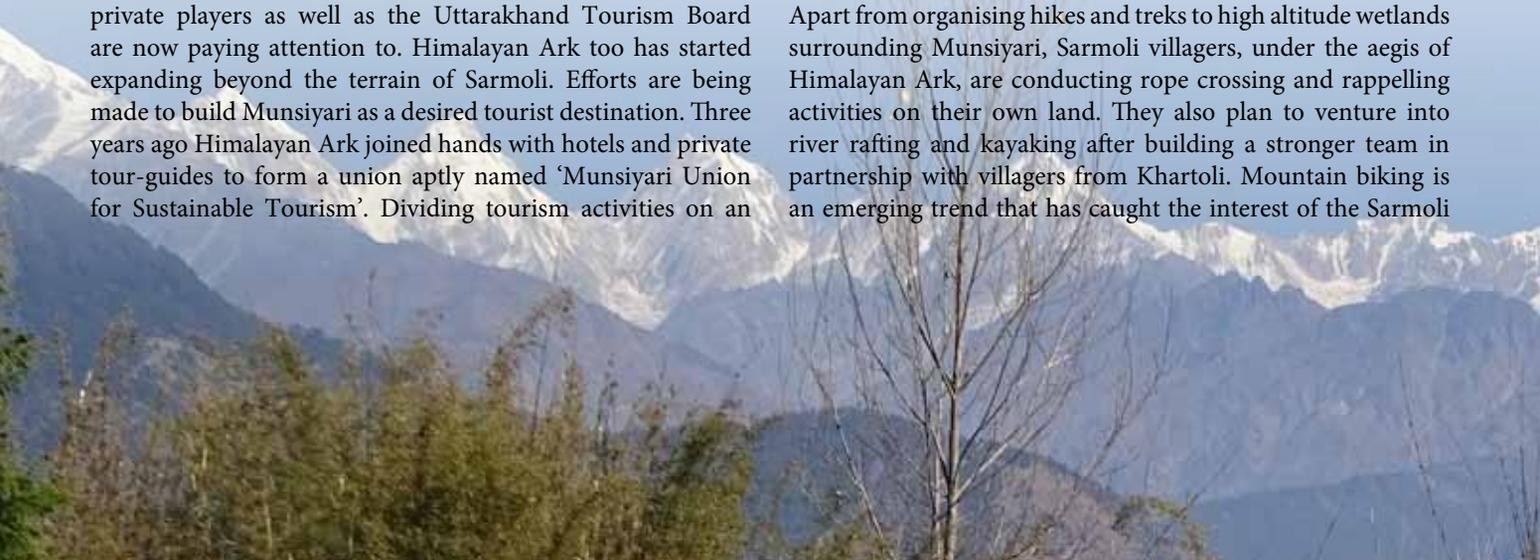
Through professional training on guide, Malika expects her people to be fluent in their communication and clear with their line of thoughts so that they could confidently tell the cultural, geographical and historical tales of their places. On being asked the reason for blending education with adventure tourism; she explains, "We all are trekking up to peaks and leaping mountains but least bothered to interpret culture and nature. I want my people to read these interpretations by viewing their own geography in a more dynamic and analytical way." Trainings for the villagers are organised under the NGO 'Himal Prakriti: A Trust for Nature' set up in March 2006, in which Malika is the Managing Trustee while Ram takes the lead on energy conservation, water and wildlife related issues. When the focus falls on woollen handicrafts, traditional foods etc., 'Maati Sangathan' takes over.

'Maati Sangathan' is a big success story in itself as it represents the collective identity of the women of Sarmoli and neighbouring villages. It is not a registered institution but more of an organisation started with the intention of curbing



alcoholism and its ill-effects such as domestic violence. What began with the aim of mobilizing women to fight for justice and the right, has now taken a more diverse form. Though the core group of 'Maati Sangathan' consists of only 8 members, their reach is quite wide. From people-centric development like livelihood support, promotion and marketing of traditional products, food security, skill development etc to environmentally sustainable development; they take care of all the major issues impeding growth in Himalayan villages. Adventure tourism in Munsiyari is one profitable aspect that private players as well as the Uttarakhand Tourism Board are now paying attention to. Himalayan Ark too has started expanding beyond the terrain of Sarmoli. Efforts are being made to build Munsiyari as a desired tourist destination. Three years ago Himalayan Ark joined hands with hotels and private tour-guides to form a union aptly named 'Munsiyari Union for Sustainable Tourism'. Dividing tourism activities on an

altitudinal basis is one way of widening their area of influence. Malika explains how varied geographical features of Munsiyari contribute to different bio-climatic zones which can provide opportunities for a range of adventure sports and sightseeing programmes. Sarmoli, for example, has a cool temperate climate alluring tourists from warmer areas; Khalia Top at an altitude of 3500m above sea level, has a distinct alpine ecology, making it a popular trekking destination; while Khartoli, another village of Munsiyari, has riverine ecology which can be developed to attract water sports enthusiasts. Apart from organising hikes and treks to high altitude wetlands surrounding Munsiyari, Sarmoli villagers, under the aegis of Himalayan Ark, are conducting rope crossing and rappelling activities on their own land. They also plan to venture into river rafting and kayaking after building a stronger team in partnership with villagers from Khartoli. Mountain biking is an emerging trend that has caught the interest of the Sarmoli





youngsters. Munsiyari also has the scope for paragliding but Malika seems reluctant to pursue this sport as she finds it too capital intensive. She is of the belief that despite competing in the tourism industry, “our ventures should not go out of our control or in the hands of big players”.

Securing the sustainability and continuity of Sarmoli’s tourism industry, the influx of tourists continues throughout the year. Casual tourists tend to visit more during ‘peak’ seasons (summer), while student groups come during their expedition dates and those working as interns arrive even during ‘slack’ seasons (winter and monsoon). The 2015 data of ‘Himalayan Ark’ reveals visits of more than 450 guests from around 20 nations with occupancy of over 2000 nights. The statistics show that around 20 families of Sarmoli working together in close coordination, were able to generate a gross annual income of rupees 50,000 to 2.5 lakh from tourism services. In extra profitable years, this figure reaches beyond 3 lakh rupees.

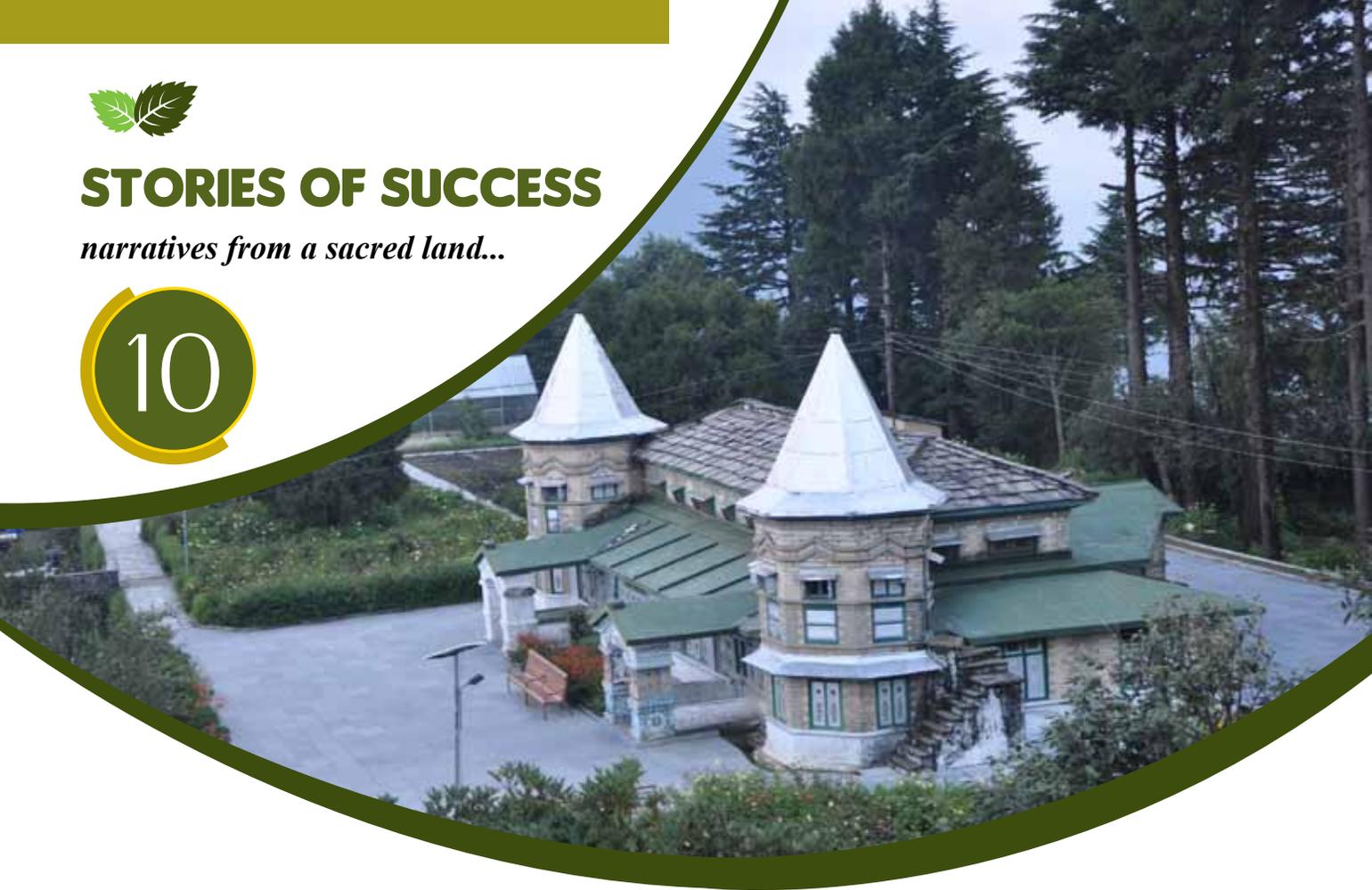
Malika adds that over the years, the annual income from homestays for 13 families has increased to more than 15 lakh, yielding to each family an amount of 1-1.5 lakh rupees per year. But the real success of an off-beat intervention is far beyond economic profits. Mobilising the community to work on ecosystem conservation and natural resource management takes effort and time. One needs patience and effective strategies to give an idea a concrete and feasible shape. When I asked Malika for her views on the socio-cultural changes that tourism brings with it, she agreed to the fact that changes in society take place with exposure but stressed that these alterations need to be accepted in a positive manner so that they contribute as a community’s strength and not as a weakness. And as she rightly added, “For us, homestay and tourism is an added advantage and not a source of primary dependency. Instilled with a sense of self-dignity, we are working as a community, holding each other in good times and bad.



## STORIES OF SUCCESS

*narratives from a sacred land...*

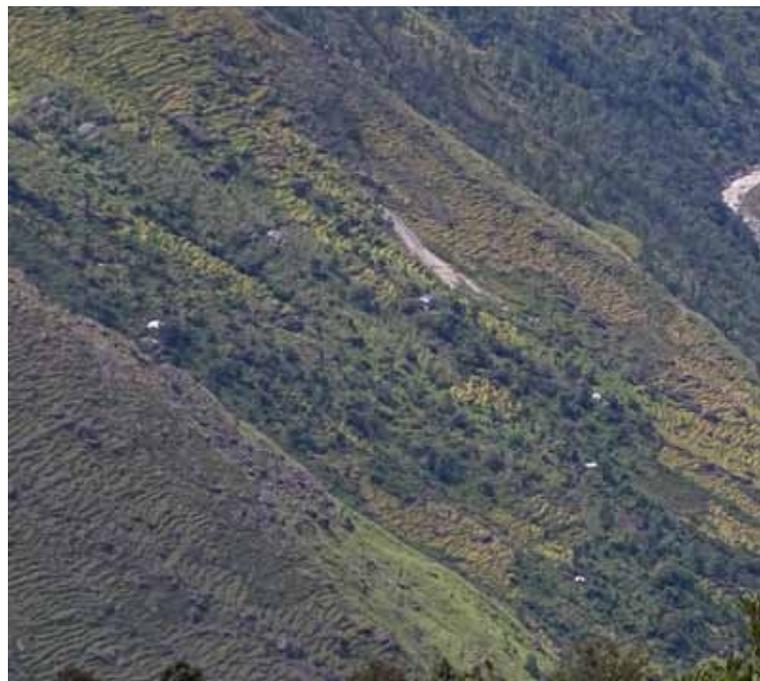
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# Shri Narayan Ashram: Through Spiritual Awakening Bringing Social Reforms

**S**hri Narayan Ashram is among the lesser known destinations of India, probably because of its remote location. But it is surely the right place to go if one is looking for internal peace, natural beauty or knowledge of Hindu philosophy and mystical teachings. A feeling of ecstasy and mysticism filled my heart, the moment I stepped into the vicinity of the ashram.

Perched high at an elevation of 2734 metres in the Chaudans Valley, a mesmerising glimpse of the Nepal Himalayan Range is visible from this place. A direct view of the snow-clad Api-Napi peaks and Annapurna range in the distance on a clear sunny day is true bliss to the eyes, melting away all vanity and instilling gratitude towards mother earth. The beautiful orchards and vibrant terraced gardens immediately invoke a feeling of belonging while the cool early morning breeze smoothly caressing my face has the potential to induce a trance-like state. It is no wonder then that this place has been the ground for enlightenment or *nirvana* for many saints. Rishi Ved Vyas is believed to have chosen this site for his penance and this place is also known as 'Vyas Tirth'. Hence, the geographical location in many ways adds to the purity and serenity of the ashram. It was and is still believed by locals to



# SHRI NARAYAN ASHRAM

## श्री नारायण आश्रम

यह कहानी आज से आठ-नौ दशक पूर्व पूज्य श्री नारायण स्वामी द्वारा मानव उत्थान के लिए सुदूरवर्ती पर्वतीय क्षेत्रों में किये गए चहुंमुखी सफल प्रयासों को चित्रित करती है। उन्होंने एक ऐसे समाज को आध्यात्मिक तथा संचेतन जीवन जीने के लिए प्रेरित किया जो अज्ञानता के अंधकार, गरीबी एवं अनेकों सामाजिक कुरीतियों से जूझ रहा था। शिक्षा के प्रसार के लिए उन्होंने स्कूल खोले। मानसिक व मनोवैज्ञानिक परामर्श की व्यवस्था से समाज के व्यवहार में परिवर्तन लाने को प्रयास किये और स्वस्थ जीवन के लिए शारीरिक परिश्रम का पाठ पढ़ाया। चिकित्सा के लिए अस्पताल तथा जीविकोपार्जन के लिए पशु तथा पौधों की उन्नत किस्मों का प्रयोग उन्होंने सिखाया। श्री नारायण की इस सोच को यह आश्रम आज भी दूर-दूर तक प्रवाहित कर रहा है, तथा मानव चेतना के विकास का प्रमुख केन्द्र बन गया है। इस आश्रम में किये जा रहे अनेकों प्रयास नजदीकी गांवों के लोगों के लिए प्रेरणा के स्रोत बनकर उभरे हैं। 'कैलाश परियोजना' के तहत आश्रम में औषधीय पादप संरक्षण प्रारूप विकसित किया गया है, जो कि इन पादपों के महत्व को जन साधारण तक पहुंचाने में अग्रणी भूमिका निभा रहा है।

be a place where angels reside. Just 3km down the ashram, the Kaliganga River forms a border with Nepal and binoculars help spot the Tawaghat Bridge.

Narayan Ashram, spread across 40 acres is situated 3km north of village Sosa. Sosa, a village prominently inhabited by the Hyanki clan of the Bhutia tribe comes under Dharchula *tehsil* of Pithoragarh district. Narayan Ashram can be reached from Pithoragarh town by road passing through Ogla, Jauljibi, Dharchula and Tawaghat along the River Kali. Covering 112 km from the town to reach Tawaghat which is the confluence point of rivers Kali and Dhauli, a smooth 10km road (constructed due to the Dhauliganga dam on Dhauli River) stretches out till Kanchoti. The big Sobla market (named after the Sobla Pass, gateway to the Darma Valley) once existed here but was washed away in the 2013 Uttarakhand flood disaster. From there, an approximately 25km narrow, muddy road leads to the Narayan Ashram via Thanidhar, Pangu, Tanta Gau, Himkhola, Chalmachilanso and Sosa villages. The ride was a little risky but the scintillating post-monsoon waterfalls along the way eased my anxiety. This route remains blocked during winter because of heavy snowfall and damaged due to frequent landslides in the monsoon.

The motorable road from Tawaghat to Narayan Ashram has been the main route followed by pilgrims on the Kailash Mansarovar Yatra. The ashram is only 75km from the Tibet border and prior to the Indo-China war of 1962; it served as a resting point for pilgrims. Considering the ancient pilgrimage route, it is still the starting point on the trek to Kailash Mansarovar and the first camp on the route to Sirkha village and the Lipulekh Pass.

Even now, during the four months of the Kailash-Mansarovar Yatra, the police department uses a part of the ashram building to set up wireless communication systems. The mobile network of BSNL (Bharat Sanchar Nigam Limited) is the only means of digital communication available at this height.

The history of the Narayan Ashram goes back more than half a century. Narayan Ashram is named after a great spiritual leader and social reformer; Shri Narayan Swami. Searching for peace and solitude that could help him go into a deeper



meditative mode, his fate brought him to Chaundas Valley. With support and land donated by Khushal Singh Hyanki; a village revenue accountant from Sosa village, the construction of the ashram began. A hut or rather a *mandir* was established on 26th March, 1936 with the hoisting of a white flag on the holy ground of Vyas Tirth, which read 'Om Shri Narayana'. The ceremony was attended by nearby villagers who had gradually developed faith and devotion for the two saints, *Poojya* Shri Narayan Swami and Yogi Ramanand. The anniversary of Narayan Ashram is still celebrated enthusiastically by the villagers and devotees alike. Yogi Ramanand had been the Swami's comrade and helped in establishing the ashram. However, in later years, he left for Gujarat to build another ashram at Malsar, along the banks of the Narmada River.

Shri Narayan Swami faced many ordeals in his path. In a biography titled 'Param Poojya Shri Narayan Swami and Shri Narayan Ashram', Ms. Draupadi Garbyal narrates many incidents from his life. Apart from an attack by some anti-social elements, a major accident was a fire that almost destroyed the thatched huts. This led to the decision of building a permanent structure. Hence, construction started in 1939 and finally culminated in 1948. Narayan Swami, being a skilled designer, devised the layout of the stone and wood temple and *Annapurnalaya* (kitchen). Several poor labourers and masons got employment during the construction process, along with those who transported raw material manually from Almora, in the absence of a motorable road. Ms. Garbyal mentions in her book that an additional cottage by the name of *Shunya kuteer* was established to accommodate visitors as hundreds of labourers were already occupying the place during the construction period. Gothic towers standing tall at both ends of the *Sankeertan Temple* are a remarkable feature visible even today from a distance, while the *Shunya kuteer* on the very top of the hill is a reminder of the Buddhist concept of 'Emptiness' or 'zero inherent existence' when meditating.

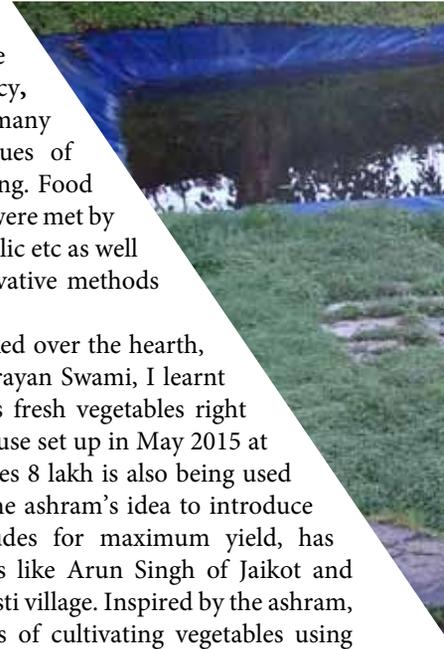
Unfortunately, Narayan Swami passed away on 9th November, 1956 following a deteriorating health condition. With the demise of the great spiritual leader, the ashram faced psychological setbacks as well as a financial crunch. Soon, a trust named 'Shri Narayan Ashram Trust' was registered and the charge was handed over to its managerial and standing committee members who are now responsible for the ashram's functioning and decision making.

Narayan Swami adored nature and was very fond of flowers. A small garden with colourful flowers is still maintained around the temple in his memory. He also had a deep affection for cows. More than 60 cows inhabited the cowshed during his time. Mr. Pratap Singh Rana, the Ashram Manager informs that they still have 19 cows kept for their milk, butter and ghee to be enjoyed by Ashramites and nearby villagers. The credit for introducing high yielding good quality cow breeds in the area must go to the ashram. A Sahiwal bull was bought in 2007 with the collaboration of G. B. Pant Agriculture University, Pantnagar, to crossbreed with the local cows of Sosa and Pasti village. Narayan Swami always emphasised that the



ashram must contribute to improving the lives of the locals. Continuing this legacy, the ashram introduced many new concepts and techniques of agriculture and animal rearing. Food requirements of the ashram were met by growing potatoes, pulses, garlic etc as well as experimenting with innovative methods of cultivation.

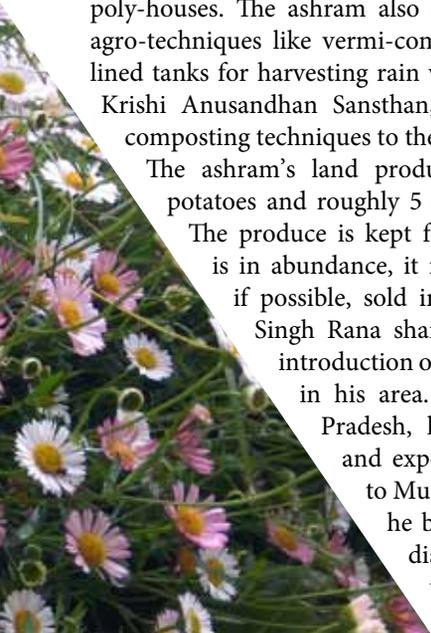
As I savoured the meal cooked over the hearth, accompanied by tales of Narayan Swami, I learnt that the ashram still gets its fresh vegetables right from its farm. A big poly-house set up in May 2015 at an approximate cost of rupees 8 lakh is also being used for cultivating vegetables. The ashram's idea to introduce polyhouses at higher altitudes for maximum yield, has proved beneficial to farmers like Arun Singh of Jaikot and Puran Singh Burhakoti of Pasti village. Inspired by the ashram, they have started a business of cultivating vegetables using



poly-houses. The ashram also supported adoption of other agro-techniques like vermi-composting pits and LDPE film lined tanks for harvesting rain water. Vivekananda Parvatiya Krishi Anusandhan Sansthan, Almora introduced vermi-composting techniques to the ashram three years back.

The ashram's land produced around 60 quintals of potatoes and roughly 5 quintals of garlic last season.

The produce is kept for self-consumption but if it is in abundance, it is given to nearby villages or if possible, sold in the nearest market. Pratap Singh Rana shared a small narrative on the introduction of the high quality garlic variety in his area. During a trip to Himachal Pradesh, he saw one farmer growing and exporting Chinese garlic in bulk to Mumbai. Inspired by his farming, he bought 10kg of the garlic and distributed the cloves as seeds to the nearby peasants. At present, many villagers are



growing and earning from this variety. In fact, farmer Puran Singh is now growing garlic commercially, using the same variety.

Cattle rearing, vegetable cultivation and fruit growing are some of the on-farm activities being conducted at the ashram. The ashram also used to keep bees and provided guidance to nearby villagers on the trade and commercialization of honey. Fruit trees like apples grow in abundance here owing to the favourable climate. Apple saplings are supplied to nearby farmers at a nominal rate or sometimes even free of charge. Apples were not traditionally grown in this area. During the British rule, the villages here were quite downtrodden due to the absence of good schemes for the villagers and dependency on Tibet for commodities. After the British left, apples were introduced here as a cash crop by the ashram to strengthen their financial condition. Good quality of Red and Golden Delicious, and Buckingham varieties were brought from Himachal Pradesh and other areas. Ashram workers and villagers were sent on exposure visits to Chaubatia Apple Garden in Ranikhet and through a tie-up with Krishi Vigyan Kendra, they learnt the technique of cutting and pruning the apple trees. Mr. Rana informed that around 1000 old and new apple trees (many needed to be replaced) still stand in the ashram's orchard, producing more than 50 quintals of fruit. But poor transport facilities are impacting commercialization of these fruits and other farm produce.

Apart from agriculture-based technologies, the ashram seems well-versed in effective utilization of green technology and equipping their accommodation with basic facilities like water and electricity. Providing continuous water supply at such an inaccessible, high altitude area was an arduous task. In the early times, no drinking water was available in the ashram and had to be fetched from distant water sources. But with the efforts of Narayan Ashram, a hydraulic machine was installed in 1961. As mentioned by Mr. Rana, the ashram now has a Blake Hydram Pump with the capacity to pump 2,000 to 3,000 litres of water from depths of 300 to 400ft. Apart from the fact that this pump that doesn't require any external source of energy, another eco-friendly gesture was the installation of solar panels and windmills for power generation. The ashram depends on solar technology in the form of solar lights, heaters and geysers. Solar geysers of 1 KW capacity have been set up by UREDA, (Uttarakhand Renewable Energy Development Agency).

Other than solar geysers, a blue painted *chulha* (hearth) can provide hot water for bathing to up to 30 people at a time. The ashram was once generating around 12 volts of direct current through batteries powered by a windmill installed in 1994 by UPNEDA, Uttar Pradesh Non-Conventional Energy Development Agency, under a wind energy project. This windmill is currently not functioning.

Narayan Swami considered the development of the people his prime priority. Mr. Rana narrates how in a chance meeting with the Governor of Uttar Pradesh, Narayan Swami brought up the issue of poor postal services in his area.

Owing to his plea, a post office named 'Kailas' was set up in 1952 in the vicinity of the ashram.

“Service to God Narayana is none other than service to our fellowmen”, these words of Narayan Swami illuminate the true meaning of spirituality. Guided by Swamiji’s principle that serving humanity is equivalent to serving God, the ashram has constantly lent its support during disasters and other emergencies. Continuous humanitarian aid and disaster relief services were provided during the Malpa landslide of 1998. Similarly, relief work of distributing blankets, utensils, ration etc. to survivors of the 2013 flood disaster was undertaken in Kanjoti and Sobla regions. A relief purse of 5,000 to 10,000 rupees was also given depending on the level of casualty. The ashram also helped in providing respite to distressed victims of the 1992 Uttarkashi earthquake.

Adequate access to quality medical services adds to health improvements within a society. Because of the remoteness of the place, healthcare facilities were quite poor. The only medical centre available was the government hospital at Pithoragarh. Considering the health issues in the area, Narayan Swami distributed free patented medicines for common ailments. For critical patients, a medical home by the name of ‘Shanta Medical Home’ was established at Sosa, which after 1955, was handed to the government. To facilitate the use of better medical equipment, he donated an X-ray machine to Pithoragarh Hospital. Rupees 500 was donated from the ashram’s account in 1952 towards the repair of the Tapovan Travelling Dispensary. Continuing the act of kindness, the ashram organises medical camps at Dharchula and Narayan Nagar Ashram. ‘Narayan Nagar Ashram’ is a similar ashram built at Narayan Nagar, which is at a distance of 12km from Askot.

In an attempt to deal with the respiratory health problems associated with indoor cooking while using a typical stove in rural areas, the ashram took a low-tech solution initiative





in the form of a 'smokeless *chulha*' some years back. ARTI (Appropriate Rural Technology Institute) has made a cement structured smokeless *chulha* in the ashram. Following the same technique, but replacing the cement structure with a lighter tin frame, the ashram has been preparing smokeless *chulha* models for nearby villages.

Swamiji also realised that mere availability to healthcare cannot resolve the health issues prevalent in any area, unless people are made aware of its importance through education. An uneducated community is less likely to flourish or succeed in the outside world. Or rather, a community without educational awareness is a community in a deep sleep of ignorance and darkness. Education provides a meaningful freedom, opening new horizons for an individual to develop. It is a tool not only for acquiring knowledge and developing skills but also for implementing those acquired skills for the benefit of self and society.

In a society where the education level was close to negligible, a hermit; Narayan Swami, became a torch bearer of inner awakening. He worked in an organised way towards educational upliftment by introducing educational institutes in his area. Working on the basic foundation of literacy, he established several primary schools at Jadapani, Jaikot and Khela. He believed that education at the primary level meant creating awareness among children, which in turn implied awareness in the parents. His conscious efforts made people realize the importances of education to the extent that they were soon ready to not only cooperate but also contributed in starting a Junior High School at Pangu. Narayan Swami also contributed to the revival of ancient literary traditions by establishing a Sanskrit school, 'Kamedi Devi Sanskrit Pathshala' in Kamedi Devi. But one of his most significant establishments in the field of education was 'Bapu Mahavidyalaya', an Intermediate



college in Narayan Nagar. It was the first Intermediate college of Pithoragarh *tehsil*. The students were imparted knowledge in humanities, sciences, commerce and vocational skills alongside weaving, gardening and farming. Every attempt was made to chisel their creative side along with building their scientific aptitude. The college soon became an educational hub for bright but less privileged students of remote areas. Such students were supported and encouraged by Swamiji. Even today, the Ashram grants scholarships to brilliant students in nearby schools. Ms. Draupadi Garbyal, in her book, has given a reflection of the Swamiji's guileless personality as she wrote about the times when Swamiji enjoyed playing cricket, badminton and other games with the college students. After he passed away, the college was handed over to the U.P. government in 1957.

One does not often come across an ashram dedicating its resources or lending its support to the cause of Research. But this ashram, which has been the backbone of many institutional setups in the past and many awareness programmes in the present, has lent space in its premises to promote nursery and forest development. In an attempt to meet the objectives of the KSLCDI (Kailash Sacred Landscape Conservation and Development Initiative) Project on conservation strategy and long-term conservation and environmental monitoring, a medicinal plant nursery and a multipurpose forest has been set up in the ashram's land under expertise and guidance of Dr. I.D. Bhatt, scientist and biotechnology expert in G.B. Pant National Institute of Himalayan, Environment & Sustainable Development (GBPNIHESD), Kosi-Katarmal, Almora.

Under an agreement between the Institute and the Ashram trust, an area of 0.25ha and 3ha has been allotted for a nursery and multipurpose forest, respectively. The initiative that started on 18th March, 2014 with a 20-bed nursery and a 100-plant plantation has now taken a bigger form. At present, there are 70 beds with medicinal plant species like Van Haldi (*Hedychium Spicatum*), Samyo (*Valeriana Jatamansii*) along with some threatened species like Kutki (*Picrorhiza Kurrooa*), Chirayta (*Swertia Chirayta*) etc. in the nursery. Nursery development has

two prime intentions; one is environmental awareness and the second is research studies. The ashram is continuously visited by local communities as well as national and international tourists; hence these demonstration sites provide a platform to disseminate awareness on himalayan medicinal species and their rapid rate of extinction owing to continuous exploitation and extraction from the wild. Drawing inspiration from the site, Pangu Inter College has recently sent a proposal for developing an herbal garden in their area. Mr. Kuldeep Joshi, a researcher from G.B. Pant Institute explains the research objective of this site: taking Samyo (*Valeriana Jatamansii*) as the target plant, an attempt to record variations in morphological and physiological characteristics of plants on an altitudinal basis is being conducted. Since *Valeriana Jatamansii* can be tissue cultured, the clone of the same plant is cultivated in two nurseries; the BTA (Bio-technological





and Application) nursery, Almora and the Narayan Ashram nursery. A comparative study is then carried out by noticing the variations in the plant's characteristics when grown at the different altitudinal ranges of 1,200 and 2734m respectively. Similarly, in an attempt at sustainable conservation as well as forest resource generation, a forest with the given terminology 'Multipurpose forest' has been developed. To meet the villager's fodder requirement, Oak (*Quercus floribunda* and *Quercus glauca*) varieties have been planted along with species of sacred values like Devdar (*Cedrus deodara*) and Birch (*Betula utilis*). Some threatened species like Talis Patta (*Taxus baccata*) and *Acer Cesium* have also been planted there with the objective of conserving plants.

Since the ashram has had a positive influence on the villagers of Sosa, Jaikot, Chalmachilanso, Pasti and nearby villages, G.B. Pant Institute has opted for it as a medium to organise awareness programmes for these villagers. In one such attempt, a Nature Camp was conducted on the 20<sup>th</sup> and 21<sup>st</sup> of May, 2016 and Biodiversity Day was celebrated on 22<sup>nd</sup> May 2016, with an intention of enhancing the knowledge of the inhabitants regarding their native plants and animal species.

Attentiveness towards education, economic development, medical facilities etc. are crucial for reforming a society but the total transformation of an individual's body, mind and soul comes along the path of spirituality. Training can chisel the skills required to deal with the outside world but spirituality is instrumental in connecting with one's inner spirit. It gives a person an understanding of oneself and one's purpose of existence. Rising above paltry things, it invokes a sense of love and responsibility for the self and the others.

In a mountain community living in grinding poverty and harsh climatic conditions with limited exposure and resources, Narayan Swami, an enlightened soul, walked in to show the real essence of life. He knew that when a genuine feeling of piety and devotion is instilled among people, society becomes stronger and the chances of curbing social evils increase. *Bhajans* (devotional songs), *Keertans* (narration or shared recitation of spiritual ideas in musical form), *Katha* (a long discourse) and meditation are some

of the spiritual activities enjoyed by ascetics, visitors and the local devotees of the ashram.

As a tool to self-realization, the ashram still organises camps in the months of April-May and September-October, where Knowledge on '*Vedant Upanishad*' (Vedic literature) is imparted and classes on '*Dhyan Yog*' (*dhyan* or meditation as a yoga exercise) are held. The number of batches varies from eight to eighteen with almost 60 people in a batch, in which devotees, pilgrims and campers all take part. But whatever the objective of their visit, each find solace in this divine land.

As I struggle to collate the tremendous contribution of a single ashram, one of Narayan Swami's sayings resonates in my head: "***There is no limit to what God can do, if we pray and believe.***" Indeed, this and many such motivational quotes by this enlightened soul could inspire millions willing to manifest their dreams by adopting the path of spirituality.

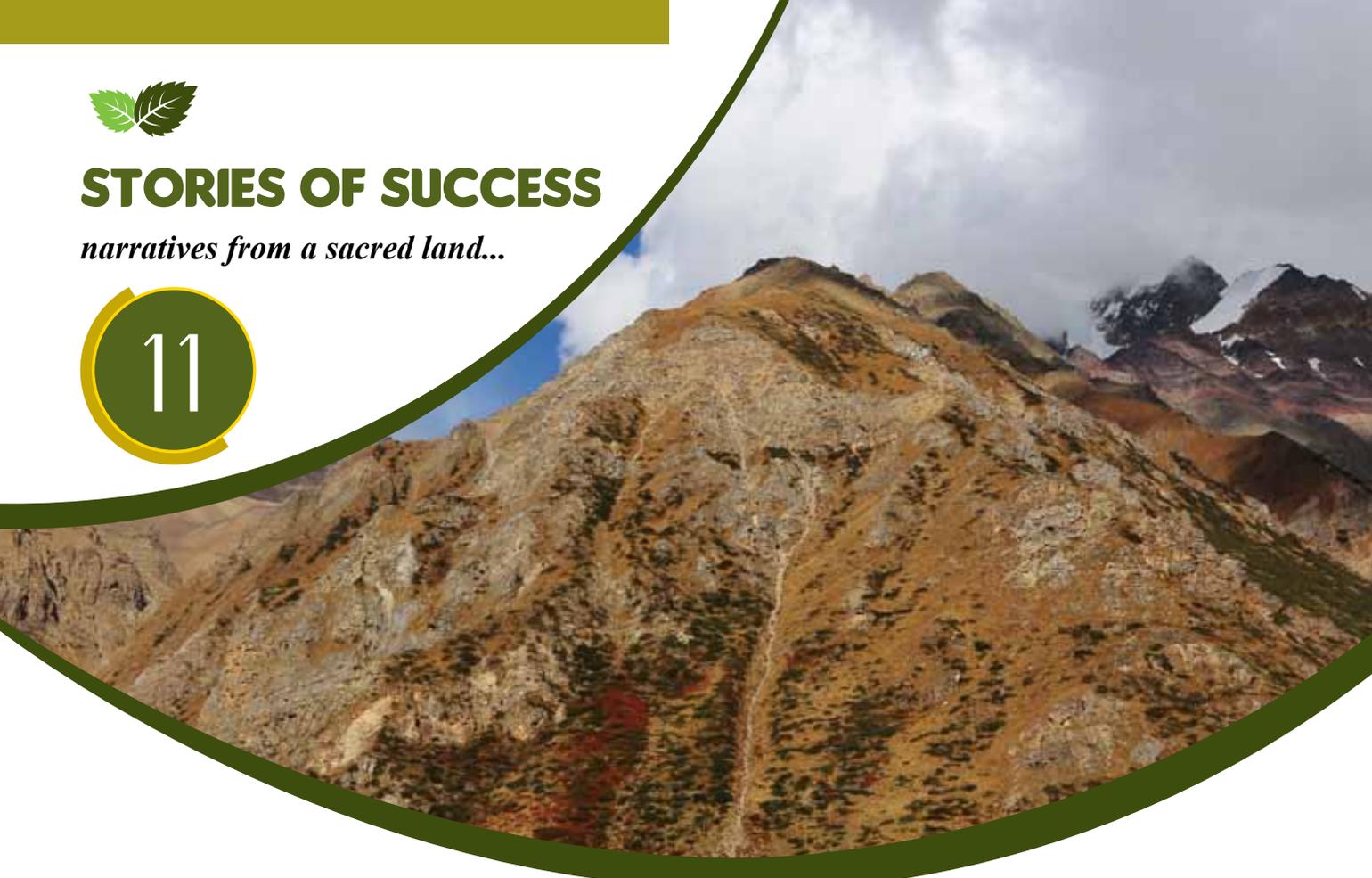




## STORIES OF SUCCESS

*narratives from a sacred land...*

11



# Monitoring Changes in Alpines: First ever GLORIA sites in Indian Himalaya

**A**s an integral part of nature man is endowed with the intelligence to visualize the danger ahead. All his sensory faculties are dynamic enough in making him fittest in the journey of survival. This journey of survival carries with him several challenging and successful stories. However, in recent decades, Climate Change (CC) or the global warming has emerged as the subject of utmost concern for human beings. Therefore, at present juncture of human civilization, for different forums, be it political, economic or scientific, CC and its consequences are the most debated topics world-wide. In particular, the research community across the globe is intensely pondering upon drivers and consequences of changing climate. The human induced rise in global temperature, due to various reasons, and the unprecedented changes in the land use has affected most of the natural systems. Further, the on-going processes of infrastructure development and consequent over exploitation of natural resources has resulted in the fragmentation of habitats and loss of biological diversity. The cumulative impact of these processes have far reaching implications for existence of life, especially the unique and



critically threatened elements of biological diversity. This is an alarm call from nature to awaken human beings. Responses to this call are there from different corners, but the intensity varies. One of such responses includes increased investments for generating robust and long-term data-sets from diverse sectors to build scenarios, predict intensity of impact, and develop coping strategies.

### ***Uplands as climate sensitive ecosystems***

The mountains are considered amongst most climate sensitive ecosystems. As these mountains are the repositories of fresh water, biodiversity and indigenous cultures, and their ecosystem services benefit millions of downstream people, this sensitivity to changing climate has raised a global concern. Specifically considering the plant kingdom, high mountains provide shelter to many localized taxa in specialized habitats, referred as endemics. Therefore these areas hold a unique gene pool. Likewise these high mountains serve as reservoirs of water in the form of glaciers. Both glaciers and unique gene pool of high mountains are under severe threats due to global warming. Researchers are, therefore, concerned about fate of glaciers and unique biodiversity elements in uplands. Among others, the Himalayan mountains being young and sensitive to changing climate are recognized among the most vulnerable mountains.

### ***Towards understanding CC responses***

With an aim to pursue research and development agenda in the Indian Himalaya region (IHR), Indian Government has established G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD). The Institute follows a more holistic approach to deal with hosts of environmental problems in an interdisciplinary manner. Generating data-sets on responses of Himalayan biological diversity elements to changing climate, through long-term monitoring, has remained a major action area of this Institute. Of late, the Institute has realized paucity of long-term data-sets from alpine regions. This is not a good reflection particularly when we know that alpine ecosystems (i.e., the high mountain environments above the treeline) are particularly sensitive to global warming. This brings the native and endemic elements,



## **‘ग्लोरिया’ अनुश्रवण क्षेत्र**

जलवायु परिवर्तन के वर्तमान दौर में परितन्त्रीय घटकों में पड़ने वाले प्रभावों की जानकारी एक मुख्य कार्य बिन्दु बनकर उभरा है। समस्त विश्व में इस दिशा में अनेकों शोध व अध्ययन हो रहे हैं। जलवायु परिवर्तन से सर्वाधिक प्रभावित होने वाले सम्भावित क्षेत्रों में एक है पर्वतीय परितन्त्र। इनमें से भी हिमालय पर्वतीय परितन्त्र अपनी विशालता व भंगुरता के कारण अत्यधिक जलवायु परिवर्तन संवेदी क्षेत्रों में माना जाता है। विडम्बना यह है कि इस क्षेत्र के दीर्घावधि आँकड़ों का नितांत अभाव रहा है। अतः प्रभावों का सही-सही आकलन अत्यन्त कठिन है। खास कर उच्च शिखरीय अल्पाइन परितन्त्र, जिसे जलवायु परिवर्तन से सर्वाधिक प्रभावित होना है, अपनी दुर्गम अवस्थिति व मौसमी कारकों की वजह से अभी भी बहुत कम समझा जा सका है। इसी तथ्य को समझते हुये कैलाश परियोजना के तहत विशेष प्रयास किये गये। इन्हीं प्रयासों का परिणाम है कि दो दीर्घावधि मॉनिटरिंग साईट, मान्यता प्राप्त ग्लोरिया विधि को अपनाते हुये, स्थापित किये जा चुके हैं। पूरे भारतीय हिमालय क्षेत्र में यह अपनी तरह का पहला प्रयास है। आशा है कि इन क्षेत्रों से मिलने वाले आँकड़े जलवायु परिवर्तन के दीर्घगामी प्रभावों को समझने में सहायक होंगे।

which are more frequent in alpine areas, under high risk of local extension. This prompted GBPNIHESD to take-up CC impacts on alpine vegetation as the priority. Responding to this need and utilizing the opportunities available under Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI), the Institute took the challenge of establishing Long-term Observation Sites (LTOS) in representative alpine areas of IHR.

#### ***Making of GLORIA sites***

The Global Observation Research Initiative in Alpine Environments (GLORIA) is an initiative towards developing an international research network to assess climate change impacts on mountain environments. The initiative focuses on a standardized setup of permanent observation sites that are applicable in all major mountain system on earth. GLORIA, a 'Multi-Summit' approach, aims to establish a long-term observation network to obtain standardized data on alpine vegetation patterns on a global scale.

Recognizing the importance of the network, researchers at GBPNIHESD under KSLCDI got motivated and organized

special expeditions in alpine areas of Kailash Sacred Landscape part of India during 2014-2016. As per the need, a team of multidisciplinary researchers was constituted to conduct the expedition. The task was not that easy in view of the complete lack of infrastructure, difficult terrain and inhospitable climate. However, the zeal of researchers prevailed and Institute succeeded in establishing first ever GLORIA sites in IHR.

Two sites, thus established, represent diverse precipitation regimes. The site in Chaudans Valley represents monsoon influenced greater Himalayan conditions whereas the Byans Valley site exhibits trans-Himalayan cold desert non-monsoonal conditions. Therefore, these GLORIA sites are best fit cases for comparing vegetation response to CC under diverse climate regimes of a common landscape.

Indian team of Kailash project partners had adequate experience of working in Alpine regions. This helped in organizing several rounds of deliberations before the expedition regarding selection of sites that fits best under the criterion of GLORIA protocol. Dr. G.S. Rawat, a noted alpine biologist at Wildlife Institute of India, suggested Kharangdang in Chaudans Valley



as one of the potential site. He mentioned “Summits in Alps are different than summits in Himalayas. Here we have more truncating or sharper summits compared to more undulating summits of Alps. Therefore, area specific modifications in the methodology as per the local needs would be required to fit in GLORIA norms”. This suggestion helped the team of researchers in locating the four summits, Bhairov Ghati, Kharangdhang, Ganglakhan and Shekukhan, to establish GLORIA site in Chaudans Valley (Pithoragarh District of Uttarakhand). This happens to be the first GLORIA site in IHR.

#### ***Convergence and negotiations***

Encouraged with the success, the team of researchers took a brunt of conducting yet another expedition during late monsoons of 2015 in Byans valley, a terrain full of difficulties. After almost one week’s arduous trekking team managed to reach Kuti and sets its base camp at the Kumaon Mandal Vikas Nigam’s Tourist Rest House. K. C. Sekar, Expedition Leader, reflects “after surveying the landscape for two days we could select the mountain summits for our experiments”. “In the evening, on our return, we used to sit and interact with

the villagers that enabled us to know about their culture, their cuisines, and traditions” mentions Vikram Negi, member of the expedition.

This expedition sets an example of convergence. The monitoring team of task force three under National Mission for Sustaining Himalayan Ecosystem (NMSHE) at GBPNIHESD joined hands with KSLCDI and pooled the resources (human, technical and monetary) for success of expedition. “Researchers of both the projects got benefits through this convergence. The remoteness, sparse habitations and inhospitable climatic conditions call for a larger group and more monetary resources to work in these areas, which is easily possible through such resource pooling” says K.C. Sekar.

While finalizing the summits, as per the GLORIA norms, which says the summits need to be free from any tourism and grazing activity, the team faced a major challenge. “This was a major challenge for us because in this region pastoralism is a major life support system for local community. Further, most of the area being highly sacred for local people, they get offended if any outsider goes to such areas. Thus we needed to





### *Preparations and trainings*

Setting up LTOS in such an area is not a fun. With lot of efforts an exhaustive list of essentials was made ready. This list includes both scientific and life support items. “Often in absence of adequate support staff we ourselves arrange all logistics, which costed us losing our time and energy before expedition in alpiners” told Ravi Pathak, a researcher. He, however, adds “ones the team reached the destination it was fully charged. It is always a fun to see the team proceeding on the job”. Wearing jackets, trekking shoes with woolen socks, sweaters and hand gloves, walking with stick support and sun glasses on their eyes, researchers marched like an army troop. Their knapsack carried laptop, camera, water bottles, torch and eatables and some recreational material to keep mind fresh. A first aid box was there with essential medical material. The rucksack carried tents, rain clothes, and site material like soil data logger, compass, GPS, clinometers, meter tapes, iron nails, ropes, slate, chalk, markers, trowel, hammer, quadrats, threads, soil auger, sample bags. Lenses to see micro plants and solar panel to charge electronics instrument were carried very safely. For taxonomical identity handy plant pressers were carried, explains K.C. Sekar. Various training and learning sessions and rehearsal formed part of the expedition. Team was taught, how to handle the complex web of site material while at summit.

### *While on the summit*

Right on the top of summit, a point in mid is taken as a point of reference, highest summit point(HSP). From HSP point, 5m down the summit on four cardinal points in geographical East, West, North, South (with the help of compass and GPS) each big 45 cm iron nails were pitched. That later on can be detected by metal detector. A rope was circumscribed round the summit tying to four nails pitched in four cardinal directions, at every point of rope keeping the distance 5m from HSP. The same way 10 m down from the HSP, another rope round the

locate the summits that were grazing free and for which there was no extra sentimental/religious attachment of locals. We negotiated with community and succeeded in locating suitable summits” says Kapil Bisht, member of the expedition. Thus the expedition concluded with establishment of four GLORIA summits Shyang, Kuti, Chaga, Eurong in Byans valley. Therefore, besides research and management acumen, negotiation skills plays a crucial role in these areas. The confidence building with mountain community residing in close proximity of LTOS also becomes crucial to avoid damages or disturbances to these sites. The area managers were informed on the program with its purpose. For being border line area inner line permit was required. And team members ever felt that permission from authorities at every level must not be overlooked.



summit was circumscribed tying nails at four cardinal points in geographical East, West, North and South. It was ensured that at every place the rope must measure in first circle a 5m and in second circle a 10m distance from HSP.

A 3x3m quadrat-cluster consisting of 9 quadrats of each 1 square meter was positioned at each cardinal point which is at a distance of 5m down from HSP. Each summit has four quadrat-clusters positioned at four cardinal points. Four corners of one quadrat-cluster in each cardinal direction that makes a total of 16 corners per summit, were sampled for uppermost cover surface types, and inventoried for a complete vascular plant species and their percentage sharing.

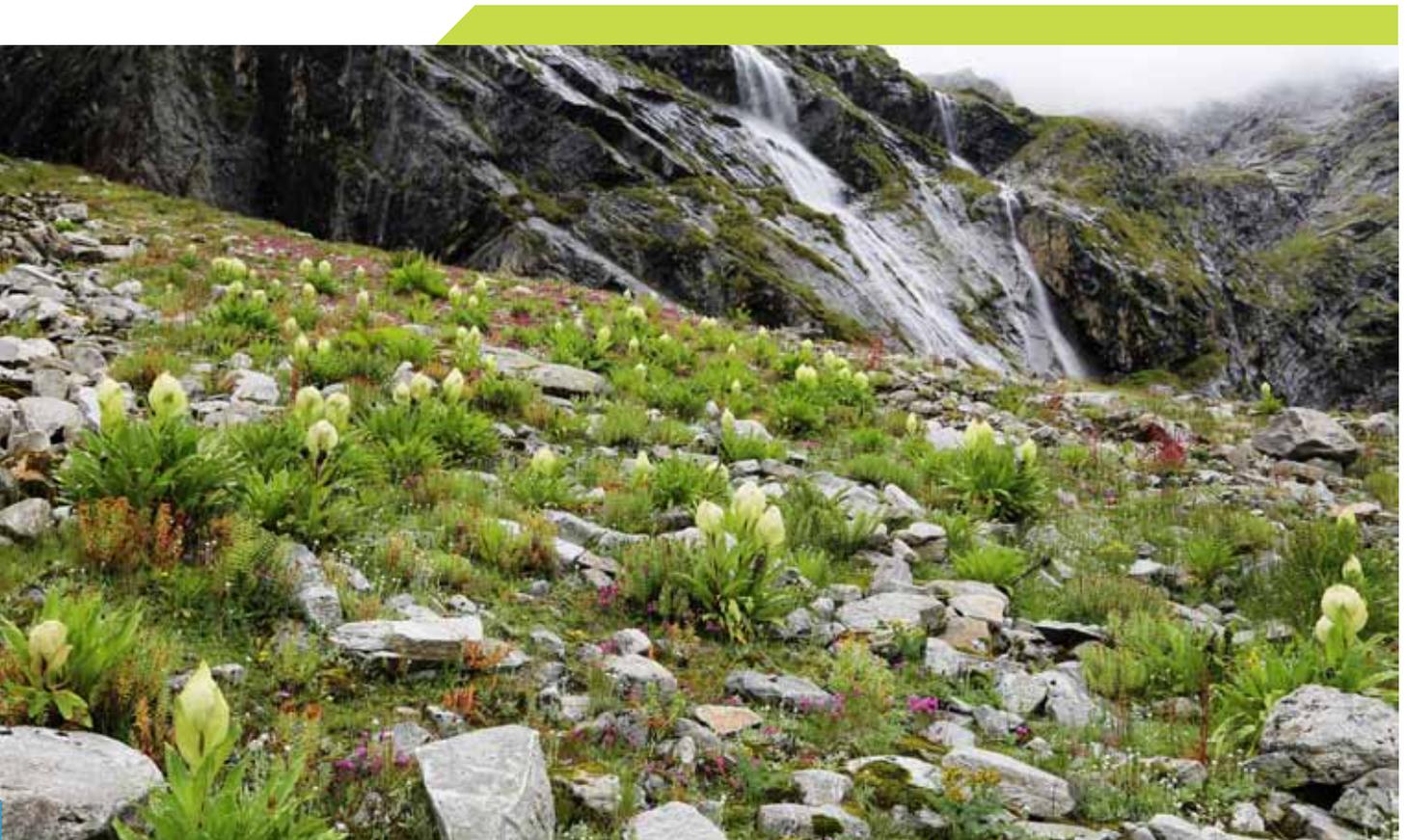
Soil Logger sensors; 15 in Chaudans valley and 16 in Byans valley were dug some 30 cm deep down in the soil placing right in the mid of 3x3m quadrat-cluster. They were set to record soil temperature at every two hours interval. Each summit was further divided into eight permanent Summit Area Sections (SAS): at each cardinal direction four sections at vertical 5 m down and four sections at 10m vertical down from HSP. Complete inventory of species was made considering all coordinates like latitudes, longitudes, altitudes, directions, aspects, area coverage, elevation, slope etc., and were collected for taxonomical identification. Some key species, showing different distribution were documented so that they can be monitored for their temporal and spatial changes. Data filled in the GLORIA formats on species diversity, distribution and richness, and soil temperature needed to be incorporated into GLORIA global network. A detailed analysis of data is under progress.

#### *The future expansion*

For long term monitoring in two alpine valleys on eight summits LTOSs were successfully established. Following the protocol, at an interval of five years, these sites need to be revisited to record the changes occurred w.r.t. the movement or the loss of plant species.



At present, the sites are away from human habitation and given the speedy outmigration of highland inhabitants the team assumes that these sites will remain relatively untouched in future as well. But nothing is certain to remain unchanged. A GLORIA summit may experience human impacts or become tourist destination. The field data gathered on culture, socio economy, natural resources, grazing, tourism and other aspects of the area would be important to find the changes occurred in social aspects of the area. The Institute intends to have more such representative sites in the Indian Himalaya so as to create a mini network within the region. This is required to effectively gauge the propensity and impacts of global warming in different alpine areas of the region, which helps in scenario development and designing conservation strategies for these *hitherto* neglected areas in Indian Himalaya.





## STORIES OF SUCCESS

*narratives from a sacred land...*

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# Springs Rejuvenation: Approaching water sustainability

**W**ater is responsible for the origin of life and it sustains all living beings on the earth. Since the beginning, all human settlements have developed around or near water bodies. Among other forms of water bodies, spring is a vital component of eco-system which provides vital water services to landscape and people. Particularly in for people living in the remote, geographically isolated and tough terrains, springs have always been considered as a boon. Despite their key role in sustaining life, springs have been under crisis in recent times. Perennial springs turning seasonal are a strong indicator of depleting aquifers. Spring is a surface water expression of recharged aquifers. The drying of spring indicates depleting underground water table. And the quality of water indicates the human-induced environmental impacts on spring water. A society that integrates around a resource, on the depletion of that resource starts disintegrating. Also, a crunch of water source breaks the social harmony.

While implementing Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI), researchers from G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD) through pilot assessments realized that over 35% of springs in the landscape are critical which make about 40% of dependent villages vulnerable. Recognizing this issue, the Institute launched a Springs-Shed Management programme in pilot sites of Gorang Valley of Chandak-Aunlaghat Watershed (CAW). Spring-Shed Management (SSM) is a dynamic approach that comprises of 8 steps and aims at rejuvenating springs. Following a systematic approach, GBPNIHESD initiated multipronged activities. Beginning with a meeting on 31 December 2014 in Hat-Kalika Watershed (HKW) that established dialogue with the local community to derive ground level information on water availability, utility and dependency, the programme progressed through a two day training programme-cum-field workshop organised in both HKW and CAW on 24-25 June and 18-19 August 2015, respectively.

In order to plan out the spring identification, inventorying and mapping exercise, primary information from the fields are required. Local community in themselves are a reservoir of information on their geographical area and natural resources. The programme was therefore designed to encourage the involvement of rural communities. During the field exercises, the local youth who can be used as resource persons to carry out the field surveys were identified and trained on the technique of measurement of spring flow rate and on the use of rain gauge. One of the active resource persons, Mr. Pooran Chandra Patni from Digtoli village of Gorang Valley demonstrates how he measures and records the amount of precipitation using the manual rain gauge installed in his

# SPRING-SHED MANAGEMENT

## जल स्रोत प्रबन्धन

पर्वतीय क्षेत्रों में पानी की कमी एक मुख्य समस्या बन कर उभरी है। मुख्यतः गर्मियों के मौसम में ग्रामीणों का मीलों दूर से जल भर कर लाना इस समस्या की भयावहता को दिखाता है। कैलाश परियोजना के अन्तर्गत किये गये सर्वेक्षण दर्शाते हैं कि लगभग 35% प्राकृतिक जल स्रोत और इन पर निर्भर लगभग 40% गांव संकटग्रस्त हैं। इस समस्या के समाधान के प्रयास शीघ्रताशीघ्र होने आवश्यक हैं। इसी क्रम में गो.ब.पन्त राष्ट्रीय हिमालयी पर्यावरण एवं सतत् विकास संस्थान की अगुवाई में “स्प्रिंग सेड मैनेजमेंट” की अवधारणा को कार्यरूप देने का प्रयास गोरंग घाटी क्षेत्र में हुआ। वैज्ञानिक तथ्यों पर आधारित यह प्रबन्धन न केवल प्राकृतिक जल वरन् अन्य परितन्त्रीय सेवाओं को भी सम्बर्धित कर सकने की क्षमता रखता है। सुनियोजित जन भागीदारी, वैज्ञानिक आँकड़े व सुनिश्चित अभियान्त्रिकी का समावेश इस प्रबन्धन की मुख्य ताकत है। लक्षित क्षेत्र के समुदायों को वैज्ञानिक तथ्यों की जानकारी देकर उन्हें प्रबन्धन कार्यों में सहयोग हेतु उत्साहित किया गया। वन विभाग को भू-जलीय परिस्थितियों व संरचनाओं की जानकारी की उपलब्धता से उचित अभियान्त्रिकी हस्तक्षेप को सही दिशा में आगे बढ़ाने की प्रेरणा मिली। इन सभी समन्वित प्रयासों का परिणाम जल स्रोतों में बड़े हुये स्राव के रूप में देखने को मिला है। यह प्रारम्भिक सफलता भविष्य की एक बड़ी सफलता की ओर इंगित करती है।

village. Four manual gauges are installed at various locations of Gorang Valley covering an altitudinal range from 1688 to 1892 m asl along with two automated rain gauges, informs a research scholar Mr. Shailendra Bhandari from GBPNIHESD. The rainfall data collected from the field would be helpful for long-term monitoring of the site and studying rainfall patterns. Such weather data acts as a vital source for understanding the weather variability and climate change pattern. The rainfall patterns have high bearing upon the water discharge of the springs and can also be used to monitor the associated habitats in the area.

A Multi-Institutional Partnership approach helps ensuring a well-knit plan. To strengthen this ideology, diverse partners came on a common platform sharing their knowledge during a two day partners' workshop on “Spring-Shed Management in Himalaya” held on 7 - 8 October, 2015 in Pithoragarh. The representatives from the ICIMOD, KSLCDI partner organizations (i.e., WIL, UKFD, CHEA, ACWADAM, GBPNIHESD), local NGO partners (HGVS and HSS) and local resource persons actively participated in the workshop. To develop inter-linkages between diverse inputs, such coalition is essential in the successful implementation of site plans. The discussion emphasised on developing a similar methodology that is easy to adopt and do not deviate from addressing the common objectives and achieving the common goal of the programme. The formatted questions developed to carry out Focus Group Discussions (FGDs) at village level were presented in the course of final discussions to round them up in final testing.

Building up a common consensus among various stakeholders helps to keep the continuity of the programme intact. Therefore, soon after the workshop, convergence meetings were held in Gorang valley and HKW on 18 and 20 December 2015, respectively. The organised meetings intended to build up cooperation amongst the concerned community representatives, villagers and heads of Village Forest Council (Van Panchayat) and other local self governing bodies and





**The GBPNIHESD researchers identified and mapped around 53 springs (27 naulas and 26 dharas) which are either perennial or seasonal in nature in 17 villages of Gorang Valley of Pithoragarh district in Uttarakhand.**





to formulate strategies that would facilitate the managerial functioning of the programme.

In view to implement the programme in the sites, Focus Group Discussions were conducted in different parts of both the watersheds to explore the socio-political scenario of the area and the system of the governance as well to authenticate the pooled information. Digtoli, Seem and Chheda villages of the Gorang Valley and Chitgal and Uprara villages of HKW were selected to carry out the FGDs during the months of April, July, August and September 2016.

A community based approach ascertains due participation of the villagers and their knowledge-capacity building. This ultimately helps building a self-sustaining mechanism to ensure the perpetuity of the programme. In this context, GBPNIHESD, with its KSLCDI partner Uttarakhand Forest Department (UKFD), conducted yet another one day training-cum-field workshop on 19-August 2016 at a small hamlet called Aitola which forms the part of the Nakina *Van Panchayat*.

Following the willingness of community and UKFD, under the SSM programme, GBPNIHESD selected a hillock that comes under the hamlet Aitola and is surrounded by nearly five villages and many small hamlets, as an ideal location to implement a geo-hydrology based Spring-Recharge concept.

Dr. Rajesh Joshi, who leads the water component from GBPNIHESD under the KSLCDI project, spoke on the initiatives taken in the direction of spring rejuvenation in Indian part of Kailash Sacred Landscape. Addressing the local community present during the workshop, he explained the procedure of selecting the pilot sites and carrying out the survey process in Gorang Valley. An exhaustive survey carried out in the area helped identifying the water deficit villages. It was informed that the villages like Chheda, Bhurmuni, Nakina,

Digtoli are facing acute water crisis since the water demand is exceeding the supply. The GBPNIHESD researchers identified and mapped around 53 springs (27 *naulas* and 26 *dharas*) which are either perennial or seasonal in nature in 17 villages of Gorang Valley of Pithoragarh district in Uttarakhand. In a simple science language, Dr. Joshi explained how study of hydrology when related to the geological structure of the rocks yields desired results. When percolated water gets accumulated in the under structured rocks, it helps in raising the water table. In order to enhance the underground seepage of water, recharge ponds and trenches (*khaal and khanti*) will effectively increase the water retention capacity, Dr. Joshi explains.

There could be several factors responsible for a spring to dry. Over-exploitation of natural resources, over-grazing, land-use changes, and fragmenting habitats may result in the loss of forest cover. The extent of forest cover affects the precipitation and soil moisture level of an area. Shrinking of forest cover is one major factor responsible for depleting underground water table that can consequently be related to decreased water discharge rate in springs. Considering this, plantation activity has also been included in the spring rejuvenation micro-plans. Numerous levels of efforts have been made to sensitize community on climate change driven water scarcity in the area. This has motivated the villagers, especially the key players from the surrounding villages to come together for a common cause. Gathering 96 volunteers from 4 different villages that willingly participated in the workshop was in itself a successful attempt to connect people to the revival of their resources. The volunteers enthusiastically planted one hectare of open land patch on the top of the hillock, The species included Oaks (*Quercus leucotrichophora* and *Quercus glauca*). Also, the villagers learnt to construct recharge ponds, trenches and bunds in hill slopes



to facilitate water percolation and retention of soil moisture. Heading towards Digtoli, 20 km from the Pithoragarh town, one comes across Chheda, Chanana Pande, Bhurmuni and Nakina villages lying on a stretch of 9 km. Any conversation with locals can clearly indicate how these villages are experiencing severe water crisis. Most people indicate that the situation has worsened up in the last 10-15 years. One can find on road head, dried hand pumps. As one enters the village Digtoli, it is common to see children carrying water vessels in their hands and on head. This is a strong indicator of water crisis prevalent in that area. Observing the scenario, one can't help but realize a need of an effective intervention that could deal with the water shortage problem.

It was the precursor for GBPNIHESD and partners to intervene with the SSM plan. The plan started with a pilot project in Digtoli village and was carried out in collaboration with various line agencies and due involvement of local community. Out of thirteen identified springs in Digtoli area, five springs were selected for the villagers having high dependency on them. These springs are Shivalaya, Naunipani, Panigair, Padpani and Bajni. Digtoli, a Gram Sabha comprising more than 80 families, has Digtoli and Jhunkholi as its revenue villages. Also, small hamlets, Dadi-pata, Kitan, Tanhi and kate tok exist around the main villages. Out of five selected springs, Shivalaya spring bears the maximum pressure for highest rate of dependency of villagers. This perennial spring is able to meet water requirements even during dry spells. The villagers in case of Shivalaya spring had constructed two *naulas* by directing the spring water directly to a reservoir. However, both the *naulas* are no more in use and the discharge from the spring is now channelized into one single direction in the form of *dhara* without having any storage structure built. Naunipani is the other perennial spring but its discharge reduces during summer season. Around 20 families from Dadi-pata tok and 8 families from Tanhi tok rely on Naunipani spring to fulfil their basic water requirements. Panigair, on the other hand is a seasonal spring. Mr. Patni informed that the knowledge of the source of this spring came at the time of road construction to





Digitoli. Water from this spring is available in monsoon but is very scanty during peak summer. It takes 2 to 3 minutes to fill 1 litre of container with the spring water, he added. Padpani *naula*, lying on the way to Jhunkholi from Digitoli provides water to 6 families of Kitan *tok* throughout the year leaving two months of summer season.

The implementation process of the SSM plan at sites started with trench-recharge pond digging and area plantation at identified recharge zones of springs under technical guidance of GBPNIHESD. With an intention to increase the recharge period in case of Bajni *dhara* that is monsoonal in nature, around 8 *khaal* and 200 *khanti* were dug by UKFD in its identified zone along with some plantation activities. Approximately, 50 trenches have been developed in the recharge areas of Panigair and Padpani springs.

The 65-year-old Pooran Chandra Patni, shared his observations on the changing rainfall pattern he has witnessed in his life time. He perceives in earlier days, there remains a plenty of water flowing in the streams for a longer time. Except two months of summer, water was available the entire year. He relates this phenomenon with the reduced spell of rainfall. Though GBPNIHESD has adopted Digitoli as a long-term spring-shed development and implementation site but in direction of a quick- effective measure, a rainwater harvesting tank has been constructed in Mr. Patni's courtyard as an initiation.

Most apparent intervention, following the detailed hydro-geological mapping of spring-shed area, has come from UKFD. The department has created a huge pond at the top of Aitola. This provides space for storage of surface runoff water and subsequent percolation. The interactions with villagers reveal increased discharge of springs after this intervention. Also, initial data-sets generated by the researchers are indicative of increased discharge of springs in the range of average 16% summer and 20% monsoon.

This systematic intervention supported by scientific understanding and collaborative implementation has emerged as one of the successful example for addressing water sustainability issue in hills.



## STORIES OF SUCCESS

*narratives from a sacred land...*

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# Participatory Ecosystem Management: Towards sustaining services

**H**imalayan ecosystem is enriched with diversity of landscape elements, such as, mountains, forests, agriculture, grasslands and water bodies, etc. In these mountains, the variations in altitude, determine differences in climatic conditions and thereby in flora and fauna. The interspersed mountain villages along these altitudes, with relatively thin populations and unconsolidated agricultural land, characteristically exhibit a high dependence on diverse biological and physical resources.

Therefore, any landscape in the Himalaya represents a matrix of diverse habitats, natural resources, and a harmony between man and nature which helps in regulating the flow of life. Mountain communities have historically shared strong but complex relationship with various components of ecosystem, forming a bonding connect with nature. The geographical and political marginality and lack of livelihoods, however, add to fragility and vulnerability of this interconnected system. The sites of such disruptions in man nature connect are not uncommon. All such sites clearly reflect decline in flow of ecosystem goods and services.

Therefore, ensuring continuous supply of goods in the form of food, water, timber, etc., and regulating services such as easing temperature fluctuations, controlling soil erosion and land hazards, diseases and pest attacks, etc., which the ecosystem provides, assumes a priority. This calls for protection and restoration of such degraded ecosystem through effective management. Here, arises the need of a management plan that considers holistic development of an area by way of equally targeting socio-economic and ecosystem needs.

Multi-institutional partnership for implementing an effective multi-disciplinary approach could be the key to successful management of an ecosystem. However, it is not an easy task. Such concepts and ideologies can be proved through pilot testing. Realizing this, village Bans-Maitoli has been selected as a pilot site to set a successful model of ecosystem management. The village lying within the Indian boundaries of Kailash Sacred Landscape falls in Chandak – Aunlaghat (Gokarneshwar Gad) watershed.

The team of researchers from Wildlife Institute of India (WII) came forward to coordinate desired integration for holistic management of the ecosystem. The integrated programme has been designed carefully taking into consideration ever increasing degradation of watershed and its ecosystem, a key issue for the management plan. Availability of various partner organizations of KSLCDI (i.e., G.B. Pant National Institute of Himalayan Environment and Sustainable Development - GBPNIHESD, State Biodiversity Board - SBB, Uttarakhand Forest Department - UKFD, Central Himalayan Environment Association - CHEA ) along with technical and financial support from International Centre for Integrated Mountain Development (ICIMOD), was instrumental in development of the plan

# ECOSYSTEM MANAGEMENT

and pilot level implementation.

Bans – Maitoli, a Gram Sabha comprising of 427 families, lies in Bin block of Pithoragarh district, Uttarakhand. Covering an area of approximately 500 hectare, the Gram Sabha encompasses 9 hamlets (*tok*) that are Bans (Dukan – Sadak), Maseuti, Nagar – Manu, Kalsinkatiya-Adkini, Maitoli - Kafaldungri, Bhadi- Panthuda (including Bidkhet, Ghatmalgaon), Bageecha (including Shyamkhet, Kalaizer), Dumet, and Tail Patal. Moving some 25 km west of town of Pithoragarh, one reaches Kafaldungri, a *tok* easily accessible by road. *Sarpanch* (head of Village Forest Council) Mr. Darshan Singh Bhandari is mostly available to apprise with the wide ecosystem diversity that his area is endowed. Pointing to the forests lying on the typical slopes of the hills, visible from the *tok*, he tells that two forests of *Banj Oak (Quercus leucotrichophora)*, one *Chir Pine (Pinus roxburghii)* stand come under the Bans – Maitoli's geographical area. Another forest of *Sal (Shorea robusta)* lies across the boundary of Tail Patal. Down from the road head, one can see the low lands studded with agricultural fields and as one moves around 5 km further from Kafaldungri, a grassland ecosystem comes into sight, known as Jhulli area. It comes under the land of *Van Panchayat* (Village Forest Council) of Bans – Maitoli. The *Van Panchayat* is spread across 131 hectare of which around 13 hectare makes the Jhulli area. The assessment of the type of ecosystem services that Jhulli area is providing as a grassland ecosystem was made for the implementation activities to be carried out. To restore the degraded pastures, Darshan Singh informs a number of *Khanti* (trenches) have been dug. Along sides of these *Khanti* plantation of Napier Grass, fodder and fruit-bearing trees has been done. He informs that a Nursery has been developed for raising planting material but the major challenge in pasture development is to check grazing so that the plants could get 4 to 5 years of time to grow beyond the reach of grazing cattle.

Adopting weed control measure, and following community participation approach, *Kala Bansa (Eupatorium adenophorum)* a notorious weed, has been removed substantially from the area. Under the weed eradication programmes, NSS Camps of students were organised. Students from schools of Pithoragarh were involved in weed eradication and cleaning programme for complete 3 days. Through this program while students were engaged in weed removal, they got adequate learning and education on negative effects of weed invasion on biodiversity and agro-ecosystem. Agencies like WII, UKFD, GBPNIHESD, and SBB with multiple expertise came together to lend their support and guidance to develop and restore the degraded habitats of Julli area. It was informed that around 20 Bans – Maitoli village women under the leadership of Mr. Rajkumar Khatri worked together for 10 days to clear about 5 km of village radius from invasion of *Gajar Ghaas (Parthenium hysterophorus)*. *Kala Bansa* and *Gajar Ghaas* are the invasive weed species dominant in this area. Mr. Lalit Prasad, a 76 year old resident of Kafaldungri *tok* tells that he is noticing the growth of *Kala Bansa* in his area only for the last 10-12 years. Interestingly, one could notice that the villagers seem well aware of the medicinal property of *Kala Bansa* to heal up fast the wound and its use to form rich compost. Piles of uprooted *Kala Bansa* dumped in pits for composting can easily be seen.

Another measure of long-term conservation and development of fodder and other useful species is visible at Bans under the *Van Panchayat* land. Around 10 hectare area is planted with

## प्रतिन्त्रीय प्रबन्धन

पर्वतीय परितन्त्रों की पर्यावरणीय सेवाएँ इन क्षेत्रों में जीवन की निरन्तरता को कायम रखने में महत्वपूर्ण भूमिका निभाती हैं। परन्तु विगत कुछ दशकों में पर्वतीय परितन्त्रों का ह्रास सर्वत्र देखने को मिल रहा है। फलस्वरूप इनकी पर्यावरणीय सेवाएँ प्रभावित हुई हैं। अतः इन सेवाओं के प्रवाह में निरन्तरता कायम रखने हेतु आवश्यक है कि परितन्त्रों का प्रबन्धन समेकित रूप से हो। यद्यपि यह एक अत्यन्त जटिल विषय है। तथापि इस बात की सम्भावना मानते हुये कि, इस प्रकार के प्रबन्धन को एक छोटे से क्षेत्र में प्रयोग कर प्रदर्शन प्रारूप स्थापित किये जा सकते हैं, कैलाश परियोजना के तहत पिथौरागढ़ जनपद के बांस-मैतोली ग्राम में एक प्रयास किया गया। भारतीय वन्य जीव संस्थान की अगुवाई व अन्य भारतीय सहयोगी संस्थानों के सम्मिलित प्रयास से ग्रामीणों के साथ मिलकर एक परितन्त्र प्रबन्धन योजना बनाई गई। योजना के विविध कार्यों को अलग-अलग संस्थाओं द्वारा कार्यान्वित कर प्रबन्ध योजना को समेकित रूप से सफल बनाने का प्रयास रंग लाया और परियोजना से जुड़ी विविध संस्थाओं के साथ सामुदायिक संस्थाओं की भागीदारी व आम जनता की प्रतिभागिता से यह प्रबन्ध योजना धरातल पर उतर कर लोगों व परितन्त्र को लाभ पहुँचा रही है।



fodder species along with trenches. A board stands at the site reads Forest Department, Pithoragrah as executing department, supported by GBPNIHESD and funded from ICIMOD. The boundary of 10 hectare area is barred with fences to restrict grazing, most probably for this reason the area is showing more than 50 percent plantation survival rate, relates Darshan Singh. An intense plantation of Rambans (*Agave americana*) is also seen at certain patches. The thorny plants are acting as an effective bio-fencing to ward off wild pigs. Around 800 m of village boundary has been fenced using *Rambans* by villagers under the leadership of Ms. Durga Devi who is a member of BMC (Biodiversity Management Committee) formed in the village. According to some residents of Bans – Maitoli, common monkey (*Rhesus macaque*), wild pigs and common leopard are some animal species affecting agricultural crops and livestock in their area. Working in close coordination, WII and UKFD have assessed and mapped the hot-spots of Human – Wildlife Conflicts with an aim to minimize crop and livestock losses. Across the boundary of Tail Patal *tok* there exists a mixed forest of Sal and Pine. Along the boundary of the *tok*, a 1200 m long wall with 1 m of height is built to deter wild pigs entering the *tok*. Owing to this intervention of UKFD, one can see now lush green paddy fields which were once left barren by villagers due to frequent raids of wild pigs on the standing crops. Tail Patal irrigates its land from water of a rivulet called *Jhajan Ki Gad*. In absence of adequate drinking source in the forests, wild species enter the human habitats thereby increasing the chances of man animal conflicts. In this context, artificial water provisions have been made by creating waterholes and puddles in the forests of Oak and Pine. Darshan Singh reports construction of total 8 cemented artificial depressions along with 8 trenches dug in the forests land to store rainwater.

Not only wildlife, human habitats are also facing water scarcity. Listing out the names of some rivulets of Bans – Maitoli: *Kafaldungri Gadera*, *Seemgad Gadera*, *Naughar Gadera*,

*Aathodhar Gadera* and *Jaridhar Gadera*, Lalit Prasad informs *Kafaldungri Gadera* is the only significant water source available throughout the year. The villagers witnessed some sources being dried up, turned monsoonal and in case of *Dhautera Gad* water level has significantly gone down over the years. To ensure continuous supply of water in the 9 hamlets of Bans – Maitoli, the participating agencies have come up with a holistic plan. After carrying out a detailed assessment of water availability and dependency of villagers on water sources, aquifers and water resources were mapped by WII and GBPNIHESD. Considering perennial, monsoonal and dried spring sources, a total 42 *naulas-dharas* have been listed in the area. Of these, 6 *dharas* and 3 *naulas* are being used for drinking water purposes. Many of the *naulas* (wells) and *dharas*(streams) were found abandoned, unclean or poorly maintained. Several implementation activities





were carried out to restore these *naulas* and *dharas* that had been traditionally used by villagers. This included cleaning and uprooting the weeds from the spring sources and digging of more than 50 *khaal* and around 450 *khanti* (recharge ponds and trenches). *Khantis* were bordered with grasses to retain moisture content.

WII, GBPIHED, UKFD and CHEA joined hands for ensuring continuous water availability even at dry seasons. A live example of restoring an abandoned *naula* is dhannauli *naula* at Maseuti *tok*. Here, a reservoir like structure was constructed to form *naula* and the spring water was channelized into one single direction as *dhara*. The community was trained on this to ensure cleanliness and maintenance of spring sources in near future by CHEA / Health Department.

Along with training, CHEA is involved in constructing

rainwater harvesting structures in identified water deficit areas. Darshan Singh is provided with a rainwater harvesting tank of 1000 litres. He utilizes it to irrigate his 8 to 10 *naalis* agricultural land to yield an annual profit of 60 to 70 thousand rupees in producing off-season vegetable production. One side of the wall of his shop is painted with the name of CHEA as an executing organisation in association with GBPNIHESD for Off-season Vegetable Production Value Chain in Bans – Maitoli under the KSLCDI Project, ICIMOD. By formation of 6 SHGs (self help groups) around 20 poly-houses, 4 solar cookers, 4 Biogas plants and 7 rainwater harvesting tanks have been provided with partial monetary contribution from beneficiaries. Training on vermi-composting pits has benefitted almost all the SHG members.

Apart from efforts to protect crop fields from animal raiding and promoting cultivation of off-season Vegetables as means of income generation, attempts were made to encourage cultivation of traditional crops on a large scale. Traditional grains and pulses like *bajra* (pearl millet), *mandua* (finger millet), *makka* (maize), *jhangora* (barnyard millet), *gahat* and *bhatt* are losing their value and interest of farmers in their cultivation. The objective of ecosystem management plan includes many strategies that could rebound the interest of farmers towards traditional crops cultivation. SBB has listed the traditional grains and medicinal plants of the area as part of conserving the traditional knowledge on mountain farming practices through documentation.

Albeit a pilot, this successful model of participatory ecosystem management provides ways for up-scaling. Most importantly, bringing community institutions such as Biodiversity Management Committee, Van Panchayat, and Women Self Help Groups, and Government Agencies such as Forest Department, R&D Institutions (GBPNIHESD, WII) together for the cause of people and ecosystem has been a success of this initiative. This cooperation of diverse stakeholders has established Bans – Maitoli pilot site as a successful model of holistic ecosystem management.





## STORIES OF SUCCESS

*narratives from a sacred land...*

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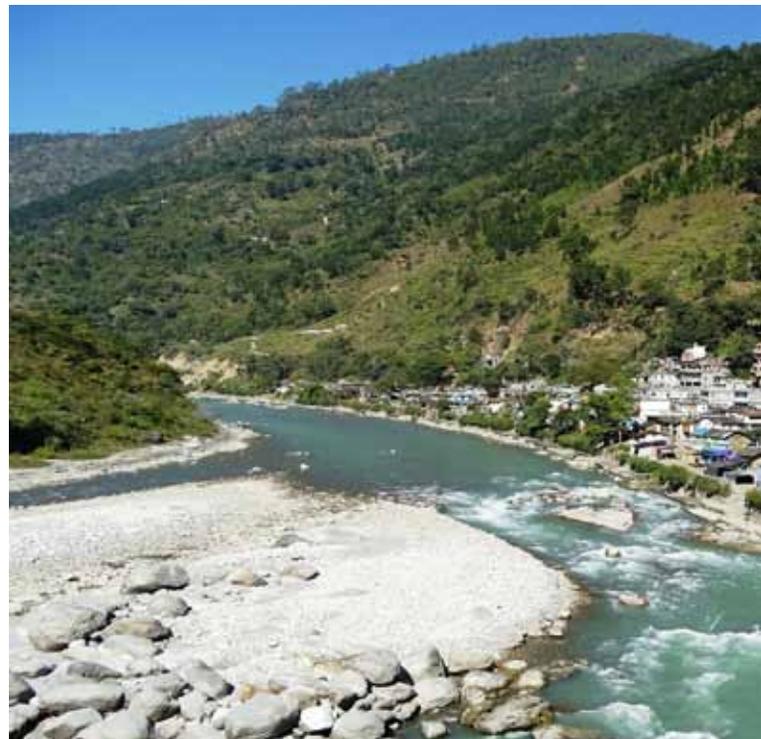


### Jauljibi Fair:

# An anecdote of Trans-boundary co-existence in Trade, Traditions and Culture

**I**ndian Himalayas owing to be a rich biodiversity spot have tremendous cultural diversity too. Culture exhibits man's processes of interaction with resources for making their existence possible. They made the things of their routine use out of the natural resource material available in their surroundings. In primitive culture through fair they exchanged local commodities through barter system and Jauljibi Fair shares and preserve the quintessence of old tradition except some strong endorsement of modern culture. Uttarakhand, a Himalayan hill state, is rich in temples, deities and religious ceremonies. A local fair or festival usually revolves around traditional customs, immemorial legends and ancient places of worship. They are also a reflection of the life style and livelihood activities that the community has been practicing since time immemorial.

Pithoragarh district enjoys many festivals of human interest. In some parts of Pithoragarh district, Hilljatra, for example is a festival celebrated by the agriculturist and pastoralist society, while the Haatkalika fair held at the Kalika temple in Gangolihaat block of Pithoragarh district is commemorated in



honour of the goddess Haatkali. Similarly, various fairs like the Nanda Devi *mela* of Munsiyari, Devidhura *mela*, Purnagiri fair etc. are held within the periphery of Pithoragarh district.

The Jauljibi Fair, however, holds a place of unique importance among all the fairs of Uttarakhand state. Trans-boundary trade is the main feature of this fair. Historically, the fair has been attracting traders beyond national boundaries. It has been a business ground for merchants from all across India, Nepal and Tibet because of its geographical location. Jauljibi, a small market situated near the Indo-Nepal border is around 65 km from Pithoragarh town and 30 km from Dharchula.

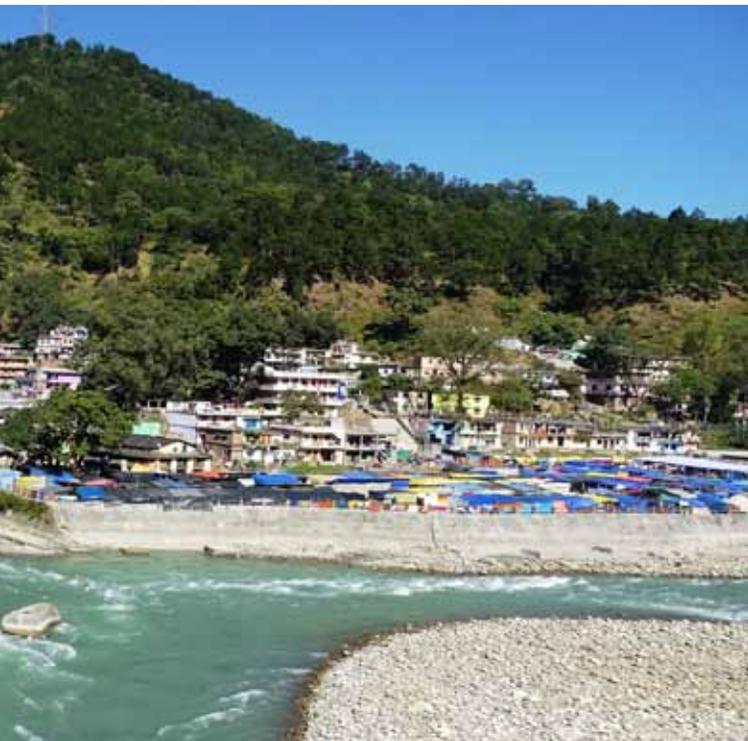
A suspension bridge constructed over the river Kali, connect Dharchula, an Indian trading town to Darchula district of western Nepal. The bridge acts as a free connectivity route for both the Indian and Nepalese. A similar bridge swings at Jauljibi; again connecting India and Nepal. Peeping down the Jauljibi Bridge, a majestic view of the confluence of Kali and Gori rivers will embrace the eyes. On crossing over to Nepal through this vibrating bridge, a market identical to Jauljibi with same name could be reached. The temporary market in Nepal side had vendors and traders with small stalls set up for the Jauljibi Fair having all sorts of material of human use.

Traditional cuisines play a pivotal role to make people enjoy trans- food and beverages. A *chai wala* (tea seller) informs that around 80 percent of customers to Nepal are Indians and they come all the way to the Nepal side crossing this bridge for tasting Nepali dishes and wine during the fest. The vendors even get a temporary alcohol-selling permit for 10 days. However, he also observed an almost sixty percent reduction in the number of stalls owing to the demonetisation of Indian currency notes of the 500 and 1,000 rupee denomination implemented from 8<sup>th</sup> midnight of November, 2016. Setting up a big stall for even 10 days, means payment of 3000 rupees as rent. He also complained of a significant reduction in sales of Nepali products. These impacts are a clear indication of how a currency crunch in the Indian economy can influence Nepali

# JAULJIBI FAIR

## जौलजीवी मेला

भारत-नेपाल सीमा पर स्थित, गोरी एवं काली नदियों का संगम स्थल है जौलजीवी। यह स्थान अपने परम्परागत ऐतिहासिक मेले के लिए प्रसिद्ध है। उत्तराखण्ड के मेलों में जौलजीवी मेले का एक अलग ही महत्व है। प्राचीन समय से ही इस मेले में भारत सीमा से लगे हुए नेपाल तथा तिब्बत से लोग स्थानीय वस्तुओं का व्यापार करने के लिए आते रहे हैं। वर्तमान में यह मेला मुख्यतः नेपाल भारत सद्भावना का प्रतीक बन कर उभरा है। यह मेला वस्तु विनिमय एवं सांस्कृतिक आदान प्रदान की प्राचीन परंपराओं को अभी तक संजोये हुए है। सीमा के आर-पार से एकत्र हुए समुदाय विभिन्न प्राकृतिक उत्पादों का व्यापार करते हैं। यहां पर इन समुदायों की बोलियों तथा सांस्कृतिक शैलियों में समानांतरता की झलक देखने को मिलती है। मेले में ऊन से बनी पश्मीना शॉल, स्वेटर, जुराब, थुलमे, दन आदि विक्रय किये जाते हैं। लकड़ी से बनी वस्तुओं में काष्ठ शिल्प के बेहतरीन नमूने देखने को मिलते हैं। संध्या काल में गूंजता हुआ संगीत व नृत्य सीमाओं के पार मानव को एक सूत्र में पिरोने का काम करता है। अनवरत रूप से चलता आ रहा यह मेला समीपवर्ती दो राष्ट्रों की संस्कृतियों के संगम का प्रतीक है।





economy too. Moreover communication and technology has made the world a global village. An event at this place makes various levels of impacts at other places.

Believed to have started in 1871 the Jauljibi Fair boasts a long history, by the then *Rajwar* of Askot, Pushkar Pal who permitted the use of the Jauljibi ground for a *mela*. From then onwards, a week-long fair has been organised at Jauljibi on every 14<sup>th</sup> of November, on the auspicious day of *Margshirsh Sankranti* (third week of November). Mr. Bhanu Raj Singh Pal, *Rajwar* of Askot, the erstwhile royal briefed me the history of the fair and the contribution of his ancestors to its involvement. In an interview with him he revealed that the fair held religious significance owing to the confluence of holy rivers but more importantly, it was a selling point of animals like yaks, horses, goats, sheep and their products. The *mela* ground was used to test the efficiency of horses from Tibet and the Indian plains, where customers could try them before buying the animal. Soon, the ground became a centre of animal racing competitions. Only eight or nine shops selling salt, jaggery and basic need items stood in the beginning. These shops ran

under the supervision of the royal family. The commerce was then based on the barter system where exchange of goods took place without using money as a medium. It was during the first Kailash Mansarovar Yatra, that tiny metallic pieces excavated during mining in nearby areas were used as tokens. These shapeless metallic pieces were in themselves the first kind of coins introduced in the area. On viewing these primitive





currencies of the past ages I felt touched upon the local history of the time.

Himalayas are rich repository of herbal plants. Collectors of herbs from wild have knowledge of their curing properties. The herbs of high therapeutic value do add into native culture to the fair. In his unoccupied time I availed the shopkeeper, Mohan Singh Bonal for a course of conversation over his involvement

in this fair. He has been selling medicinal herbs like Haredh (*Terminalia Chebula*), Jambu (*Allium Humile*) and Jata Mansi Dhoop (juniperus species) and woollen products at the Jauljibi Fair for the past 32 years. Through him the bygone commercial era of the fair got highlighted. He recalled how as a child he used to come with his grandmother who used to trade dried herbs brought from the upper regions of the Darma Valley. How traditional knowledge passes from one generation to another generation! The kind of knowledge exposure Mr. Bonal had in his childhood become the source of his livelihood later on.

Many Tibetan merchants used to bring raw wool, Tibetan rock salt, *Baas-Misri* (a kind of sugar) and goats to exchange with Indian *Pahadi Masala* (mountain spices), grains like *Mandua* (finger millets) and other traditional coarse grains. Those were the times when artisans, craftsmen and smiths from nearby districts used to sell handmade items. Copper containers called *Bhattu* (*choru or tola*) and *Phaula* (copper vessels for carrying water) used to come from Almora district while *Bhadela* (iron cauldrons) and leather handmade shoes manufactured in Lohaghat, were sold in the stalls. Unlike the present plastic-





fabricated stalls, earlier stalls were more like tents made from hard rough cloth.

In earlier times of limited accessibility and poor road network, *Jumli* horses were most valued owing to their skill in walking through narrow and rough terrain and their ability to survive in freezing environments. The small-sized animal got its name from the village Jumla, which is their original habitat. Jumla, a remote village in Nepal lies at the foothills of the Sise Himalayas at an altitude of 2730m. Sadly, Jumli horses are now in the endangered list. But even now, traders from the remote Humla and Jumla districts come to sell Nepali horses in the fair, covering a month-long journey on foot. The Jumla traders purchase woollen products in bulk spending Lakhs of rupees and sell them on their way back to the last border of Nepal where their village Jumla lies. Another animal whose products were and are still being sold in stalls is the *Chyor* cow (Tibetan Yak). The fibrous tale of the animal is considered sacred and used in various temples. Mohan Singh sells these tails at a good price of 2000 rupees and even supplies to *Gurudwaras* (places of worship for the Sikh community) in Amritsar. Bhairav Singh Aetwal, a 64 year old man from Darchula, further informed that the milk of the *Chyor* cow has medicinal properties and is given to infants. He has been selling rectangular pieces of *churpi* (yak milk cheese), butter and *ghee* (clarified butter) at the fair for the past 4-5 years. Such things render high nativity to the fair.

The fair was soon attracting traders and purchasers from Nepal, China and on the Indian side; Garhwal and some parts of Himachal Pradesh, besides Kumaon. But with the abolishment of the Askot principality on 11<sup>th</sup> November, 1967, the Jauljibi





Fair came to a halt for some time. In fact, the Pal dynasty ruled for a considerable amount of time and was among the last dynasties to get abolished. Mr. Bhanu informed that the last fair under the aegis of the royal family was organised by his father in 1967. He memorised that around 5 polar lamps were used to light up the fair during the crisis times of the Chinese aggression.

On being asked about the relationship between the Army and Jauljibi *mela*, he answered that the fair had served as a ground for recruitment of youngsters during the two World Wars. Establishing recruitment camps during the fest was a brilliant idea in those times when transport and communication technology was not so advanced. Youth from miscellaneous places visited the fair; this made the selection of best personnel comparatively easy. Even Mohan Singh informed that his father was recruited into the Army during the Second World War through this *mela*. In a way, we can say that the first of its kind Army recruitment process in the region started with this fair. One could still sense the craze and passion of Pithoragarh youngsters for joining the Defence Services.

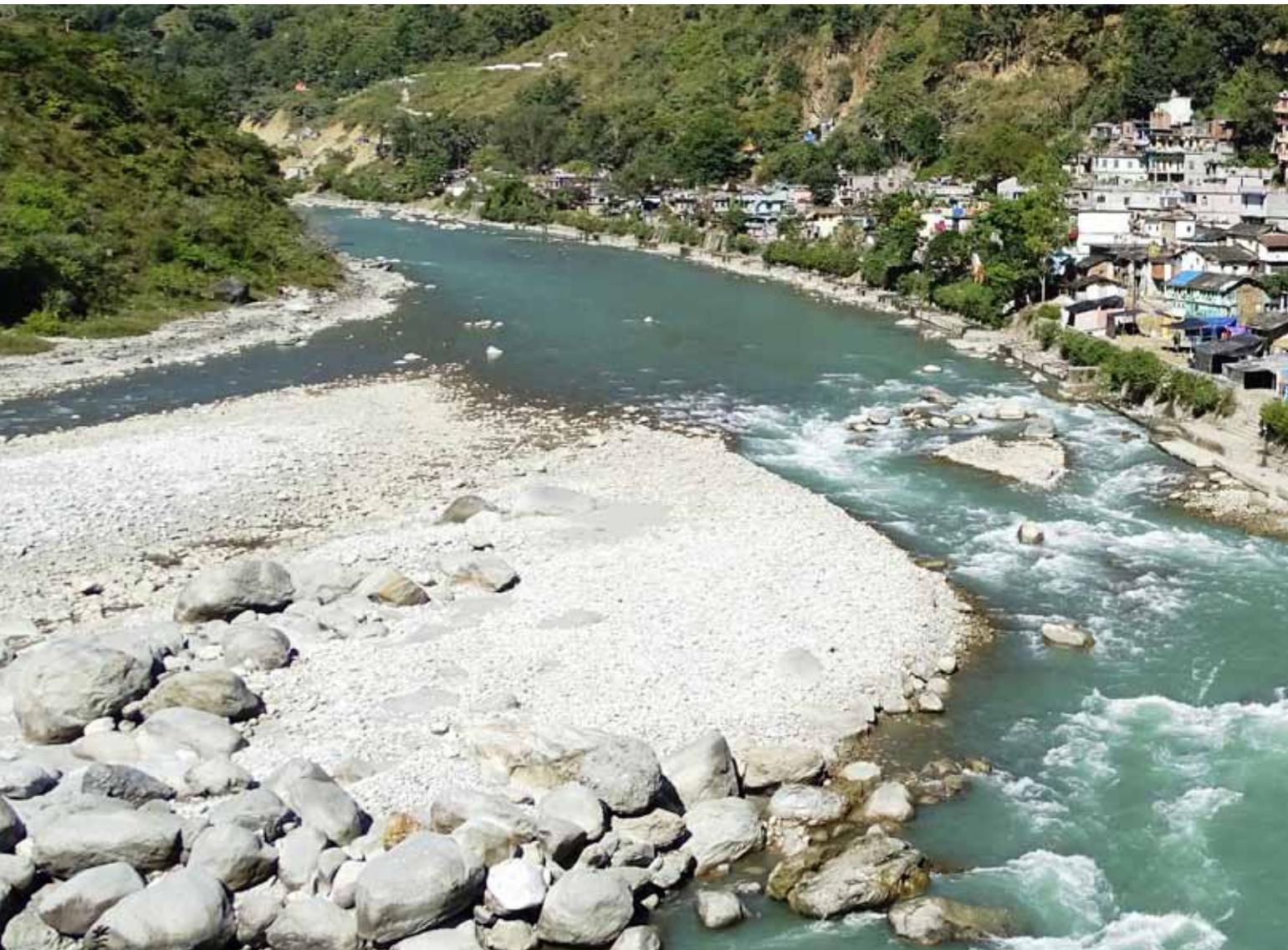
Nobody knew that the fair, which started with an intention of exchanging trans-boundary goods and services, would develop as a forum of cultural exchanges. Such transnational interactions are significant in terms of societal growth and evolution of any civilization. When individuals from diverse spatial distances with diverse cultural backgrounds interact, they adopt each other's cultural traits willingly or involuntarily. Cross-cultural communication can bring modifications or influence people's customs and style of living. For example, one can find many Nepali words being used in Indian local

languages and dialects. Similar resemblance in clothing and dance movements could be seen. Mohan Singh remembers, how, as a kid, he used to enjoy vocal singing with enchanting music from traditional instruments like *Dhol* (a brass leatherned North-Indian drum). These traditional instruments lost their importance with the introduction of digitised electronic musical gadgets and soon got confined to being played only during some special occasions. Jauljibi Fair provides a juncture to get all the trans-music, dance, and drama be harmonised. Change is ubiquitous to all culture. The fair has gone through immense changes over the last hundred years, displaying an altogether new modern version. Transport and digital communication has, in many ways, eased the business. Mohan Singh remembers how he and his family used to walk for 12 days from their village Jharjhool (18 km from Jauljibi, near Balwakot) to Darma Valley in order to collect wool and medicinal herbs from there. The collected material was then carried back to Jauljibi to be sold in the fair. “But now transportation and communication facilities have evolved so much that I can do my business over phone calls,” he declares. Unfortunately, however, development also has its drawbacks. Mohan Singh has witnessed a declining interest in traditional woollen products like *Chutka and Thulma* (woollen rugs) and *Dan* (woollen carpets). He moans that the new generation has become so fond of soft, synthetic wool that they do not realize the degree of warmth such products provide. From shearing, washing, carding and then weaving, the entire process takes a month’s time. The hand weaving process in itself takes 10 to 15 days and is mostly done by village women in their leisure time as a source of their subsidiary income. *Pashmina* shawls (made

from fine quality goat’s wool) from Munsiyari and *Khadi* coats are other products that one can find in cloth stalls. Most of these shops are under the ‘Khadi Board’ or ‘Self Help Groups’, which work at the ground level with the general involvement of village women. According to Bhairav Singh, a huge quantity of Tibetan wool and *pashmina* used to be exported from Tibet to India before trade between the two countries ceased due to the Sino-Indian war of 1962. He recalls those time of political turmoil that affect the life of people living along the borders.

However, in this era of globalization, traders have started selling synthetically-made Korean and Chinese garments. One finds many trendily designed jackets and angora stoles coming here from Taklakot (a small town in the province of Xizang, China).

On the level of human feeling handmade products are most evocative. The fair in itself is a representation of cultural acceptance through art, crafts and commodities. Human beings have divided geography on a political basis but the emotional connectivity is far beyond administrative boundaries. Fairs like these provide a forum to people to rise beyond political boundaries and instil a feeling of global unity by exploring each other’s culture through their native products, handicrafts, regional cuisine, folk dances and dramas. This is one reason why the inauguration of a fair is usually followed by cultural programmes. Men and women wearing ethnic attire dance on the stage, offering a reflection of their geographical culture. In their own unique way, folk dances tell tales of a community. They are the depiction of a community’s way of thinking and living, its religious faith and beliefs, and its ethnic customs and practices.



Food at the time of cooking liberates aroma of the soil. Trying traditional dishes and local cuisine could be the most interesting way to know more about a civilization. For instance, the moment you taste a vegetarian dish, your senses will trigger an image of the kind of grains, herbs and vegetables that are cultivated in that particular region. The same is true of non-vegetarian delicacies, which give an idea of the various animals being reared in or inhabiting that area. One can easily enter a country's cultural-geographical diversity and traditional specialities through its traditional foods. The *mela* provides an opportunity to try dishes made from indigenous grains and pulses like *Raajma* (kidney beans), *Kala Bhatt* (black beans), *Urad* (black gram), *Mandua* (finger millets) and *Jhangora* (barnyard millets). *Bhatt-ki-churkani* and *Bhatt-ke-dubke* are among the more popular authentic *Kumaoni* preparations made from *Bhatt* that one can easily taste in food stalls. As far as non-vegetarian dishes go, *Panchauli* and *Nepali Bhutwa* (roasted or dried mutton) could be tried. But these nutritional foods are losing their allure as international fast foods surpass them. That is why such fairs provide an opportunity to keep the traditional recipes alive by inviting newer generations to come, eat, enjoy and develop a taste for their indigenous foods.

The Jauljibi Fair of 2016 was inaugurated by the chairperson of the Uttarakhand Van Nigam and former MLA, Mr Harish Dhani. He enlightened the public on the role of the fair in terms of saving local art and culture and stressed on the importance of people's participation in boosting their own cultural identity. He also appreciated the work of the administration in successfully conducting this fest and inaugurated a 'River Rafting Programme' on the Kali River.

Mountain 'Om Parvat' was gifted in a framed picture to Nepalese delegates as a token of harmony between the two countries. Om Parvat, close to Adi Kailash, is a Himalayan mountain lying in the Darchula district of Western Nepal and Pithoragarh district of Uttarakhand, India. The *parvat* (mountain) in itself is a powerful symbol of religious devotion and spirituality because the snow deposition on it resembles the sacred Hindu symbol 'OM'. In Hindu mythology "Om" is an unstruck sound. Unfortunately, it has also become a point of conflict owing to its location on the Indo-Nepal border. Gifting a picture of the 'Om Parvat' was therefore, a beautiful gesture of peace and friendship.

The role of ruling authority is very crucial in developing peace, harmony and understanding in the region. When politicians, former royalty, delegates and government officers from different nations share a common stage, their fellowship becomes a symbol of international brotherhood. Such fairs provide a platform for disseminating a message of Tri-national bonding, peace and unity to the common public through electronic and print media.

Be it developing societal linkages through reviving art and culture or instilling a feeling of trans-boundary cooperation and unity, the Jauljibi Fair outstandingly accomplishes all these issues. Constructed by the ages, Jauljibi fair stood as a space shared by the surrounding neighbourhood through trans-boundary exchanges, a symbol of international unity. The fair has all the cultural quintessence of unity and love and respect for other culture. Jauljibi Fair is a unique example of co-existence of trans-boundary community.

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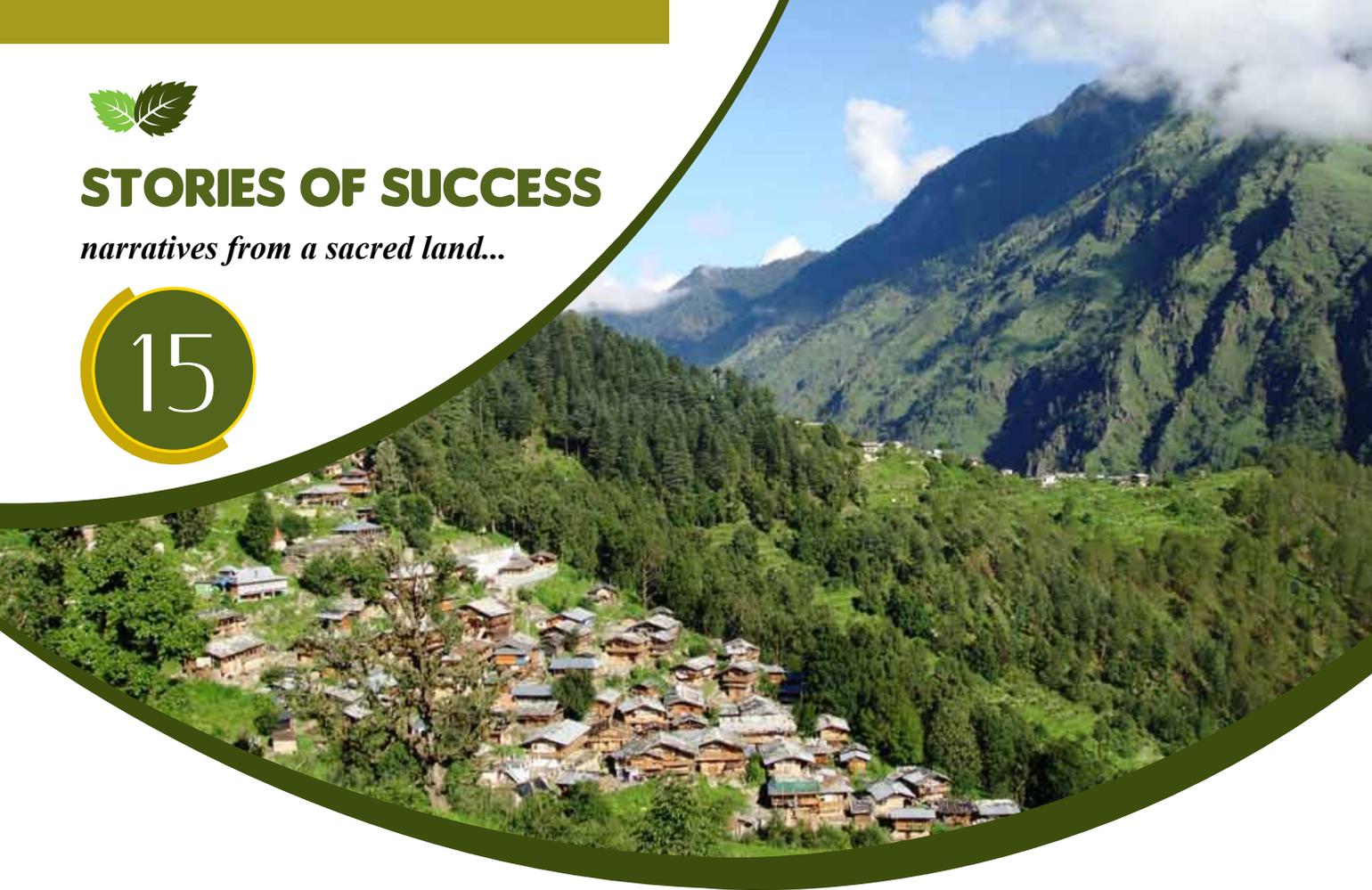




## STORIES OF SUCCESS

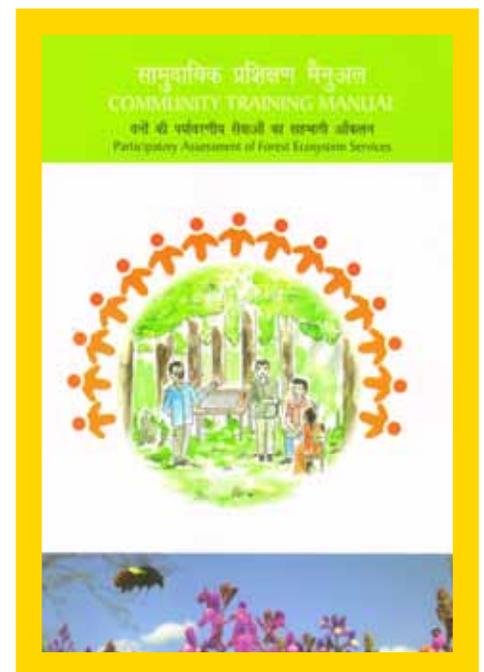
*narratives from a sacred land...*

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# Making of a Community Manual: Participatory assessment of forest ecosystem services

**T**he people of Himalayan hills carry a rich history of protecting and managing the forests to obtain a number of products and services to meet the daily requirements and sustain their livelihoods. For millennia, local people in these hills have been living in harmony with nature. They derive goods (viz., wild edibles, forage, timber, fuel-wood, fibre and many medicinal plants and raw materials for industries) and also indirect benefits from the forests, together known as ecosystem services (ES). In particular, the state of Uttarakhand exhibits a rich tradition of community management of forests (12089 community forests covering over 15% land area) for sustained supply of the ES. Apart from this, in many villages, people have offered their forests/landscapes (that also include grasslands, river banks etc.) to local deities, and these forests are popularly known as sacred forests (*Dev Vans*). The socio-religious and cultural elements that provoke and influence the human psyche to conserve nature in the form of *Dev Vans* is a peculiar feature of this practice and presents an excellent examples of participatory conservation of forests and other natural resources. In the face of increasing understanding and awareness about benefits of conservation of forests, biodiversity and natural resources people are being subjected to various legal instruments in tune with National and International commitments. In the recent decades people of Uttarakhand are facing conflicts between conservation and development.



# COMMUNITY MANUAL

## वन पर्यावरणीय सेवाओं का सहभागी आंकलन

“पवित्र कैलाश भू-क्षेत्र संरक्षण एवं विकास पहल” के तहत वनों की पर्यावरणीय सेवाओं की निरन्तरता को कायम रखने एवं इनमें वृद्धि करने के उद्देश्य से ग्रामीण समुदायों के ज्ञान एवं कौशल के उन्नयन हेतु यह पुस्तिका तैयार की गई है। इसमें दी गई वन अध्ययन की सरल विधियों को अपनाकर ग्रामीण अपने वनों की कुछ मुख्य प्रत्यक्ष एवं अप्रत्यक्ष पर्यावरणीय सेवाओं का आंकलन कर सकते हैं एवं जलवायु परिवर्तन तथा मानव विकास संबन्धी आवश्यकताओं के मद्देनजर अपनी वन सम्पदा के संरक्षण से भविष्य में आय अर्जित कर सकते हैं।

Although village people are the best managers of their natural resources still to keep the pace with urbanization and globalization our forests and landscapes are under increasing pressure of conversion of land-use and land cover. The indigenous communities often are not able to resist the forces of so called development. Many a times it is hard to explain the bygone value of a patch of tree or forest due to conversion of land for non-forest use due to lack of methodology to assess and value the ES provided by the trees and forests. The scenario in Kailash Sacred Landscape part of India is not different. The landscape is well represented by both Community Forests (*Van Panchayats*) and Sacred Forests (*Dev Vans*). However,





the conservation and development value of these forests is poorly realized and recognized.

In this situation it was thought prudent to come up with a “Community Training Manual” that presents a user-friendly approach and methodology to know the magnitude and value of ES provided by forests protected by communities. Dr. G.C.S. Negi, who lead the process of making the manual mentions ‘this will enable our village communities to put a price tag and convince the planners and administrators to take informed decision of land use change for developmental activities. Realizing the need, manual has been essentially developed in Hindi/English (bilingual) to make the village people understand about concepts of ecosystem and environment, issues of deforestation and global warming and the ES of forests, forest wealth of Uttarakhand and interconnections of daily life of people with the forests. To keep the contents of manual interesting and easy to handle by village people while evaluating their forest ES, several pictures and drawings have been inserted. Dr Negi further elaborated that a questionnaire was designed to find out that how much quantity of various ecosystem goods people use every year? Alternatively, if we have to buy these things how much money we need to pay? Using this questionnaire the quantum of forest goods used by the people household surveys was assessed among 8 villages (Table below) of the two identified watersheds (Chandak-Aunlaghat and Hat-Kalika) in KSL landscape, Pithoragarh Distt.

Using this manual, the community participants and researchers assessed the value of tangible services and estimated that forest

goods worth Rs. 5,000 per person per year are collected from the forests. Also, now the forests are being looked into as an important mitigation tools for the risks of global warming and increase in green house gases, such as carbon di-oxide ( $\text{CO}_2$ ). In the 8 *Dev Vans* around study villages C-stock (t/ha) in vegetation and soil pool, and its price was estimated to Rs. 5 - 30 lakh as per the international market rates. Also, manual included an element of measuring carbon stock and C sequestration and giving value so that community would know the real price of their forests by reducing emission through deforestation and degradation (REDD+). Manual also explains that how these measurements are going to become a mechanism of payment for ecosystem services in the climate change mitigation strategy and would contribute to Clean Development Mechanism of the Kyoto Protocol. The contents of manual were introduced through a meeting cum hands on training session with people of Nakina village of Chandak-Aonlaghat watershed.

The applicability of this Manual was tested by way of organizing two training programmes for the communities of pilot watersheds. The participants were imparted training on first hand methods (learning by doing approach) that involved over 150 village people, mostly women. The participants were trained on measuring biomass, productivity of forest trees, forest floor vegetation and estimation of soil carbon stocks. Participants were much enthusiastic to learn that the most important service of the forests in the modern industrial age has emerged as carbon sequestration. In fact, it was quite surprising for the participants to know that in terms



of monetary value the forests are many more time valuable than the direct goods from forests obtained by them. Also, participants were made to understand that the rainwater absorbed by forests is released as spring discharge throughout the year which is used for drinking and other domestic activities. With this articulation villagers could easily relate spring water with health of their forests and understood that forests are precious gift of nature.

The on-site trainings, using the Manual, helped in making

people aware that the forests also provide other important services such as purification of air and water, mitigation of floods and droughts, detoxification and decomposition of wastes, maintenance of soil fertility, pollination of crops and natural vegetation, scenic beauty etc. This experience of working with the rural people of KSL suggests that a series of on-site trainings can be organized using this Manual to build the capacity of community and also for scaling up the efforts for conservation of forests and restoring the ES in the KSL.

**Table 1: Salient features of the selected SNS of KSL, India**

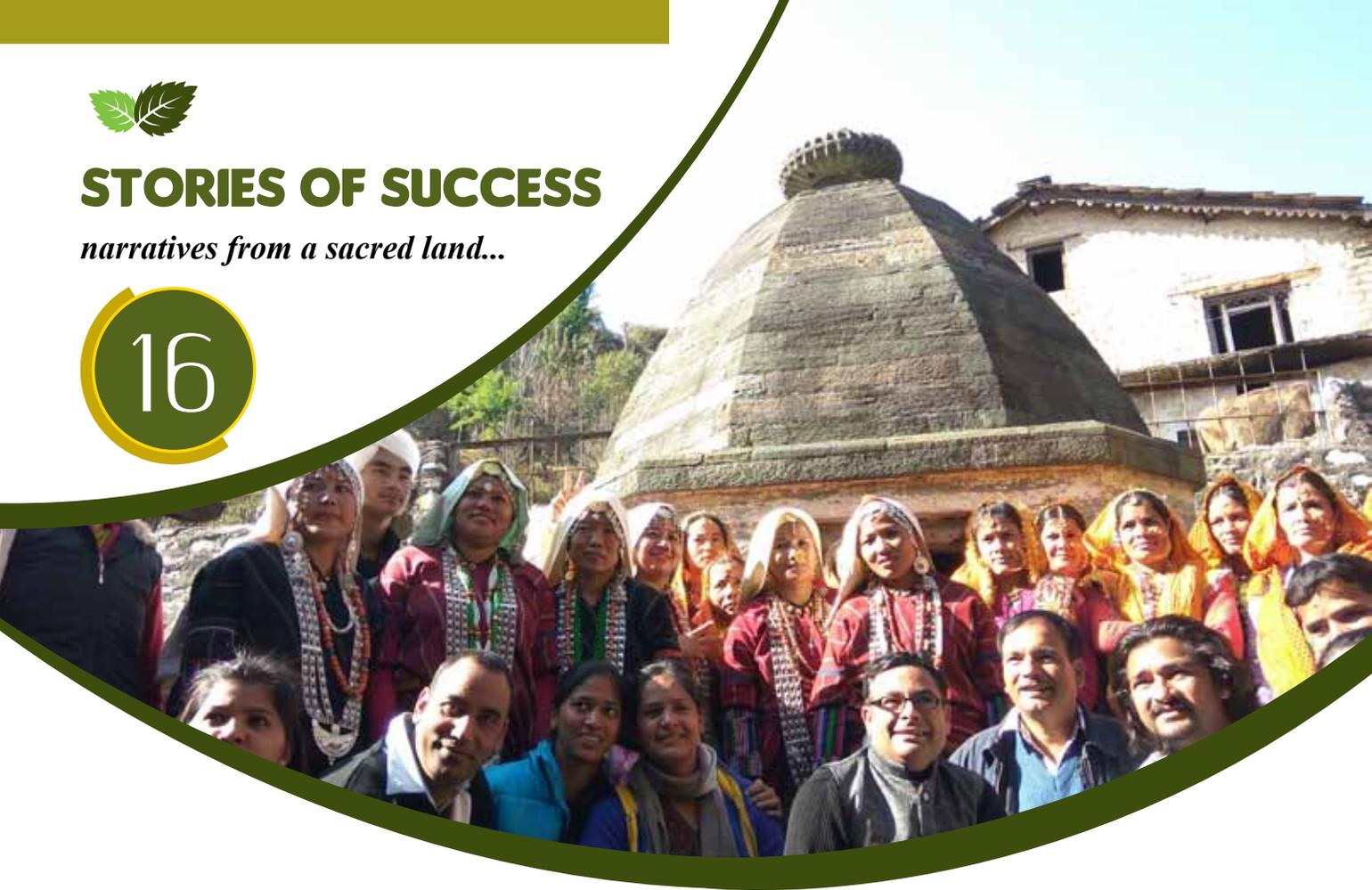
S. No.	Sacred Forest patch	Type	Location	Forest type	Offered to Deity
01	Dharapani	Sacred forest	Chandak-Aunlaghat WS	Temperate Broad Leaf (Banj Oak)	Chitai Goral Devta
02	Dhungabhool	Sacred forest	Chandak-Aunlaghat WS	Temperate Broad leaf mixed Conifer (Banj Oak-Chir Pine)	Chandika Deity
03	Chhanapande	Sacred forest	Chandak-Aunlaghat WS	Temperate Broad leaf mixed Conifer (Banj Oak-Chir Pine)	Kothgyari Deity
04	Chitgal	Sacred forest	Hat-Kalika WS	Temperate Conifer (Chir Pine)	Kothgyari Deity
05	Jajut	Sacred forest	Hat-Kalika WS	Temperate Broad leaf (Banj Oak)	Kothgyari Deity
06	Uprara	Sacred forest	Hat-Kalika WS	Temperate Broad leaf mixed Conifer (Banj Oak-Chir Pine)	Kothgyari Deity
07	Chamunda Devi	Sacred grove	Hat-Kalika WS	Temperate Conifer (Deodar)	Chamunda Devi
08	Mahakali Mandir	Sacred grove	Hat-Kalika WS	Temperate Conifer (Deodar)	Bhaneri Golu Devta



## STORIES OF SUCCESS

*narratives from a sacred land...*

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# Evolving process to reach-out people in the landscape

**T**owards finding solutions to reconcile conservation and development trade-offs the 'landscape approaches' have gained momentum.

However, as the landscape evolves in 'more or less chaotic way' it exhibits an inherent complexity. The complexity in interconnectedness of landscape elements and processes, the interests of diverse stakeholder groups, and more importantly the willingness of various players to work across social, political and scientific disciplinary boundaries most often make it difficult to put in practice the landscape approach.

Considering this challenge, bringing together stakeholders with different views and perceptions about what should happen in the landscape and making them agree on a shared vision holds the key for success. Achieving consensus among all stakeholders in a landscape is a key principle of the landscape approach.

With this understanding, the attempt made in Indian-part of Kailash Sacred Landscape (KSL) that covers almost entire district of Pithoragarh in State of Uttarakhand sets a context specific example of an evolving process of reaching out from village to landscape scale by engaging diverse stakeholder groups.

The Kailash Sacred Landscape-KSL, with immense



# STORY OF SUCCESS

## सफलता की कहानी

यह यदा कदा ही हो पाता है कि किसी कार्यक्रम या परियोजना की छोटी या बड़ी सफलता की कहानी को एक विकास प्रक्रिया के रूप में देखा जाय। 'कैलाश परियोजना' के भारतीय सहयोगियों का प्रयास ऐसी ही एक विकास प्रक्रिया के रूप में उभरा है। प्रारम्भ में बिखरी-बिखरी सी प्रतीत होती भारतीय टीम धीरे-धीरे समय से सीखते व परिस्थितियों से सामन्जस्य बनाते हुये उस मुकाम तक आ पहुँची जहां पर इसके छोटे-छोटे हस्तक्षेप एवं परीक्षण उदाहरण बन कर उभरे हैं। इस प्रक्रिया में बांस-मैतोली के छोटे से गाँव में परियोजना सहभागियों द्वारा किये गये समन्वित प्रयासों को बढ़ाते हुये गोरंग घाटी में विभिन्न सरकारी संस्थाओं को अभिसरण हेतु प्रेरित करना एक महत्वपूर्ण सोपान था। तदोपरान्त जनपद स्तर पर अपने कार्यों की ओर विभागीय अधिकारियों का ध्यान आकृष्ट करना एक सुनियोजित सोच व कार्यान्वयन योजना का हिस्सा रहा। इसी तरह विज्ञान, समाज व नीति के सफल सम्मिलन हेतु प्रदेश स्तरीय "नीति बहस" इस परियोजना के गाँव से भू-क्षेत्र तक पहुँचाने की सफलता का द्योतक है।

spiritual and sacred values is one amongst the most revered and sacred landscapes for millions of people across the globe. It represents a highly complex and diversified system in terms of biological and physical attributes leading to richness of bio-physical and life support values ranging well beyond its physical boundaries. An astonishing range of diversity in socio-cultural systems prevail throughout the landscape and exhibits dynamic linkages with natural resources. While much of the landscape is recognized for prevalent wilderness, it is equally known for its extreme vulnerability to changing faces of development and global climate. Therefore, the rich and unique biological diversity, the ecosystem goods and services, and the value based cultural heritage of this landscape are under rapid process of transformation. As a result the ecological and cultural integrity of the landscape is under severe threat.

Considering the Indian part of KSL, which represents a unique bio-cultural area, it has historically evolved to form a rainbow of bio-cultural plurality. The landscape represents a site of ethnic intermixing and cultural assimilation not only from the mainland of India but also across the borders. Over the millennia, the people have moved through the high passes and settled down in this region making the landscape a centre of activities of ethnic, lingual and cultural groups. This intermixing and the upward and downward mobility of social groups had played important role in evolving the divine diversity of the landscape.

Irrespective of cultural groups, the most unique and common feature of human civilization in this landscape is to have a rich tradition of conservation of natural resources through customary methods. Throughout the landscape, the common practice in folk wisdom is not to misuse, degrade or destroy common properties.

Notwithstanding these facts, evidences indicate towards fast changing face of the landscape and call for attention. One needs to visualize a strategy for the landscape which builds on ecological and economic realities.



While thinking on these realities, it is important to recognize certain factors that are prevalent and likely to have implications on approach for reaching out the landscape. For, example, as the process necessarily needs to be multi-stakeholder, the negotiations would cost time and monetary resources, especially when they involve interests ranging from sustenance to huge commercial gains, and from local community based governance systems to prevailing systems of governance lead by bureaucracies. Further, predominance of technical language, complexly designed frameworks and planning documents remain inaccessible to community and to non-specialists. Also, interests and expectations of diverse stakeholder groups, and individuals within a specific group, vary considerably and accordingly they make efforts to influence the process of decision making and implementation. More importantly, with prevalence of sectoral approach of planning and implementation of programmes, the mindset of stakeholders often remains toned to think and work in isolation. Decision making and implementation parameters

are often set in advance by non-local actors (i.e., policy, laws, budgets, etc.) and scope for context specific flexibility in norms is missing.

Recognizing the key challenges and other prevalent issues in the target landscape, team of researchers with Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) in India decided to make an attempt of progressively moving from village to landscape scale following confidence building measure and convergence route. Conceptual thinking was largely based on the realizing that the major distinction of the landscape approach is that it does not follow the traditional unidirectional project cycle approach. The approach, considering dynamic nature of living landscapes, discards defining an end point, rather suggests it as an iterative process of negotiation, trial and adaptation.

Regular interactions with villagers regarding resources which impact them most, such as, availability of fuel, fodder, drinking water, and status of agriculture formed the initial rapport building exercises. Concurrently the teams of researchers,



representing multiple disciplines, began to collect information on status of natural resources that are intricately linked with sustenance of villagers. Effective articulation of research based evidences further helped in building confidence with communities. Remaining non-committal and low profile increased the acceptability amongst locals. Intensification of activities with neighbouring schools helped in trust raising. Likewise, identification and promoting engagement of resource persons from community facilitated information flow and created welcoming environment.

Building on the confidence gained with community, a pilot at Bans -Maitoli was attempted towards preparing a plan for Management of Ecosystem Services. The management planning process was coordinated by Wildlife Institute of India (WII) with technical support from International Centre for Integrated Mountain Development (ICIMOD) and involvement of various partner agencies in India. This plan followed the principles of ecosystem management that visualizes integration of biophysical as well as socio-

economic components for overall upkeep of land, water and living resources. Important part of process was systematically engaging villagers in all the steps of preparing the plan, that included, (i) defining the management area and listing of ecosystem types, (ii) identification of stakeholders, formalize stakeholder's forum and coordinating agency, (iii) documentation of biophysical aspects of ecosystems, (iii) socio-economic analysis, governance, livelihoods and institutions, (iv) stakeholder consultation for development of strategies for long term management of ecosystem – listing of short term, medium and long term plans linked to livelihoods, ecosystem structure and functioning for integrated management, (v) assessment of capacity building needs, enabling environment, roles and responsibilities of various agencies, (vi) agreement on the planned activities and initiate priority activities. Also, keeping the line agencies and district administration informed and engaged with the process was major achievement.

Following the plan, interventions for ecosystem management (i.e., systematic evaluation of ecosystem properties, eradication





of weed, bio-engineering measure for spring recharge, understanding dimensions of human-wildlife conflicts, etc.) as well as income generating activities (i.e., promotion of off season vegetable value chain) were initiated.

Having succeeded at village level, the target was to up-scale intervention area. Partners agreed to go for cluster of villages in Gorang Valley of Chandak Awalaghat pilot watershed. Soon after delineation of study area, consultation on development of Comprehensive Conservation and Development Plan (CCDP) plan was initiated.

Thinking of approaches to target a cluster of villages is often a daunting task, particularly when one is unknown to area and its people. However, due to the already known entry point (i.e., Himalayan Sewa Samiti -HSS) the process became rather easy. The naive but enthusiastic group of researchers assigned for CCDP had several consultations with HSS for stepwise development of strategies to approach the cluster.

Following these consultations, an activity schedule was prepared for village level interactions and holding PNRM exercises. The

team strength was further improved with inclusion of some local resource persons, mainly females, who already had good rapport among the community members.

During the PNRM exercises, it was felt to simultaneously explore possibilities of convergence with various line departments.

For development of CCDP, the findings of PNRM exercises were collated, initially, for village level need based assessment and subsequently analyzed for cluster level needs through SWOT analysis. It was further strengthened with various other primary and secondary datasets.

For preparation of the plan draft, several level of consultations were performed including village and cluster level consultation. Two village/cluster level meetings were organized which were attended by line departments as well. Issues emerged from the consultation were recorded and subsequently incorporated in the plan.

While interacting with the villagers during the PNRM exercises, all relevant line departments, including the administrative





heads of district were deliberately informed about the process and other ongoing activities of the KSLCDI, to find possibilities of convergence.

During the development of CCDP, the team of researchers realized themselves a crucial link between villagers and the line departments. On villagers side the aspirations and expectations were very high. Whereas, on the agencies side, outreach was rather missing. Considering this scenario as an opportunity, the team decided to go beyond mere exploration of the convergence possibilities and intensively attempted negotiation with the line departments.

A review and synergy building cluster level consultation was organized to seek inputs on the draft plan and to incorporate the view of the elected village representatives of the Gorang valley.

While exploring the possibilities of convergence all schemes /programmes were also collected and subsequently compiled to make a synthesized document, systematically, featuring all relevant information pertaining to rural development of the

region, so that one could have access to all relevant programmes at one place.

Finally the team approached the district officials. A meeting under the Chair of the District Magistrate, Pithoragarh was held (19th December 2015) with an objective of seeking convergence with various ongoing government development programmes. The meeting primarily aimed on bringing various district level line agencies/departments at one platform to: (i) expose them about activities and progression of KSLCDI implementation, and (ii) find ways and mechanism of leveraging resources from various developmental programmes for implementation of research based plans (viz. village and cluster based) developed under KSLCDI. Most of the line agencies agreed to take up activities and strongly showed their willingness. However, they demanded for individual/household level datasets on asset availability and willingness of individuals.

Taking into account the recommendations of synergy building meeting, the team discussed on approaches and planned to move further. A group of students was identified from the





targeted cluster and subsequently trained for questionnaire filling. Along with the resource persons, the team revisited the cluster and filled the questionnaire. While having the field visits, a parallel interactive session between representatives of line departments and villagers was also organized.

The filled questionnaires were put together and analyzed to meet the criteria of line departments. A comprehensive list for interested individuals for different schemes and programmes was prepared and submitted to respective departments and subsequently persuaded them for implementation as well.

A cluster level consultation was organized at HSS on 22 May, 2016 to reveal the concerns and interest of line departments on community based proposal. The final list included 22 community based proposals in following categories: panchayat development (5), water resource development (11), soil conservation (1), eradication of invasive species (3), road construction (1) & construction of panchayat bhawan (1).

A second round of landscape level meeting with line departments (24 May, 2016) reviewed the progress of KSLCDI, particularly on CCDP plan developed for Gorang cluster. The meeting was chaired by DM Pithoragarh and attended by officials and representatives of line departments, all KSLCDI partners and ICIMOD representatives.

On receiving directions from the district Project Director, the line departments assured to take up some activities during the financial year of 2015-16. Working on the CCDP, few community based proposals were prioritized by the line departments and taken up for the implementation: (i) Van Panchayat augmentation - Nakina - throughh MGNREGA (60%), GBPNIHESD (33%) and VP Nakina 7%; (ii) Van Panchayat augmentation of Majhera was also taken-up in similar lines; and (iii) participatory interventions were also made for Spring Shed management

More importantly, for more closer interaction with

communities, a Landscape yatra across the targeted Gorang cluster was organized in November, 2016. The yatra was flagged off by PD and SP Pithoragarh, with an aim to strengthen the individual and departmental capacities by see, feel and interact. During the yatra the team visited some intervention sites (VPs Nakina and Majhera) augmented through departmental convergence. While passing through the cluster the official also formally interacted with villagers enroute and tried to address some issues.

Thus, in the process, KSLCDI made a way from village to cluster of villages and to the landscape (i.e., District of Pithoragarh). Significant advances in generating interests of practitioners have been made. The synergy of partner Institutions enabled the team India to showcase their actions to a larger gathering of people from all the cultural areas of the landscape. Three days event 'Diversity Our Identity Our Heritage' at Gangolihat helped the project reach-out landscape people at large.

Further, realizing that the pilot based learning need a timely organisation, collation and dissemination so that long term results in keeping with the "knowledge to use" is fulfilled. The innovative approaches, technologies and practices of KSLCDI need further targeted support for integration into government planning and budgeting systems, and public and private sector investment processes. In this context, state level Policy Dialogues 'Linking Science with Policy and Practice' were organized: (i) Meeting with Head of Departments in state of Uttarakhand (23 August 2017), and (ii) Meeting with Chief Secretary, Uttarakhand and group of secretaries (24 August 2017). Guidance for expansion of successful innovations at an institutional, policy, sector and/or market level as part of the Impact Pathways Analysis has been received.

The journey of progression of KSLCDI in Indian part thus emerges as an excellent example of evolving process for reaching out people in the landscape.

Success Story	Contact person for details (E-Mail/Phone)
<b>Cucumber Growing: Intensifying Farming to Marketing</b>	Basant Ballabh Pandey, Village Nakina, Pithoragarh Mob: 9759355707
<b>Nakina Van Panchayat: Community Approach for Forest Management</b>	Jagdamba Prasad Joshi, Village Nakina, Pithoragarh Mob: 9012089421
<b>Innovating Chyura Practices for Socio-Commerce and Conservation</b>	Pankaj Tiwari, CHEA, Nainital Mob: 9412034374 pankutewari@gmail.com
<b>Dairy Farming: An Option to Livelihood and Farm Manure</b>	M.K. Joshi, Veterinary Department, Pithoragarh Mob: 9411796037
<b>Backyard Poultry Farming: Viable Livelihood Option for Marginal</b>	M.K. Joshi, Veterinary Department, Pithoragarh Mob: 9411796037
<b>Water Crises: Combating through Rainwater Harvesting</b>	Rajendra S. Bisht, HGVS, Gangolihat Mob: 9412037018 hgvsagan@yahoo.co.in
<b>Kumaon Namkeen: Linking Traditional Mountain Crops to Entrepreneurship</b>	Deveki Devi, Pithoragarh
<b>Rekha Bhandari: A Dynamic Entrepreneur, a Progressive Farmer and a Social Leader</b>	Rekha Bhandari, Village Jajurali, Pithoragarh Mob: 8006472370
<b>Evolving concept of Eco-tourism in the Perspective of Community Home-stay</b>	Malika Viridi, Village Sarmoli, Munsiyari Mob: 9411194041 malika.virdi@gmail.com
<b>Shri Narayan Ashram: Through Spiritual Awakening bringing Social Reforms</b>	Sailesh Mahadevia, President SNA, Narayan Ashram, Dharchula shaileshmahadevia@hotmail.com
<b>Monitoring Changes in Alpines : first ever GLORIA sites in Indian Himalaya</b>	K Chandrasekar, GBPNIHESD Mob: 9410344484 kcsekar1312@rediffmail.com
<b>Spring Rejuvenation: Approaching water sustainability</b>	Rajesh Joshi, GBPNIHESD Mob: 9411159622 dr.rajeshjoshi@gmail.com
<b>Bans-Maitoli a Pilot Site for Ecosystem Management: Institutional Participation and Implementation Modelling</b>	Gopal S Rawat, Wildlife Institute of India, Dehradun Mob: 9690253814 rawatg@wii.gov.in
<b>Jauljibi Fair: An anecdote of Trans-boundary co-existence in Trade, Traditions and Culture</b>	Eva Badola, GBPNIHESD Mob: 9568690635 eva.badola1@gmail.com
<b>Making of a Community Manual - Participatory assessment of forest ecosystem services</b>	Girish CS Negi, GBPNIHESD Mob: 9411105170 negigcs@gmail.com
<b>Evolving process to reach-out people in the landscape</b>	Ranbeer S Rawal, GBPNIHESD Mob: 9410392114 ranbeerrawal4@gmail.com

**Stories of Success: narratives from a sacred land...** is an attempt of reaching un-reached. It captures the stories of successes of 'unsung heroes' in Indian part of Kailash Sacred Landscape. Idea was to reach people/organizations that have carved their own niche despite of all odds.

As this search for locating successful interventions in the landscape progressed, it was realized that there is no dearth of such 'unsung heroes'.



**G.B. Pant National Institute of Himalayan Environment & Sustainable Development (GBPNIHESD)**, an autonomous Institute of Ministry of Environment, Forest and Climate Change, Govt. of India, has been identified as a focal agency to advance scientific knowledge, to evolve integrated management strategies, demonstrate their efficacy for conservation of natural resources, and to ensure environmentally sound management in the entire Indian Himalayan Region. Among others, the Institute coordinates the Kailash Sacred Landscape Conservation and Development Initiative KSLCDI, first of its kind trans-boundary conservation and development programme in the Himalaya.

