

# LIQUID ASSETS ON STEEP SLOPES

## Solving Water Shortages Through Ancient Knowledge

“The water in springs of my hills is cool, Do not migrate from this land o my beloved.”<sup>1</sup>

In the community ground of *Daund* village, a troop of 15 young girls danced and set their song to this lyric. The villagers sat in front, undeterred by the heavy showers in June, with the monsoon just arrived. Among the gathered were many young and old women—their fathers, brothers, husbands and sons having spent several springs in *pardes*, which literally means foreign but here means the plains of northern India. There were old men, retired to the hills after a long innings in the service of the plains. On the drenched *durries* sat young children, most likely to migrate out of the hills.

Do the lyrics have the pull to stop mass migration from this Himalayan village to the cities like Delhi?

This village is small enough to not make a mark on any map of the Himalayas. Located 6,000 feet above sea level, it is as removed from the rest of the country as the rest of the country is removed from it. Even the stream flowing deep in the valley seems little more than a thin line drawn with a waxing pencil. That, too, gets unsighted by sheets of rain and blankets of fog.

If your curiosity forces you to find this village, you need to reach that part of the western Himalaya that was carved out of the country’s most populous state, *Uttar Pradesh*, and made into the new province of *Uttarakhand*. You will need to reach the Jim Corbett National Park. Alongside flows the *Ramganga* river. Travel upstream, and you will hit the *Doodhatoli* Range, rising up to 11,000 feet. *Doodhatoli* literally means land of milk, a name that characterises the ecology here—these are pastures above the tree line. Nestled in this range is *Daund* village.

The clouds recede, the water does not. The upper reaches send it down with velocity. Every drop erodes a little bit of the soil, and carries it into the stream that will join the *Ramganga*, and make the soil into the silt of Corbett National Park.

The dance troop also winds up its instruments and prepares for the next stop on its road show. Today its *Daund*, tomorrow *Dulmot*, then *Jandriya* or *Ufrainkhal*. This is no vaudeville troop. It does feature a few dancers, singers, musicians, and country made musical instruments. What the show does not feature is the hundreds of implements like spades and picks, which labour harder than the dance troop to slow down the water gushing downhill, to hold together the soil. All this to revive the forest and farming that has suffered torrents of neglect. The instruments—and the implements that power them—are attempting to bring back the melody and the rhythm of ecology to the cacophony of mindless development that has overwhelmed the Himalayas.

This alignment of culture and ecology started in the village of *Ufrainkhal*, in *Pauri Garhwal* district of the state of *Uttarakhand*. That was about 25 years ago. Today, it spans 136 villages. Its aim: creating an atmosphere of conserving ecology, to get people to rediscover that their lives cannot improve without an improvement in the ecology. To tend to their forests, their water sources, their pastures, their fuel sources, and their dignity.

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“ठण्डो पाणी मेरा पहाड़ मां, ना जा स्वामी परदेसा”

(“*Thando paani mera pahadh maa, naa jaa swami pardesa*”)

Sachhidanand Bharati is the tender of this troop. He teaches in *Ufrainkhal's* Inter College. His own education, however, was in the neighbouring district of *Chamoli*, best known for the *Chipko* (Hug the Trees) movement. In the early 1970s, some *Chamoli* villagers had confronted contractors with legal permits to log their surrounding forests. The villagers knew well that hill slopes do not recognize government land records. If forest department's land was deforested, they would face landslides, flash floods and, eventually, water scarcity. They offered to hug the trees. The contractors lost their nerve in the face of entire villages showing the kind of non-violent commitment that Mohandas Gandhi's troops showed during the struggle for independence from the British rule.

Soon after, the *Chipko* movement became a symbol of popular environmental conservation in the face of the State's ecological short sightedness.

During his college education, Bharati did not need a crash course in environmental management. He was an associate of *Chipko* leader Chandiprasad Bhatt. He experienced how a popular non-violent movement could stop from deforestation—the government was impelled to scrap the logging leases and declare a decade-long moratorium on logging—and also inspire people to plant more trees, to regenerate their forest. His efforts in *Chamoli* resulted in a student group called *Daliyon-Ka-Dagda* (translation: Friends of the Trees).

His college education ended in 1979 with a degree—and the realisation that protest and constructive efforts go hand in hand. He left college and returned home with a degree of commitment to social engagement. Only to find that the state's Forest Department which had declared a logging moratorium in *Chamoli* had granted fresh logging leases in the forests around *Ufrainkhal*. The contractors were eyeing fir trees (*Abies concolor*), a slow-growing species which affords a diversity of life in its undergrowth.

Bharati's training, tact and temperament were suited to this challenge.

He got together some friends and went from village to village, talking to people in a calm voice that persuaded but did not agitate. Villagers could see the sense in what the local boy said, which was essential and simple for those living in Himalayan ecology. That the forest might stand on government land but its felling will bring destruction to their doorstep. His message was: if we stand together, the forest will remain standing. His temperament clicked with the villagers.

But dealing with government officials—known for arrogance and corruption here—required tact. His calm approach, backed by the strength of the support he had mobilized, convinced a senior official to send up a team to enquire if the terrain was unsuitable for logging. The government faced what the villagers had encountered shortly before: a man armed with truth.

The enquiry team agreed with Bharati's claim. The logging leases were scrapped.

The villagers learnt two lessons from Bharati even before he took up a teacher's job. One, a united village could stem administrative might and reverse unfavourable decisions of the government. Two, if they could prevent ecological destruction, they could also join forces to regenerate their forests. Bharati decided to hold a two-day environment camp, inviting neighbouring villagers to *Ufrainkhal*.

There was no road going to the village then (there is an unmetalled path now). No means of communication, no funds to gather so many people across the difficult terrain. If nothing else, those gathered had to be fed and lodged. He wrote a letter to New Delhi's Gandhi Peace Foundation, which was the first to report and support the *Chipko* movement in *Chamoli*.

The response was quick: a money order of Rs 1,000, about US\$ 70 at the then exchange rates. July of

1980 saw the first environment camp in the *Doodhatoli* mountains.

Villagers reported the state of the surrounding forests, exchanged notes on legal and illegal logging that carried on silently. The state of Doodhatoli's forests was no secret now. The camp ended with plantation of seedlings and saplings. The camp had also planted an idea. The hands planting the saplings did not know the idea would become a large tree under which many other constructive ideas would germinate.

The *Doodhatoli Lok Vikas Sansthan* was formed in March of 1982 in *Ufrainkhal*, a small organisation with no budget and no signboard. Bharati's approach was written into its charter. It would not ask for government or foreign funds, but would rely on the resources of the people whose survival depended on the hill ecology.

It would take the organisation another 13 years to take up water conservation on a scale. In the beginning, it was primarily about forests. The Forest Department nurseries offered saplings of commercially viable trees like pine, which are of no use to the hill ecology or to the village economy. This meant Bharati's troop had to create their own nurseries. This required people to collect seeds. So children and women were recruited for the job—for no payment and no benefits. Volunteers knew the dividend would accrue some time in the future. To one and all.

Nurseries required water, which was becoming scarce, especially in the summer months when the seeds germinate. Summer in these hills is the season of forest fires, primarily because of the pine trees Forest Department planted to harvest its sap for turpentine. Pine needles stack up on the floor and wait for the slightest spark to set ablaze hill upon hill. The fires also consume the natural forests here, which nurture more diversity than pine plantations and hold water in the soil.

The villagers reeled under a vicious cycle. Lack of soil moisture made the forest vulnerable to fires. And fires smoked out the trees that could hold moisture in the soil. Breaking this cycle required an engineering intervention. The local boy decided to look locally. He had read about age-old water conservation systems in the Himalayas, which varied according to the slopes. Cultured over the centuries, these were the work of people who had observed the interplay of water, soil, vegetation and gravity.

The answer lay closer than they imagined, in the village's name: *Ufrainkhal*. While *Ufrain* is the name of a goddess, the suffix *khal* refers a type of waterbody characteristic of this region. It is smaller than a *taal* (which means a lake, as in *Nainital*), but bigger than a *chaal*, which is series of very small waterbodies along a slope. Several villages and towns in this region carried such suffixes, showing that habitation was built around water conservation—a pilgrimage in the neighbouring *Tehri Garhwal* district is called *Sahasratal*, which means 1,000 lakes.

The villagers, though, had forgotten the relevance of this nomenclature, the relevance of waterbodies in the names of their habitat, and the waterbodies' relevance to their survival.

For this they paid a heavy price in land and forest degradation. Floods and drought had become a part of the annual cycle, soil erosion an everyday affair. When villagers had forgotten the meaning of their villager name even, there was no hope of finding the method of making these waterbodies. Bharati learned the relevance of these names in a book he read. With no examples to follow, he decided to experiment. The people who had devised the form of these waterbodies were his own ancestors.

Bharati began with the smallest form: *chaal*. It was suitable for the steep slopes of *Ufrainkhal*, as its small size

allowed water retention in small quantity, without succumbing to gravity's demands. The *Doodhatoli* troop experimented with varying shapes and sizes in the early 1990s. People accustomed to soil and water management in their fields did not take long to settle on a calibrated proportion for the chains of waterbodies they had in mind.

From 1993 to 1998, the waterbodies in their mind materialised on the slopes. Once copied in their mind, it was pasted a thousand times over. The first dramatic impact was on a rivulet that flowed down in the valley. Years and years ago—nobody can remember when—the name of this rivulet got changed to *Sukharaula*, meaning a dry channel. In 1994, it showed water for a few months after the rains. Each subsequent year saw greater and longer water retention in the river. By 2001, it had acquired the shape of a full-fledged seasonal river.

The village felt it was time to rename the river. They called it *Gadganga*, combining the name of the village *Gadkharak* on its bank and that of the holy *Ganga*. This rivulet is a tributary of the river *Pasol*. Its new found prosperity added to the *Pasol's* flow.

If the villagers put in the effort to make waterbodies that retained so much water, nature responded with its invisible efforts. The vegetation began changing around the villages where *chaals* were dug—in the forests and in the fields. The vegetation multiplied the water retaining effect of *chaals*.

In 2000-01, the newly created state of *Uttarakhand* faced a severe drought, which exacerbates the annual phenomenon of forest fires. Up to 80,000 hectares of forests burned in the state that year. But the villages in and around *Ufrainkhal* did not burn. They had ecological balm on the offer: water. Fortified with moisture in the soil, the vegetation offered stiff resistance to fire. So did the villagers.

Three women who worked with the *Doodhatoli Lok Vikas Sansthan* died fighting fires in government forests, which were burning. They had taken water from their *chaals* to put out the fires, because they feared the inferno would soon reach their lands and forests. The hundreds of villagers who fought the fires here, as also the three women who paid the ultimate price, did not have the benefit of a privileged education. But they had learnt an ecological lesson that consistently eludes highly educated people in the parts of the world considered far more developed—think the forest fires in California, Greece and Australia.

The villagers' efforts benefited a government scheme, too. The state government had installed pipes to supply drinking water to villages from uphill springs. There were examples of their water sources drying up. But the installations around *Ufrainkhal* found water to pipe.

A few years earlier, the government had built an office building to start a watershed development plan above *Ufrainkhal*. Bharati wrote a letter to the authorities, saying the village did not need the government's largesse as it was doing the needful on its own. A government team visited the village and affirmed his claim. The watershed plan was withdrawn. The building began to provide a shed to cattle and goats. The forest, in the meantime, had begun to do better.

Bharati's troops have built 12,000 *chaals* in 136 villages till date. There are several patches of thick forests, varying in size from 30 hectares to 300 hectares. In several portions, forests regenerated are healthier than the government's reserved forests. There is a greater diversity of vegetation in them, with several broad-leafed trees like oak, alder, rhododendron and fir. The canopy is usually 100 feet high in general. On the floor is several inches of humus, which makes walking difficult because of a spring effect. It is safer to walk the trodden path in these forests, for another reason.

Wild animals prefer forests regenerated by this rural waterworks to the protected forests of the

government.

The cadre that has brought about this transformation is well worth an introduction—because the *Doodhatoli Lok Vikas Sansthan* does not have a regular budget, does not have any funding from any government or non-governmental non-profit, and does not plan to have these either. Some well wishers send in a cheque once in a while. Annual expenditure seldom exceeds Rs 25,000—about US\$ 500 at current rates.

The organisation does not have any full time staff, though it works full time. Three associates of Sachhidanand Bharati form the core. There is Devi Dayal, a postman who has to walk through villages to deliver post, for there are no automobiles or motorable roads here. On his beat, he observes the forests, gathers information, and delivers ecological messages without charging stamp duty.

There is Dinesh, a medical practitioner trained in the *Ayurvedic* system of traditional medicine. Like Devi Dayal, his line of work involves meeting many people and talking to them. He wraps the little medical remedies in messages aimed at healing social and ecological relationships. The quartet is completed by Vikram Singh. He runs a small grocery in the neighbouring *Dulmot* village. His merchandise comes packaged with social provisions, and his shop is hub of conversation and social exchange in a region where large community halls are impossible to make.

This quartet maintains a regular communication with about two dozen volunteers in each village. Invariably, they are women, for the menfolk migrate to the plains for employment. In the work of *Doodhatoli Lok Vikas Sansthan*, they see hope of a prosperity that would retain their husbands, sons and brothers in the village, much like the *chaals* retain the water.

The thousands of *chaals* built here and the hundreds of hectares of regenerated forests is their only hope. They guard these waterworks and the forests like mothers guard their broods. They number in hundreds and their names are not on any roster. They have a simple way of handing over forest protection duties to the next shift—typical of how the women here combine music and rhythm in daily chores.

The woman in charge of protection carries a baton with a string of mini bells tied on top. The sound of the bells works like Morse code across the hill forests. When a woman is done with her shift, she returns to the village and leaves the baton at the doorstep of a neighbour. Whoever sees the baton in front of their house takes up the guard duties the following day. No questions asked. All answered.

This is the routine. It's broken by the periodic environmental camps. All the women turn up for these. There is song and dance. The same song and dance now made stronger by the ecological notes...

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*Authored by Anupam Mishra; An edited version of this article appeared in the book “Written in Water: Messages of Hope for Earth's Most Precious Resource” - Edited by Irena Salina and published by National Geographic in 2010.*

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