MOUNTAIN EVO INSIGHTS

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environmental virtual observatories

Learning to cope with water variability through **participatory environmental monitoring**: Mustang, Nepal

The implementation of environmental **participatory monitoring (PM)**:

- enables communities to understand the use and management of local water resources.
- helps to develop a sense of ownership of environmental information.
- helps to improve scarce water utilization in agriculture and domestic uses.

Questionnaires, semi-structured interviews, and transect walks evidenced strong linkages between irrigation and poverty reduction.

Bridging the existing information gap between formal and informal decision makers/institutions through several combined workshops allowed us to address the problems that were **identified and prioritised by and with the communities**.

We proposed to involve local farmers in **participatory monitoring** (PM) of local water resources by quantifying precipitation and the resulting flow in the stream.

By involving the local youth leader in the entire process, we gained the trust of the communities and were more able to face obstacles related to the isolated location, use of local language and hesitation caused by recurrent visit of researchers in the past.

Figure 1. *Installation of rainfall station and streamflow monitoring station at Lumbhuk stream, Nepal.*

References: Bhusal, J. K., Chapagain, P. S., Regmi, S., Gurung, P., Zulkafli, Z., Karpouzoglou, T., Buytaert, W and Clark, J. (2016). Mountains Under Pressure: Evaluating Ecosystem Services and Livelihoods in the Upper Himalayan Region of Nepal. International Journal of Ecology and Environmental Sciences | Regmi, S., & Gurung, P. (2015). A Report on Detail Situation Analysis of the Research Site 'Dhakarjhong and Phalyak village of Kagbeni VDC' | Regmi, S., Bhusal, J. K., Gurung, P., Zulkafli, Z., Karpouzoglou, T., Tocachi, B., Buytaert, W. (2017). Learning to cope with water variability through participatory monitoring: The case study of Mustang Nepal (submitted)

The communities were engaged and involved through several field visits; staying with local residents, personal and group discussions, resource mapping exercises and collaborative identification of problems like climatic vulnerability and water scarcity and solutions.

PM helps local communities to quantify water volume in the stream and the contribution of precipitation and snow.

Local people has started to discuss about different water management and irrigation practices such as the construction of ponds and canals, improved irrigation, etc.

Initially the water scarce problem was limited within the village, but PM has helped to spread it to wider scale (Local, District and National levels).

Examples of the generated information

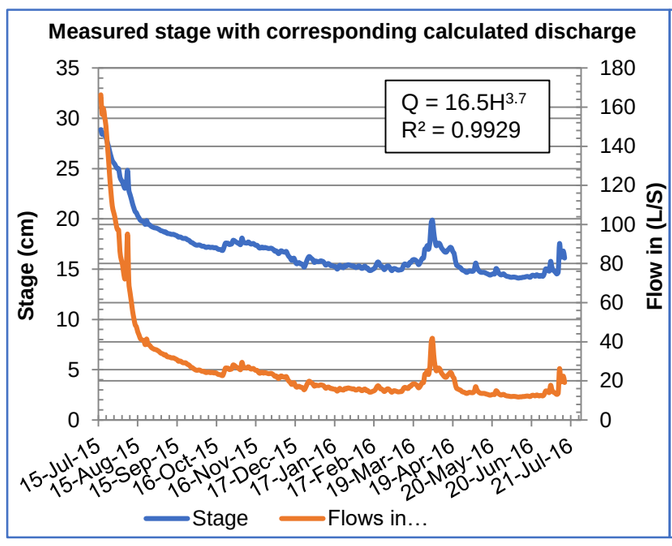

Figure 2. *Monitoring of streamflow based on water levels recorded by automatic sensors and manual observations by local farmers.*

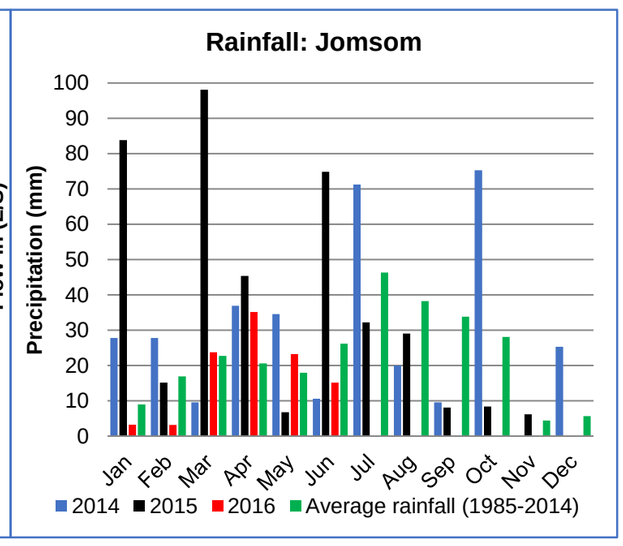

Figure 3. *Precipitation at Jomsom station shows a high temporal variability with potential impact on flow.*

Impacts of this participatory research

- PM develops ownership and increase the confidence in the research activities and in the implementation of the research outputs by communities and government stakeholders.
- Communities have committed to take responsibility of the installed instruments and District Development Committee has ensured management, sustainability and data utilisation.
- Irrigation Office has allocated the budget to build a diversion weir and canals, and has committed to invest in other works in the coming years.

Upper Kaligandaki basin
Mustang, Nepal

Can be cited as: Mountain-EVO (2017). Learning to cope with water variability through participatory environmental monitoring: Mustang, Nepal. Retrieved from http://paramo.cc.ic.ac.uk/espa/

http://paramo.cc.ic.ac.uk/espa/