Resource management context

- One of the remote & water scarce settlement in the country.
- Dwindling spring ponds are the only source of drinking.
- Tremendous pressure on scarce water resource due to increased demand (human, livestock, gardens).
- Attempts to bring piped water from 15km did not provide a stable solution.
- Appropriate water collection & sharing mechanisms can be out-scaled to other areas in Bhutan.

Socio-ecological setting

- 380 households practice upland farming & cattle rearing in 156 km² with elevation of 860-2400m & annual rainfall of 1000 mm.
- From 20 springs only 6 ponds exist.
- As spring dries people have to share dwindling resource.

Research objectives

- Enhance the stakeholders’ understanding & resiliency of spring ponds managed as network.
- Facilitate mobilization of community in collective management of water resource in the village.

Phases of ComMod process

- The process started with repetitive consultation with water users & institutions in the study area.
- Developing a sharing mechanism: research team in consultation with the community built a network of 7 concrete water tanks.

Gaming & simulation sessions

- The Role Playing Game (RPG) using the tank network helped to create awareness in management options.
- Computerized RPG helped players to display their actions in the gaming sessions & explain the concept to other non-participant households.

Monitoring & evaluation

Constant monitoring by local facilitator cum extension officer at the site who reported to researchers & irrigation engineer.

Computer model & Replay of gaming sessions

- An agent-based simulator replaying gaming sessions was developed.
- Players easily grasped the concept & could represent their move & explain their choices.

Influence of communication & new knowledge

Communication facilitated by gaming tools enhanced water sharing & saving mechanism & helped community better understand the benefit of water sharing & conservation.

Collective action plan

- Identification of spring catchments & protection measures;
- Maintaining sanitation of the water tanks & network pipe.

References


Authors & institutions

Gurung, T.R.1., Le Page, C.2., Nima, C.1., Choney, R.2., Landy, F.2., & Trebuil, G.1. (1) RNR Research Centre, Ministry of Agriculture, Wengkhar, Bhutan; (2) RNR Extension Centre, Kengkhar, Bhutan; (3) Paris West Nanterre La Défense University, France; (4) GREEN (Management of renewable resources & environment) research unit, CIRAD, France.