

**Watershed management planning generally means that first a plan has to be finalised before implementation can start. This article from Nepal presents a different approach, where planning and implementation go hand in hand according to a "plan-and-implement" step-by-step approach. In fact, the plan is in full operation by the time it is finalised.**



Photo: Pauline Brombacher

## Planning by doing

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In Nepal, watershed planning receives increasing attention. A bigger impact can be achieved through this approach as the watershed integrates all up- and downstream bio-physical elements. Scarce resources can be better allocated when concentrated in watersheds than when activities are scattered over a larger area. In order to make the planning process truly participatory the programme in the Pereni watershed chose to do it step-by-step. The first step was to plan and implement an "entry point" activity. After this, the next step can be planned and implemented based on people's needs, available resources and institutional capabilities. Thus planning becomes a never ending process.

### The Pereni watershed

The watershed is located in Dang district in the mid-western region of Nepal. The total area is 380 ha. Average farm-holding is less than 1 ha and little is produced for the market except for some lentils, potatoes and mustard. Chemical fertiliser and pesticides are hardly used. Livestock plays an important role, not only as the major source of draught power and milk but also to produce manure. This is mixed with straw and applied to the fields. Livestock plays a crucial role in the fertility management systems of the farmers.

For their survival and to ensure sustainability of their farming systems the villagers do not only rely on their agricultural lands (42% of the area) but also on the grazing wastelands and the forests (40% and

18%). The nearby tropical mixed hardwood forest with *shorea robusta* as dominant species provides fodder, fuelwood and timber.

### Degradation

The indigenous people of the valley, the Tharus, used to practise free grazing in the forests as there was enough space. They have no tradition of stall feeding, nor of using fodder trees. Since the eradication of the malaria mosquito from the valley in the 1950ies, people from the adjacent hill areas moved to this valley in massive numbers. This contributed to increasing land pressure, with many consequences. First of all, overgrazing in forests and grazing areas is now a major source of land degradation. It leads to loss of vegetative soil cover, followed by loss of top soil. The density of livestock (mainly cattle, buffaloes and goats) per unit area in this district is one of the highest in Nepal (estimated 7 heads of cattle per household in the case study area). Pressure on forest lands is also caused by local use of wooden logs to construct small dams in the river for irrigations purposes. As these are often washed away in the rainy season, they need to be rebuilt frequently requiring a tremendous amount of young wood.

### Learning from mistakes

Because of this severe degradation, the government's District Soil Conservation Office (DSCO), started to work in Pereni sub-watershed some five years ago. They aimed at greening a piece of 16 ha of barren, infertile lands surrounding the village, dissected with gullies. The DSCO first wanted to establish a nursery. However, the villagers at this stage were not interest-

ed at all in soil conservation activities. With a lot of persuasion and advance payment for labour done by the villagers, the nursery was established, trainings were given and reforestation began. The villagers saw the success of the seedlings growing, but were not yet motivated to play a leading role in conservation. They also did not completely trust the government agency, because of a bad experience in the past. Moreover, the proposed area for conservation, where people used to graze their cattle, was private property and the owners did not seem to take any interest in improving the site. The villagers, as appeared later, also did not believe that these poor lands could be converted in more productive lands again. At this point, now three and a half years ago, the DSCO realised its approach would not work: a new strategy was necessary.

### Step by step

The DSCO then approached three village leaders and organised with them a first village level workshop. Out of 100 households some 40 people, men and women, attended. The purpose of the two-day workshop was to increase people's participation in identifying needs and planning conservation activities. In an open brainstorming session two key problems became clear: lack of fodder and lack of irrigation facilities. In fact, this workshop could be considered the "entry point activity" for participatory planning in this area.

In order to address the first problem, exogenous varieties of forage species were introduced as the second step. This had two objectives: to meet farmers' need for forage and to reduce erosion in uncultivated land. Out of 24 species tried, 6 were

**A farmer showing the fishpond constructed near her homestead.**

found suitable. Criteria used were fodder quality and easiness of seed collection (farmers' criteria), soil conservation capacity and drought tolerance. Especially napier grass proved very effective in stabilising small gullies, especially in combination with small scale bio-engineering techniques like bamboo checkdams (see photo). The use of forage species expanded to private lands near the homesteads enabling some farmers to practise stall feeding. The production of forage seed has become an additional income generating activity for others. At the same time, other activities addressed the irrigation issue.

### Local organisation develops

To realise all this the farmers came together every few weeks, with the DSCO acting as a facilitator. Especially in the beginning the group process needed quite some attention. It resulted in the formation of a users' committee, which would be responsible for the management of the nursery and the reforested area. As it developed new sub-committees emerged and a system of sanctions was set in motion. This made it possible for the farmers to decide to not only protect the 16 reforested hectares, but also the old forest (150 ha). A zero-grazing system was adopted in both sites and a watcher was appointed, who was initially paid by the DSCO. A process is now taking place where the forest is handed over to the villagers as community forest. With help of the Forest Office and the DSCO a forest management plan is being developed.

In the momentum thus created farmers collaborated in trials with improved seed varieties and quite a few are using improved maize, mustard and wheat varieties now. Vegetable growing (onion, potato and cauliflower) increased with

extra irrigation facilities. On their request, farmers were trained on vegetable growing. Fish farming has been improved with the construction of fishponds.

### Achievements

One of the most prominent and visible achievements is an increase in crown cover of 50% in at least half of the existing government forest. The 16 ha of reforested badlands have an increase in ground cover of 80%. Impressive regeneration has thus been possible around Pereni village. Not so easily quantifiable, but certainly clearly visible, is the soil conservation impact: siltation problems downstream of gullies are reduced, major gullies (more than 5 m width) are stabilised due to less surface runoff from the forest and badlands and smaller gullies are controlled by bio-engineering methods. Farmers report that the ground water table slowly rises. The programme has helped to increase forage supply from 25 to 50% of the demand.

The Pereni watershed has developed into prominent resource centre for forage seeds and napier sets. For example, this year the amount of seeds produced was 238 kg, equal to a cash income of 31,000 Nrs (an unskilled labourer earns 900 Nrs per month). In the long run people will also be able to receive income from timber, fuelwood and fruit trees. Agricultural production of the farmland downstream of the protected area has increased because of decreased siltation and a higher ground water table.

However, the non-physical outputs of the process are perhaps even more important, especially the establishment of a well functioning, independent users' committee. Only now and then the DSCO is requested to facilitate the process, e.g. when a conflict arises. The committee now also takes responsibility for the negotiations with outside and inside institutions. For example, the lease contract had to be

made with the owner of reforested land. Villagers' awareness on environmental protection and improved management of badlands and forests has increased. Within the larger watershed (2500 ha) the effect has already spread to other areas: conservation activities are taking place in other villages and new requests for support have been formulated. Pereni has set an example for the whole district. Farmer-to-farmer visits are an important tool for disseminating the success, within and even outside the district. Two years ago, the success of Pereni led the Department of Soil Conservation to adopt a nationwide policy to allocate the majority of the resources to pocket areas on a watershed basis. A nice example of grassroot success which found its way "up" to central policy level.

### What can we learn?

The experiences in Pereni show that a "plan-and-implement" step-by-step approach can be effective. Motivated farmers are the key. They become actively involved through the first, often relatively uncomplicated activities. Early success highly contributes to this. By their involvement in the whole process of decision making and implementation, watershed management will gradually become more and more their own responsibility, which enhances sustainability of resource management. This approach makes it possible to replace a formal comprehensive plan, mentioning all activities to be implemented, by a working document in which the development process is recorded step-by-step. Monitoring by villagers as well as DSCO played a crucial role in this case. Something that could certainly still be improved upon.

The approach will, however, only be effective if sufficient time and attention is given to building a good relationship with the villagers. Village leaders should be involved to facilitate the community development process. And long-term aims of intervention (soil and water conservation) are to be combined with short-term ones, with direct benefits for the farmers. This may imply that drinking water and irrigation issues are also addressed. Listening to farmers is essential, assisting them in finding solutions which address their needs, both on public and private land. Stimulating people in their own decision making directly strengthens their institutional capabilities.

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Photo: Pauline Brombacher

*Behind the bamboo checkdams sedimentation took place, improving the water storing capacity of this spot. Napier established well after 1.5 year.*