

Roadside Spring Protection to improve water security

RoSPro project information

- Project location: Dhankuta Municipality and Chhathar Jorpati Rural Municipality, Nepal
- Project duration: July 2023 until June 2025
- Partners: MetaMeta, FutureWater and ICIMOD
- **Beneficiarries:** Dhankuta Municipality, Chhathar Jorpati Rural Municipality, and the Department of Local Infrastructure (DoLI)
- Funded by: Nederlands Enterprice Agency (Partners for Water Programme)
- Keywords: #roadsidesprings, #watersecurity, #springshed management, #greenroads



Problem

- Springs are the main source of water for mountain communities. 30% of springs are estimated to have dried up in the last 15 years in the mountain areas of Nepal
- Many reasons for spring drying up but no much focus on the impact of road construction on spring water resources. Springs when opened during road construction and not managed properly, apart from drying up they also damage roads.

Solution

We propose a systematic connection between road development and spring protection by combining all existing knowledge and experience of beneficiaries, local stakeholders and consortium partners



Expected Results

Increased water availability and road durability in Dhankuta municipality and generate evidence on the broader impacts of roadside spring protection at both municipality and basin levels.



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RoSPro project phases

The project lasts for two years. We work closely with local stakeholders from start to finish, using bottom-up and participatory approaches. This helps us gain support from local governments and communities, making sure everyone feels involved. This is key for making the project sustainable in the long run.





ICIMOD

RoSPro

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RoSPro visual overview and key impacts



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Hard benefits



Roads quality

improvement Roads are safer and more durable, with reduced water-related damage and maintenance costs



Enhanced water availability

20-40% increase in spring water; 87% of water users indicate the water quality has improved



Time saving for women

33-47% of reduction in time spent by women on fetching water



Agricultural enhancement

More water has increased crop yields and allowed families to buy cows improving nutrition.

Soft benefits



Skillset Developed at Community Level

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Municipality engineers gained knowledge on holistic roadside spring protection.



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RoSPro achievements and C&B analysis results _____

Local-Level Achievements

Women got involved in paid work for road construction and in the agricultural sector due to time saving.



Local livelihoods improved due to better water access and enhanced road quality.

National-Level Achievements

DoLID is interested in scaling up RoSPro through the nationwide PLRIP program to expand its impact.

Government agencies in water and agriculture are exploring implementing Nature-based Solutions for its clear benefits in improving water access, environmental conservation and agricultural production.

Regional-Level Achievements

- RoSPro approach recognized by WB and ADB as a green road solution with benefits for environment and communities.
- ICIMOD to mainstream RoSPro measures in its Springshed Revival Protocol used across the Hindu-Kush Himalaya.
- Bangladeshi delegation expressed interest in adopting RoSPro after visiting pilot sites.

Costs & Benefits analaysis results



Costs include direct implementation cost for the structures and for the recharge area, and labour costs for unskilled and skilled works, and engineers.



Benefits include reduced cost of road maintenance, the increased fulfilment of water demand, and the time savings in fetching water which can be used for other income generating activities.



- High Returns Over Time: The Net Present Value (NPV) is 4 to 8 times higher than the total investment over 25 years—showing strong long-term benefits.
- Strong Economic Performance: The Internal Rate of Return (IRR) ranges from 44% to 121%, highlighting the value of reduced road damage and better water access.