



Agriculture / Nepal 15339

Permaculture booming in Nepal

After 6 years of steady work, the Jajarkot Permaculture Programme (JPP), in the mid-western Himalayan Hills of Nepal, grew from one acre of land to over fifty villages in four districts, employing some 120 staff and having 12,000 members. Chris Evans, designer, advisor and teacher to this programme, shows us that, in Nepal, permaculture has become a mature innovative approach to participatory community-based development of sustainable land use.

Chris Evans

The idea of permaculture was first introduced to Nepal in 1986 when its co-founder, Bill Mollison, was invited by local development organisations to run a design course. Since then many permaculture workshops have been held and permaculture is a common term for all kinds of activities in the development of sustainable farming in Nepal.

In Nepal, 91-93% of the working population is dependent on agriculture for their basic livelihood. Agricultural practices around Jajarkot have become finely in tune with local mountain climates, landscape and people's needs. Such practices are intimately interwoven with the forest and other natural resources to maintain the balance of nutrients necessary to support agriculture and thus provide food, fuel, leave fodder, timber, medicines and other basic needs. Nationalisation of the forest,

population growth and inappropriate programmes have combined to undermine the sustainability of traditional agriculture in a number of ways. Clearing forest land for farming, in an attempt to increase crop yields, has led to degradation of the very resources needed to support agriculture, and thus culture itself. The people of Nepal are now faced with the need to integrate forestry into agriculture in order to supply the resources they need for farming and other basic needs.

In Nepal, and Jajarkot is no exception, political and social effects of the move towards a market-oriented economy are combined with corruption from both the oppressive regimes of past decades and from the present inappropriate and unethical aid policies which promote high external input activities. The result is a disempowered people with inequitable access not only to basic needs but also to the products of the market economy - consumer and luxury goods - of which

people assume that to be without is a sign of poverty.

The Jajarkot Permaculture Programme

The Jajarkot Permaculture Programme (JPP), a relatively small local organisation in mid-west Nepal, has developed demonstration sites to show how sustainable agriculture can be practised by implementing good farm design and social programmes. Integration of trees, use of all farm land, improvement and utilisation of common property resources, and using techniques of low external input, provide the resources needed to increase crop yields without clearing new land.

The JPP is involved in training programmes for fruit and vegetable production, beekeeping, weaving, low-external-input techniques and drinking water systems. This is producing a diverse skills base, and the JPP is further identifying and utilising traditional farming, labour and product exchange systems to apply its work. Further, in order to strengthen the local economy, marketing of farm produce is recycling wealth back into the villages.

The JPP's results to date are so encouraging that part of its aim is now to apply and teach models of permaculture on a national and even international scale. The technologies it has introduced and taught

By using green manure Damar Bahadur increased his rice production from 1000 to 1600 kg/hectare in 1995 and to 2350 kg/hectare in 1996.

to farmers were taken up where useful and were adapted and improved by farmers themselves. The programme, in turn, took up these improvements in an information cycle that continuously feeds back and strives to improve itself, providing a better service to user groups. After seven years struggling with a more of less top-down approach, in 1995 the first real farmers' design course was organised, where farmers worked with farmers on permaculture design.

Farmer to farmer

Farmers who had already established and maintained new technologies could explain their experiences to the course participants visiting their farms. In one household, eight new technologies were found in its traditional farming system: fuel-efficient stove; compost making; collection of daily house sweepings into a trench for nutrient recycling; liquid manure production; vegetable production in a kitchen garden; a home nursery; agroforestry planting of multi-purpose trees on field and terrace edges, and green manures used in rice cultivation. This farmer stated:

"I use less fuel, have better meals, few pests in the garden, visit the forest less because there is more fodder and fuel coming from my land and, best of all, my rice production has increased from ten to twelve hundred KGs without any extra costs."

Agroforestry good for lazy farmers

The JPP's Gumi Resource Centre records show that about 75% of the fodder needs for three bulls, a cow with calf and two goats are met by the Agroforestry (AF) system on the farm and 100% of the firewood needs are now being met. Fuel from *Sesbania* seed plants alone gave 500 KGs. A farmer in Gumi has introduced sorghum as a green manure, ploughed in after a month's growth, prior to planting potatoes. He claimed a 300% increase in potato yield compared to the non-use of sorghum. A surprise quality evaluation came not from a farmer but from a rice mill owner, who claimed that rice grown with green manure's gave a 10% higher portion of grain to husk *"a fat juicy grain which de-husks easily compared to rice grown with urea which is all husk"* was his remark.

Rolling permaculture

The above examples of increased production were all attained without a drop in yield, which would be unacceptable in this community where

Twenty years of permaculture

Australian Bill Mollison coined the word 'permaculture' in the late 1970s. He defines permaculture (*permanent agriculture*) as 'the conscious design and maintenance of agriculturally productive ecosystems, which have the diversity, stability and resilience of natural ecosystems'. Since then permacultural design is used for all parts of a sustainable society; housing as well as community development. There is no central co-ordinating body for permaculture, but it seems there are almost a hundred permaculture institutions world-wide. A global directory of these institutions can be obtained from *Permaculture International Ltd.*

The Permaculture International Network has a data bank on international trainers, designers, students, institutions and projects in developing countries and publishes the quarterly magazine *Permaculture International Journal*. P.O. Box 6039 South Lismore, NSW 2480 Australia Fax: 0061 66 220579 E-mail: pcjournal@peg.apc.org

The ethics of permaculture

Care for the earth; Care for people; Distribute surplus; Reduce consumption

Some principles

- Everything works at least two ways
Give every element in your design at least two functions
- See solutions, not problems
- Co-operation, not competition in work, communications and economics.
Improve the relation between different elements in your design.
- Make things pay
- Work where it counts
- Use everything to its highest capacity
- Get a grip on your own healthy food and medicine production.
- Help make people self-reliant
'Let people feel proud'
- Minimise maintenance and energy inputs
achieve maximum yields
Avoid work that nature can do for you.

Some examples

- Chicken clean up pests and weeds, give eggs and young.
- A famous Mollison saying is:
'You don't have a snail problem, you have a duck deficiency.'
- Share information and ideas so all people can learn to live sustainably.
- Recycle grey washing water and compost organic waste.
- Only weed if you plan to replant immediately. Otherwise you will be weeding again within a month.
- Use sunlight to grow your plants, warm your house, heat your water and cook your food.
- Grow vegetables, fruits and herbs and raise chickens or bees in your backyard
- Explore local (rain)water sources, indigenous knowledge, appropriate technology, tools etc.
- Plant living fences of leguminous trees to build terraces on sloping land to stop erosion and produce fodder and fuelwood.

In permaculture, ecologists, agronomists and farmers are working on systems similar to what happens in nature. Stimulating a living soil to avoid ploughing and manuring, a permanent organic soil cover to avoid weeding and loss of water, an agroforestry system making optimal use of space over, on top and under the land, mixing multi-purpose trees, shrubs and herbs. Revitalising knowledge about wild edible plants and species of food crops ecologically appropriate to local conditions. Permaculture does not exclude but includes anybody and any idea that makes a more sustainable way of living possible.

References

- *Permaculture Magazine*, edited by Permanent Publications, Hyden House, Little Hyden Lane, Clanfield, Hants, UK, PO8 ORU. Fax: +44 1705 595834. E-mail: permaculture@gn.apc.org.

Further information

- Permacultura America Latina (PAL), Maria Victoria Arboleda (PAL project Director) San Ignacio 1188 y Gonzalez Suarez, Quito, Ecuador, Tel/fax +59 32506891, Email: maviar@pi.pro.ec
- Permaculture Training Centre of Uganda, Africa, PO Box 8643, Kampala, Uganda.
E-mail: ptcu@starcom.co.ug. Internet: <http://www.wolfnet.com/ptcu/>
- Fambidzanai Permaculture Centre, Box CY 301, Causaway, Harare, Zimbabwe, Tel/fax: +263 4 726911.

agriculture is the primary source of livelihood. New systems are introduced alongside traditional ones, and are designed to enhance and diversify production rather than replace it.

The second way of rolling permaculture is to use traditional methods of extension and outreach to disseminate an understanding and acceptance of improved techniques to as many people as possible.

An example is a sharecropping type of system of labour and product exchange called '*adhiya*' (*adba* means half). This involves a landless tenant farming the land of an absentee landlord and then receiving half the crop plus the following year's seed requirement. JPP has made *adhiya* contracts with local farmers and so has access to land in order to demonstrate rolling permaculture. In the same way, a fruit plantation was established into which fodder trees and grasses were integrated. JPP used its resources of seed, seedlings and information to contract the species selection, establishment and management of the orchard. Fruit is valuable for nutrition, income generation and as a low maintenance value production system. Permaculture emphasise perennial forms of agriculture, ideally from trees, hence the promotion of fruit trees in combination with other crops.



The scythe, a traditional European implement, is used to cut winter wheat and barley.

JPP's technical approach

Since highly appropriate traditional cropping systems (TCS) exist in Jajarkot, research concentrates on finding niches in time and space in which enhancing systems, such as green manures, can be added without affecting TCS yield. An example is planting mustard (a phosphate accumulator) or fenugreek (*Trigonella*, a nitrogen accumulator) into winter wheat shortly before harvesting the wheat in spring. When the next crop (usually maize or rice) is about to be planted, the green manure is mulched or incorporated into the soil, and the nutrients it has accumulated will be available to the next crop. In a different approach alfalfa (lucerne) is introduced in the fallow period after millet. The *adhiya* approach has greatly facilitated these improvements.

Revitalising traditions

The JPP's philosophy is that culture, farming, economy and environment are inexorably interconnected, and losing the balance in one, means weakening the others. It thus strives to demonstrate that all three can be mutually strengthened with a mix of local resources, new appropriate technologies and an emphasis on traditional wisdom, the best available local resource. The latter of course has to include the skills of dance, song and story telling. In this way, local traditions can be given new vitality.

Conclusions

The process of development is a long one, where one hopes that constant evaluation of progress will lead to adaptation of techniques and approaches to optimise efficiency. This does not mean maximising the 'speed' of development. There are too many examples of projects that have left more harm than good in the wake of high input technology and short term benefits, which largely ignore traditional practices, are of too large a scale, and often only



Maya Gaha in her kitchen garden in 'Gumi' demonstrating the use of liquid manure (in barrel), polyculture and companion planting of marigold.

pursue monoculture goals. The 'sharp end' of development activities should be to leave behind an infrastructure of improved local resources, skills, environment and economy, which the local people can build upon in a self determined way. In the JPP's case the 'sharp end' activities are training and skill development, social work and motivation through participation. An appropriate 'tool box' of technology based on local needs is then implemented by working within local traditions and cultural activities and beliefs, such as festivals, labour exchange practices, and a language based (in Nepal) on the vedic script (a Hindi/Sanskrit translation of

permaculture is *Grihasthasram*). The results of developing such an approach is evident, with high participation in the programme by villagers across a range of ethnic and social groups.

Chris Evans, Technical Advisor JPP, PO Box 10908, Kathmandu, Nepal.

Reference

- *Grihasthasram Newsletter*, Jajarkot Permaculture Programme, PO Box 10908, Kathmandu, Nepal. Fax: +977 1225277.