



Naula Management in Nakina Village (Hanspeter Liniger)

Naula Management and Conservation (ອິນເດຍ)

Naula (depression well, indigenous water harvest technology)

ຄຳອະທິບາຍ

Naulas are shallow, four-sided stepped wells designed to collect water from subterranean seepages or springs and are used to meet domestic water needs by the local communities. Naula management and conservation encompasses a range of activities that preserve their structure and function.

Naulas are imperative sources of natural seepage of drinking water and are considered the most important hydraulic structures to the villages in hill regions of Uttarakhand. They appear as a dry stone masonry structure, normally with a four-sided (rectangle or square) shape with stairs on all the sides and are commonly covered by stone slates and an erected wall on three sides. Since ancient times, water rituals are practiced within the communities and the water from these naulas have idols of various deities like the sun, moon, Earth, Vishnu, Ganesh etc. The main motive of keeping idols of gods and goddesses tied to the naulas is to preserve these structures from pollution and other harmful anthropogenic activities.

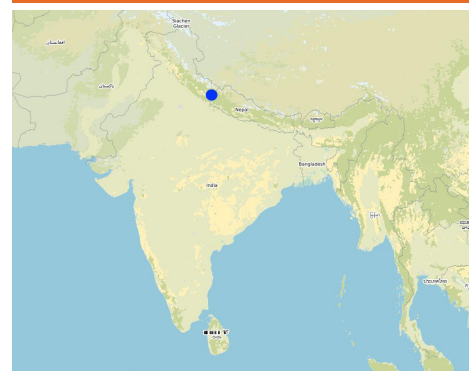
The efforts to preserve naulas include; building structural or vegetative barriers on the slope above to prevent physical damage, pollution from runoff and other erosive processes, establishing barriers of entry to deter wildlife and insects, initiating cleaning routines in the villages (scrubbing/disinfecting and clearing debris or weeds around the naulas).

The villages of Nakina, Digtoli, and Bhurmuni have carried out their own traditional measures to conserve these sacred structures and the water that flows into them. Sacred tree species like the peepal and banyan trees have been planted near naulas to signify its sanctity and to protect and shade it. To ensure the potability of a naula's water, biweekly cleaning regimes are undertaken. Structural measures such as check walls, check dams, and water channels have been made above the naulas. Additionally, wildlife entry is inhibited with cloth drapes that cover the naula's entrance, and some villages have established a protective enclosure around the naula.

Routine Naula conservation activities are taken up by those that collect the water, which include mainly the women and children. There is a water queue system in Nakina Village, in which people receive a specific time slot to take the water from the naula. This helps with keeping track of water use and promotes equitable use of water in the village. Other arduous tasks such as constructing the structural technologies include male participation. Monthly or bimonthly community meetings and daily checks on the Naulas help enforce the approach objectives. The villagers are the sole stakeholders and take up full ownership and water user rights.

Generally, the older community members in these villages stress the need of Naula conservation and management to a greater degree. Members of the younger generation are less concerned and do not exhibit the same level of sensitivity, although they are aware of their importance to the community. The future effectiveness of the approach will depend on village participation and the level of dependency on the Naula for water during the dry

ສະຖານທີ່



ສະຖານທີ່: Digtoli, Pithoragarh Bloc, Uttarakhand, ອິນເດຍ

ການຄັດເລືອກພິນທີ່ ທີ່ອີງໃສ່ຂໍ້ມູນທາງພູມິສາດ

- 80.15276, 29.63008
- 80.17405, 29.62383
- 80.17609, 29.61961

ວັນທີເລີ່ມຕົ້ນ: n.a.

ປີຂອງການສິ້ນສຸດ: n.a.

ປະເພດຂອງແນວທາງ

- ພື້ນເມືອງ / ຫ້ອງຖິ້ນ
- ການລິເລີ່ມ ພາຍໃນປະເທດ ທີ່ຜ່ານມາ / ນະວັດຕະກຳ
- ພາຍໃຕ້ໂຄງການ / ແຜນງານ

season. With the drying of springs and increased use of pipe-schemes (though unreliable), external sources of water may replace this indigenous water harvesting technique.



Mr. Joshi explains the importance of the Vaishnavi Naula to the Nakina Village (Jaclyn Bandy)



Bhurmuni Naula is the main drinking water source for nearly 600 people. (Hanspeter Liniger)

ເປົ້າໝາຍຂອງແນວທາງ ແລະ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ

ເປົ້າໝາຍ / ຈຸດປະສົງຫຼັກໃນການຈັດຕັ້ງປະຕິບັດແນວທາງ

Maintenance and preservation of the indigenous water harvesting technology, the naula. By protecting this structure and the catchment area around it, the villages can protect their precious water resources and sustain a long-lasting tradition.

ເງື່ອນໄຂທີ່ສະໜັບສະໜູນໃຫ້ການຈັດຕັ້ງປະຕິບັດເຕັກໂນໂລຢີ ບົນພື້ນຖານແນວທາງ

- **ສັງຄົມ / ວັດທະນະທຳ / ມາດຕະຖານ ແລະ ຄຸນຄ່າທາງສາສະໜາ:** Various religious ceremonies/rituals are still carried out around the naulas to this day. Lord Vishnu is associated with water in Hindu scriptures and mythology. Hence many naula have idols of Vishnu installed in them or sculpted on their stone walls. The need to revere and care for the naula is stressed by older generations.
- **ມິຄວາມສາມາດ / ເຂົ້າເຖິງຊັບພະຍາກອນດ້ານການເງິນ ແລະ ການບໍລິການ:** Little external financial resources are required
- **ການຮ່ວມມື / ການປະສານງານຂອງຜູ້ກ່ຽວຂ້ອງ:** The approach is traditionally community driven, site specific and requires little to no external input from other actors outside of the village.
- **ກ່ຽວກັບກົດໝາຍ (ສິດນໍາໃຊ້ດິນ, ສິດນໍາໃຊ້ນໍ້າ):** There are no formal institutions or rules/written records of water rights and devices for regulating water use and their flow structures. In most traditional settings, water rights of individuals users are known, even if they are not formally recorded. In general all users are expected to participate in operation, maintenance and cleaning chores.
- **ນະໂຍບາຍ:** According to traditional law, communities have had the ownership, control and rights to these water resources. They have had the freedom to build a variety of water harvesting structures based on their experiential knowledge and have designed them to fulfill their needs. Although the Kumaon Water Rules of 1917 transferred ownership of water resources to the state, the colonial government did not enact any specific legislation for water in the Uttarakhand region. As a result, village communities continued to look after their naulas and other water harvesting structures.
- **ການປົກຄອງທິດິນ (ການຕັດສິນໃຈ, ການປະຕິບັດ ແລະ ຂັບຮັບ):** Traditional water collecting systems in Uttarakhand comprise a variety of community control methods. Their assortments started from the differences in the local circumstances. Many of these plans were initially made by local leaders, dynasties and kings or by the prosperous people of the society. They display a diversity of technologies and minimal state intervention in water rights or management.
- **ວຽກ, ມີກຳລັງຄົນ:** Naulas are typically close to the village (<500m), therefore combined community efforts make the workload and execution of this approach manageable, assuming their is collective participation.

ເງື່ອນໄຂທີ່ເຊື່ອງຊ້ອນໃຫ້ການຈັດຕັ້ງປະຕິບັດເຕັກໂນໂລຢີ ບົນພື້ນຖານແນວທາງ

- **ສັງຄົມ / ວັດທະນະທຳ / ມາດຕະຖານ ແລະ ຄຸນຄ່າທາງສາສະໜາ:** Due to shifting cultural dimensions, government or office jobs are considered to have a higher status than that of farmers in rural areas. These days rural youth have their minds set on getting a government or an office job. They are not willing to toil on their farms. This is severely straining the traditional systems of managing common property resources
- **ມິຄວາມສາມາດ / ເຂົ້າເຖິງຊັບພະຍາກອນດ້ານການເງິນ ແລະ ການບໍລິການ:** Less attention/investment is being directed to natural resources due to outmigration an off-farm employment opportunities
- **ການກໍ່ຕັ້ງສະຖາບັນ:** With better education and the increasing share of non-farm economy in the national economy, the potential for obtaining off-farm employment is growing rapidly. Non-farm employment (NFE) has affected traditional water management systems. NFE opportunities, particularly for rural males, have changed the traditional occupation structures in the villages. When a family's reliance shifts from agriculture to an off-farm source of income, its incentive to participate in the traditional voluntary chores required to maintain common property resources decreases. This reduces the supply of voluntary labor for tasks like the management and maintenance of naulas. Traditional sanctions against such households are less effective, thereby eroding local norms and authority. Families that are headed by women when the male head is away have difficulty in obtaining their rightful share of water. Interfamily disputes erupt on the return of the male heads, reducing the community's unity that is so essential for managing common property resources.
- **ກ່ຽວກັບກົດໝາຍ (ສິດນໍາໃຊ້ດິນ, ສິດນໍາໃຊ້ນໍ້າ):** In the absence of formal records, however, this can be variable depending on the village.
- **ການປົກຄອງທິດິນ (ການຕັດສິນໃຈ, ການປະຕິບັດ ແລະ ຂັບຮັບ):** Sometimes, these systems failed to ensure social justice. Caste discrimination, appears to be a common feature. In many locations, there are separate naulas for people of upper and lower castes. The ones for the lower

castes are usually smaller and unadorned structures by comparison. Care and maintenance is irregular and a large number are in a decrepit state.

ການມີສ່ວນຮ່ວມ ແລະ ບົດບາດຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງທີ່ມີສ່ວນຮ່ວມ

ພາລະບົດບາດຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ທີ່ມີສ່ວນຮ່ວມໃນການຈັດຕັ້ງປະຕິບັດແນວທາງ

ແມ່ນໃຜ / ພາກສ່ວນໃດ ທີ່ເປັນເຈົ້າການ ໃນການຈັດຕັ້ງປະຕິບັດ ວິທີການ?	ລະບຸ ພາກສ່ວນທີ່ກ່ຽວຂ້ອງ	ຜົນລະບາ ບົດບາດ ໜ້າທີ່ ຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງ
ຜູ້ນຳໃຊ້ດິນໃນທ້ອງຖິ່ນ / ຊຸມຊົນທ້ອງຖິ່ນ	Nakina, Digtoli, and Bhurmuni Village	Local village authorities hold regular meetings with the people to organize, discuss and monitor the use/status of their water resources and naula structures/

ການລວບລວມເອົາຜູ້ນຳໃຊ້ດິນໃນທ້ອງຖິ່ນ/ຊຸມຊົນທ້ອງຖິ່ນ ໃນການຈັດຕັ້ງປະຕິບັດແນວທາງ ແຕ່ລະໄລຍະ

	ບໍ່ມີ	ການບໍ່ປະຕິບັດ	ການຊ່ວຍເຫຼືອຈາກພາຍນອກ	ການຮ່ວມມື	ການນຳໃຊ້ເອງ	
ການເລີ່ມຕົ້ນ / ແຮງຈູງໃຈ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Village heads, community members, Nakina Van Panchayat (community forest council)
ການວາງແຜນ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Village heads organize a Gram Sabha (a meeting of all villagers in each village council area) and fulfill their obligations in local resource decision-making with active community participation.
ການປະຕິບັດ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
ຕິດຕາມກວດກາ / ການປະເມີນຜົນ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
None	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ແຜ່ນວາດສະແດງ

ການຕັດສິນໃຈໃນການເລືອກເຕັກໂນໂລຢີ ການຄຸ້ມຄອງທີ່ດິນແບບຍືນຍົງ

ການຕັດສິນໃຈໂດຍ	ການຕັດສິນໃຈບົນພື້ນຖານ
<input checked="" type="checkbox"/> ຜູ້ນຳໃຊ້ດິນຜູ້ດຽວ (ການລິເລີ່ມດ້ວຍຕົນເອງ)	<input type="checkbox"/> ປະເມີນເອກກະສານ ຄວາມຮູ້ກ່ຽວກັບ ການຄຸ້ມຄອງ ທີ່ດິນແບບຍືນຍົງ (ຫຼັກຖານທີ່ຊ່ວຍໃນການຕັດສິນໃຈ)
<input type="checkbox"/> ຜູ້ນຳໃຊ້ທີ່ດິນຫຼັກ, ການສະໜັບສະໜູນ ໂດຍຜູ້ຊ່ຽວຊານ ການນຳໃຊ້ທີ່ດິນແບບຍືນຍົງ	<input type="checkbox"/> ຜົນທີ່ໄດ້ຮັບ ຈາກການຄົ້ນຄວ້າ
<input type="checkbox"/> ພາກສ່ວນກ່ຽວຂ້ອງທັງໝົດ, ເປັນສ່ວນໜຶ່ງ ຂອງວິທີທາງແບບມີສ່ວນຮ່ວມ	<input checked="" type="checkbox"/> ປະສົບການສ່ວນບຸກຄົນ ແລະ ຄວາມຄິດເຫັນ (ທີ່ບໍ່ເປັນເອກກະສານ)
<input type="checkbox"/> ຜູ້ຊ່ຽວຊານ ຫຼື ກຳລັງການຄຸ້ມຄອງ ທີ່ດິນແບບຍືນຍົງ, ມີການຕິດຕາມປຶກສາຫາລືກັບຜູ້ນຳໃຊ້ທີ່ດິນ	
<input type="checkbox"/> ຊ່ຽວຊານ ສະເພາະດ້ານການຄຸ້ມຄອງ ດິນແບບຍືນຍົງຜູ້ດຽວ	
<input type="checkbox"/> ນັກການເມືອງ / ຜູ້ນຳ	

ການສະໜັບສະໜູນເຕັກໂນໂລຢີ, ການສ້າງຄວາມອາດສາມາດ ແລະ ການຄຸ້ມຄອງຄວາມຮູ້

ກິດຈະກຳ ດັ່ງລຸ່ມນີ້ ແມ່ນເປັນພາກໜຶ່ງຂອງແນວທາງ

- ການສ້າງຄວາມສາມາດ / ການຝຶກອົບຮົມ
- ການບໍລິການໃຫ້ຄຳປຶກສາ
- ສະຖາບັນການສ້າງຄວາມເຂັ້ມແຂງ (ການພັດທະນາອົງການຈັດຕັ້ງ)
- ຕິດຕາມກວດກາ ແລະ ປະເມີນຜົນ
- ການຄົ້ນຄວ້າ

ການບໍລິການທາງດ້ານການໃຫ້ຄຳປຶກສາ

ໄດ້ຮັບການບໍລິການທາງດ້ານການໃຫ້ຄຳປຶກສາ

- ໃນພື້ນທີ່ຂອງຜູ້ນຳໃຊ້ດິນ
- ສູນຄົ້ນຄວ້າ

There are several active organizations/ advisory services that are frequently engage with and are available to the communities. Some of these organisations include G.B. Pant, the Forest Department, and NGOs: Himalayan Sewa Samiti, CHEA, Swati Gramodyog Sansthan.

ຄວາມເຂັ້ມແຂງຂອງສະຖາບັນ

ສະຖາບັນ ໄດ້ຮັບການສ້າງຄວາມເຂັ້ມແຂງ

- ບໍ່ມີ
- ມີ, ໜ້ອຍໜຶ່ງ
- ມີ, ບໍ່ສົມຄວນ
- ມີ, ຫຼາຍ

ໃນລະດັບດັ່ງລຸ່ມນີ້

- ທ້ອງຖິ່ນ
- ລະດັບພາກພື້ນ
- ແຫ່ງຊາດ

ອະທິບາຍສະຖາບັນ, ພາລະບົດບາດແລະຄວາມຮັບຜິດຊອບ, ສະມາຊິກ, ແລະອື່ນໆ.

Nakina village and Nakina Van Panchayat (community forest council) in particular have strengthened their relationships with external institutions and have been receptive to new projects for sustainable water management and natural resource use. This has increased involvement of the community and strengthened approach participation. Additionally, it has increased awareness and the need for spring restoration interventions and sustainable land use within the catchment areas of the springs/naulas.

ຮູບແບບການສະໜັບສະໜູນ

- ທາງດ້ານການເງິນ
- ການສ້າງຄວາມອາດສາມາດ / ການຝຶກອົບຮົມ
- ອຸປະກອນ

ລາຍລະອຽດເພີ່ມເຕີມ

ການຕິດຕາມ ແລະ ປະເມີນຜົນ

Regular monitoring by the village community

ການສະໜັບສະໜູນທາງດ້ານການເງິນ ແລະ ອຸປະກອນຈາກພາຍນອກ

ງົບປະມານປະຈຳປີ ໃນກິດຈະກຳ ການຄຸ້ມຄອງທິດິນແບບຍືນຍົງ ທີ່ເປັນສະກຸນເງິນໂດລາ

- < 2,000
- 2,000-10,000
- 10,000-100,000
- 100,000-1,000,000
- > 1,000,000

Precise annual budget: n.a.

ການບໍລິການ ຫຼື ສົ່ງກະຕຸກຊຸກຍູ້ ດັ່ງລຸ່ມນີ້ ແມ່ນໄດ້ສະໜອງໂດຍຜູ້ນຳໃຊ້ທິດິນເອງ

- ການສະໜັບສະໜູນ ທາງດ້ານການເງິນ / ອຸປະກອນ ສະໜອງໃຫ້ແກ່ຜູ້ນຳທິດິນ
- ຫຼຸດປັດໃຈນຳເຂົ້າ
- ສົ່ງເສີມ
- ສົ່ງຈູງໃຈ ຫຼື ເຄື່ອງມືອື່ນໆ

ສົ່ງກະຕຸກຊຸກຍູ້ອື່ນໆ

The World Bank aided Uttarakhand Decentralized Watershed Development Project (GRAMYA) implemented by Watershed Development Directorate of Uttarakhand Government. It is operating since 2005 with the aim to mitigate water problems and addressing issues of other natural resources, with emphasis on women participation. NITI Aayog (National Institution for Transforming India), Government of India has recently launched a National Programme on Regeneration of Springs in the Himalayan Region (2017).

ການວິເຄາະຜົນກະທົບ ແລະ ສະຫຼຸບລວມ

ຜົນກະທົບຂອງການນຳໃຊ້ແນວທາງ

- ບໍ່ມີ, ໜ້ອຍໜຶ່ງ
- ມີ, ບໍ່ສົມຄວນ
- ມີ, ຫຼາຍ

ວິທີທາງ ຊ່ວຍຊຸກຍູ້ ຜູ້ນຳໃຊ້ທິດິນທ້ອງຖິ່ນ, ໃນການປັບປຸງ ການມີສ່ວນຮ່ວມ ຂອງຜູ້ທີ່ກ່ຽວຂ້ອງ ບໍ່?
Increased awareness of naula importance; enhanced collaborative water conservation and use within the community

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ການນຳໃຊ້ ວິທີທາງ ດັ່ງກ່າວນີ້ ສາມາດເປັນຫຼັກຖານ ທີ່ສະໜັບສະໜູນ ໃຫ້ການຕັດສິນໃຈໄດ້ບໍ່?
Traditional approaches encompass ecosystem thinking, and therefore good practices such as planting trees above the naula and creating a favorable environment in the catchment area have been adopted by these communities for many generations. Though there has been improvements in infrastructure, officially provided water supply systems have either not reached the remote rural villages or where provided are unreliable, poorly maintained, and not the preferred source of drinking water.

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ການຈັດຕັ້ງປະຕິບັດ ວິທີທາງ ສາມາດຊ່ວຍຜູ້ນຳໃຊ້ທິດິນ ໃນການຈັດຕັ້ງປະຕິບັດ ແລະ ບຳລຸງຮັກສາ ເຕັກໂນໂລຢີ ການຄຸ້ມຄອງ ທິດິນແບບຍືນຍົງໄດ້ບໍ່?
Increased sensitivity to the importance and impact of the surrounding ecosystem to the springs/naula function.

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ການນຳໃຊ້ ວິທີທາງ ສາມາດປັບປຸງ ການປະສານງານ ແລະ ຄ່າໃຊ້ຈ່າຍ ການຈັດຕັ້ງປະຕິບັດ ທີ່ມີປະສິດທິພາບ ຂອງການຄຸ້ມຄອງ ທິດິນແບບຍືນຍົງໄດ້ບໍ່?
The approach supported community ecosystem-based thinking and has extended to interventions with the Nakina Van Panchayat (community forest council)

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ການນຳໃຊ້ ວິທີທາງ ສາມາດລະດົມ ຫຼື ປັບປຸງ ການເຂົ້າເຖິງຊັບພະຍາກອນ ການເງິນ ສຳລັບການຈັດຕັ້ງປະຕິບັດ ການຄຸ້ມຄອງ ທິດິນແບບຍືນຍົງໄດ້ບໍ່?
Active participation of the community and strong organizational qualities have helped extend their network and resource base

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ການນຳໃຊ້ ວິທີທາງ ສາມາດປັບປຸງຄວາມຮູ້ ແລະ ຄວາມສາມາດຂອງຜູ້ນຳໃຊ້ທິດິນ ໃນການປະຕິບັດ ການຄຸ້ມຄອງ ທິດິນແບບຍືນຍົງໄດ້ບໍ່?
This approach increased engagement and refined attention to their main drinking water resources. Because spring discharge is decreasing, people have started to extend interventions in the microwatersheds or catchment areas of the springs for ground water recharge. This includes establishing plantations, avoiding overgrazing in the forests, and building recharge ponds and trenches.

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ການນຳໃຊ້ ວິທີທາງ ສາມາດປັບປຸງຄວາມຮູ້ ແລະ ຄວາມສາມາດ ຂອງພາກສ່ວນທີ່ກ່ຽວຂ້ອງໄດ້ບໍ່?

Increased the combined interest of village-institution cooperation to understand the hydrogeological science behind spring recharge and develop recharge schemes to improve water security.

ການນໍາໃຊ້ ວິທີທາງ ສາມາດສ້າງຄວາມເຂັ້ມແຂງ ໃຫ້ສະຖາບັນການຈັດຕັ້ງ, ການຮ່ວມມື ລະຫວ່າງພາກສ່ວນທີ່ກ່ຽວຂ້ອງບໍ່? ☑
 ICIMOD, G.B. Pant, the Forest Dept., and local NGOS are improving the merging of their efforts when working with particular communities that are open and curious to new projects and scientific technologies.

ການນໍາໃຊ້ ວິທີທາງ ສາມາດຫຼຸດຜ່ອນ ຂັ້ນຂັດແຍ່ງໄດ້ບໍ່? ☑
 There is a systematic organization of naula use and care in the villages, which is generally obeyed and thus conflict is avoided.

ການຈັດຕັ້ງປະຕິບັດ ວິທີທາງ ສາມາດສ້າງຄວາມເຂັ້ມແຂງ ທາງສັງຄົມ ແລະ ເສດຖະກິດບໍ່? ☑
 Upper caste members in the villages continue to determine social inclusion/exclusion with access to water sources. The culture excludes the Dalits in Chuni (lower castes) from accessing or using any Naula in the village except the one that is assigned as theirs. Despite this, the naulas of the lower caste are still considered important for management and conservation.

ການຈັດຕັ້ງປະຕິບັດ ວິທີທາງ ສາມາດປັບປຸງ ຄວາມສະເໝີພາບ ຂອງບົດບາດ ຍິງຊາຍ ແລະ ສ້າງຄວາມເຂັ້ມແຂງໃຫ້ຜູ້ຍິງໄດ້ບໍ່? ☑
 Improved the realization and need for woman empowerment in decision-making for the water resource use and management. Women in Nakina village feel comfortable to speak up and voice their concerns in group discussions. However, when the water in the naulas reduces, women are still blamed for accessing the spring in an "impure" condition (when menstruating) and are consequently banned from using the naula and sent to live in small huts outside the domains of the main house.

ການຈັດຕັ້ງປະຕິບັດ ວິທີທາງ ສາມາດຊຸກຍູ້ ຜູ້ນໍາໃຊ້ທີ່ດິນທີ່ເປັນຊາວໜຸ່ມ / ຄົນລຸ້ນໃໝ່ ໃນການຄຸ້ມຄອງ ທີ່ດິນແບບຍືນຍົງໄດ້ບໍ່? ☑
 The approach has gained momentum for participation in preservation and restoration of naula structures. If water scarcity persists, the next generation can't expect to make a sustainable livelihood in their home villages.

ການນໍາໃຊ້ ວິທີທາງ ໄດ້ປັບປຸງ ການຄ້າປະກັນສະບຽງອາຫານ ຫຼື ປັບປຸງໂຄສະນາການໄດ້ບໍ່? ☑
 Increased available water supply for small vegetable patch watering and water for livestock

ການນໍາໃຊ້ ວິທີທາງ ໄດ້ປັບປຸງ ການເຂົ້າເຖິງນ້ຳ ແລະ ສາຂາພິບານໄດ້ບໍ່? ☑
 Decreased risks of pollution from run off, water-born diseases and water availability

ການຈັດຕັ້ງປະຕິບັດ ວິທີທາງ ສາມາດສ້າງຄວາມອາດສາມາດໃຫ້ຜູ້ນໍາໃຊ້ທີ່ດິນ ໃນການປັບຕົວ ຕໍ່ການປ່ຽນແປງດິນຟ້າອາກາດ / ຫຼຸດຜ່ອນຄວາມສ່ຽງ ທາງໄພພິບັດໄດ້ບໍ່? ☑
 Decreased effects and damage of extreme weather events on naula structure (e.g. reduced impact of erosion and pollution from run-off, protection from fire)

ສິ່ງກະຕຸກຊຸກຍູ້ໃຫ້ຜູ້ນໍາໃຊ້ທີ່ດິນ ໃນການປະຕິບັດການຄຸ້ມຄອງທີ່ດິນ ແບບຍືນຍົງ

- ການຜະລິດເພີ່ມຂຶ້ນ
- ກໍາໄລເພີ່ມຂຶ້ນ (ຄວາມສາມາດ), ການປັບປຸງຄ່າໃຊ້ຈ່າຍ, ຜົນປະໂຫຍດ, ອັດຕາສ່ວນ
- ຫຼຸດຜ່ອນດິນເຊືອມໂຊມ
- ຫຼຸດຜ່ອນຄວາມສ່ຽງຂອງໄພພິບັດ
- ການຫຼຸດຜ່ອນພາລະວຽກ
- ການຊໍາລະເງິນ / ເງິນອຸດໜູນ
- ກົດລະບຽບແລະລະບຽບການ (ລະອຽດ) / ການບັງຄັບໃຊ້
- ກຽດສັກສີ, ຄວາມກົດດັນທາງສັງຄົມ / ການຕິດຕໍ່ກັນທາງສັງຄົມ
- ລວມເຂົ້ານໍາກັນກັບການເຄື່ອນໄຫວ / ໂຄງການ / ກຸ່ມ / ເຄືອຂ່າຍ
- ຄວາມຮັບຮູ້ ທາງສິ່ງແວດລ້ອມ
- ພາສີ ແລະ ຄວາມເຊື່ອຖື, ສົມບັດສິນທໍາ
- ການປັບປຸງ ຄວາມຮູ້ ແລະ ຄວາມສາມາດ ຂອງການຄຸ້ມຄອງ ທີ່ດິນແບບຍືນຍົງ
- ການປັບປຸງຄວາມງົດງາມ
- ການຫຼຸດຜ່ອນຂັ້ນຂັດແຍ່ງ

ຄວາມຍືນຍົງຂອງການຈັດຕັ້ງປະຕິບັດກິດຈະກຳຂອງແນວທາງ ຜູ້ນໍາໃຊ້ທີ່ດິນ ສາມາດຈັດຕັ້ງປະຕິບັດຕາມແນວທາງໄດ້ເອງບໍ່ (ໂດຍຢາດສະຈາກການ ສະໜັບສະໜູນຈາກພາກສ່ວນພາຍນອກ)?

- ບໍ່ມີ
- ແມ່ນ
- ບໍ່ແນ່ນອນ

The community is and has historically been dependent on these water harvesting structures. What has been implemented through the approach needs to be perpetuated for generation to come, along with management of the forests and other natural resources within the catchments of the springs.

ບົດສະຫຼຸບ ແລະ ບົດຮຽນທີ່ໄດ້ຮັບ

ຄວາມເຂັ້ມແຂງ: ທັດສະນະມຸມມອງ ຂອງຜູ້ນໍາໃຊ້ທີ່ດິນ

- Improved awareness and action in the community to preserve Naulas; daily users incorporate habitual care and the naulas are well-preserved, clean and respected. Water quality is improved.
- Increased cohesion of village members and inclusion of women participation with water use and other natural resource management. This is especially recognized in Nakina village.
- Aesthetic of area is improved, and this is important for spiritual purposes within the communities. Rituals associated with water and naula more appreciated and celebrated. Enhancement of these cultural aspects improves harmony and connectedness within social groups and to nature.

ຄວາມເຂັ້ມແຂງ: ທັດສະນະມຸມມອງ ຂອງຜູ້ປ້ອນຂໍ້ມູນຂອງ

- Improved understanding of the Naula's respective catchment area (origin of water source/storage) and the need for SLM practices upstream in springsheds
- Maintains and strengthens social order and awareness of water resource use/requirements

ຈຸດອ່ອນ / ຂີ້ເສຍ / ຄວາມສ່ຽງ: ທັດສະນະມຸມມອງ ຂອງຜູ້ນໍາໃຊ້ທີ່ດິນ ວິທີການແກ້ໄຂແນວໃດ

- If naulas get severely damaged there is hardly anyone in the village today with knowledge of how these structures were constructed and the engineering techniques behind them. Consultations with older members of the community and with nearby villages could be organized. This would effectively be combined with interventions from institutions like G.B. Pant, who can also combine research efforts on the geohydrology of springs an engineering methods to improve naula/spring discharge.
- 2 years ago, Nakina village members used bleaching powder to clean the naula. A small amount of bleaching powder (2 teaspoons) was suggested for each Naula (approx Volume: 1mx 1m x 0.8m), however there is no strict monitoring of the water quality. Now Nakina has recently switched to chlorine tablets, which make measurements easier. They use them about once a month or when there is some incidence of pollution. Traditional methods of naula disinfection could be reintegrated in the cleaning regime (e.g. using the leaves of Amla: Emblica officinalis Gaertn and Neem, Azadirachta indica A Juss)

- There are times when the water overflows from the confines of the naula structure. Overflow can be harvested in earthen/ polyethylene ponds or recharge trenches below.

ຈຸດອ່ອນ / ຂໍ້ເສຍ / ຄວາມສ່ຽງ: ຫັດສະນະມຸມມອງ ຂອງຜູ້ປ້ອນຂໍ້ມູນ ເອງວິທີການແກ້ໄຂແນວໃດ

- In the absence of documentation about the engineering and the science behind the traditional water management systems, it is very difficult to revive these structures once they have been neglected. Studies that integrate land use changes, traditional knowledge on water management systems, hydrogeological aspects of springs, and potential structural/biological interventions for spring revival need to be implemented with the help of coordinated actors and stakeholders across all agency levels.
- There are sometimes pipes connected to the naulas leading to reservoirs (storage tanks). The pipes or taps of these reservoirs often have leaks. The community trouble-shoots this issue by plugging the open taps with a fitted wooden stick or ball of plastic trash. There is still significant leakage. Pipes need to be monitored and repaired; open taps need to be properly plugged (perhaps with a rubber stopper). Twist-taps need to be repaired, and if this is not possible then the leaking droplets can be harvested with a bucket.
- There is still discrimination of water use within the caste system. Dalits remain excluded from authorities that make decisions about water at the village level. Similarly, women in many villages are still excluded from any decision-making. Both groups are perceived to be highly susceptible in "spoiling" the water collected from naula structures. Deep-rooted caste and gender inequities are not simply erased at the local level, despite the policy efforts to improve economic and political mobility within these groups. To equitably improve access to water for the Dalits and women, the root causes of the determinants of social inequity need to be identified, exposed and addressed locally. Nakina village is taking strides to incorporate women and Dalits into decision making processes, as they are the ones remaining in the village. Nakina recognizes this need to involve these formerly excluded groups, as the phenomenon of unidirectional outmigration will simultaneously amplify the necessity of group-cohesion and dedication for sustainable land/resource management .

ການລວບລວມ
Jaclyn Bandy

Editors

ການທົບທວນຄືນ
Hanspeter Liniger

ວັນທີຂອງການປະຕິບັດ: July 27, 2019

ປັບປຸງລ່າສຸດ: June 27, 2021

ບຸກຄົນທີ່ສໍາຄັນ

Joshi Jagdamba - ຜູ້ນໍາໃຊ້ທີ່ດິນ
Pooran Chandra Patni - ຜູ້ນໍາໃຊ້ທີ່ດິນ

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- ICIMOD International Centre for Integrated Mountain Development (ICIMOD) - ເນໂປ

ໂຄງການ

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