"Fruit trees are improving the health of my farm and my Family."

Nayakrishi Andolon: Recreating community based organic farming

Farhad Mazhar, Farida Akhter, Jahangir Alam Jony & Rafiqul Haque

Most farmers in the flood plains of Bangladesh shifted to Green Revolution agriculture during the sixties. Farmers began to face ever increasing problems as their survival base was being threatened. Gradually, a group of farmers developed an economically viable alternative to modern agriculture, community based organic farming, which is locally called Nayakrishi Andolon. Now, due to globalisation, the economic conditions for small farmers are deteriorating even further, and Nayakrishi Andolon is becoming a fast-growing movement of farmers.

New ways needed

Tangail is one of the flood-plain zones in Bangladesh. Every year, the river overflows into the paddy lands, often badly affecting the small farmers of the region. In 1988, they approached the local organisation, UBINIG, for support. In working with the farmers, UBINIG found out that it was not only the flood that posed a great problem for the farmers, but also the practice of so-called modern agriculture. To get a more comprehensive understanding of how farmers perceive chemical-based agriculture, UBINIG undertook a study in 1989-90. A wealth of information was collected through group and individual discussions with farmers. The farmers pointed out that:

- The fertility of the soil was clearly declining. More and more fertiliser was required every year to prevent yield decreases.
- The natural fish and frog populations were declining in quantity and diversity.
- Pest attacks in the fields were more widespread and intense.
- A general decline in livestock and poultry populations, not due to economic poverty, but the lack of fodder. The new HYV rice produce less straw than the local varieties.
- There were fewer birds, bees, butterflies and other insects in the village resulting in poor pollination and low yields of fruit trees.
- The nutritive quality of food was declining as farmers produced nearly no pulses and oilseeds, and a far less supply of fish, livestock products and fruits
- The health situation was worsening, with many more gastric, skin and respiratory diseases, and problems of women in childbearing. Pesticides were seen as killers of human beings, used for suicide and murder of women.

The farmers realised that the total amount of products and income of the farm was declining. In the case of HYVs, farmers figured out that calculating productivity and income on the basis of the yield of a single crop is faulty and misleading.

Nayakrishi Andolon

These experiences led the farmers to search for new ways of food production. Initially, the peasant women took the lead in stopping the use of pesticides, mainly for health reasons. Then, a group of farmers organised themselves to experiment with green manure and compost. Compost made of water hyacinth, available in plenty, became quite popular. This was the first breakthrough - this initial group of farmers became convinced that they did not need to depend on pesticides and chemical fertilisers. Soon 'Nayakrishi Andolon' (New Agriculture Movement) spread from village to village as a community-based movement going beyond sustainable technologies to regeneration of the life activities and social relations of rural communities. It promoted the joy of living creatively with the entire world: human society and nature, visible and invisible, organic and inorganic.

UBINIG plays an inspirational role and is a source of alternative information for farmers. It interprets currently available knowledge into popular language. Together with UBINIG, farmers test new ideas in practical ways. Care is taken not to suppress the wisdom of farmers in the name of "science", yet farming life and knowledge is not romanticised.

Ten principles

As experience and confidence grew, the farmers developed a set of 10 simple principles for Nayakrishi farming.

Principle 1: Absolutely no use of pesticides. Pesticides do not only kill pests, they also kill other ecologically beneficial living organisms. Monoculture is one of the main reasons for pest attacks. Pests can be controlled without the use of poisons.

Principle 2: No use of chemical fertilisers. The land must be made healthy through alluvial sediments, organic fertiliser, crop mixing and agroforestry, which give natural nourishment to the soil and ensure the presence of living micro-organisms.

Principle 3: Manage pests through conservation and constant regeneration of biodiversity. The practice of multi-cropping has become popular, also for pest management.

Principle 4: Agroforestry with integration of local fuelwood, fruit and various multipurpose trees into rice and vegetable fields. Exotic or imported species are generally rejected.

Principle 5: Calculate total production and income of farming to the household and the community as a whole, not as the quantitative productivity of a single crop. This gives a more accurate view of the overall benefits of the farm.

Principle 6: All domesticated and semi-domesicated animals, livestock, poultry and birds are part of the farming household.

Principle 7: Agriculture is also aquaculture.

Principle 8: Seeds and genetic resources are common resources of the community and must be conserved at the household and community level. The privatisation of seeds and genetic resources, the patenting of life forms and genetic engineering is resisted.

Principle 9: Water is wealth because it brings fertile alluvial sediments.

Principle 10: Stop the use of deep tube wells for irrigation. A lot of harm has already been caused to the groundwater and to the cultivable land.

Farmers are aware that "external" application of inputs is a hangover from the old habits of chemical agriculture. They are constantly innovating new ways to increase the fertility of their soil, without "external" inputs. Nitrogen-fixing species of plants and trees are growing in popularity. Where chemical fertilisers have been used extensively, a gradual phasing out is suggested so that a decline in crop output is prevented.

Village workers are the backbone

The activities of Nayakrishi Andolon are coordinated through centres run by UBINIG in all districts to which the movement has spread. Training programmes, workshops and meetings are organised at these centres. UBINIG coordinates the activities of experienced Nayakrishi farmers training new farmers. The farmers use the centres as their meeting places and for mutual sharing of information.

The backbone of the Nayakrishi network is the gram karmi or village workers. They are mostly women farmers, who mobilise and train the farmers in their villages. Apart from networking and campaigning, gram karmi maintain audits of the natural resources of the village, which is vital in maintaining and managing the local biodiversity. The information is maintained collectively.

An annual farmers and weavers' fair is organised in Tangail to disseminate information at a wider level. Thousands of farmers, including those who follow conventional practices, participate at this fair. As such, it is an excellent event for debates, discussions and sharing of information between and among farmers of different areas. Cultural functions are an integral part of the fair.

Nayakrishi and biodiversity

Control over seed is the lifeline of the farming community. Women conserve, propagate and germinate seeds. The loss of seeds from the household also means a loss of power for women. The women of Nayakrishi, therefore, have started to rebuild their own *veez sampad* or "seed wealth". The concept strongly contrasts with concepts like "seed banks" or "gene banks". The peasant women are against any centralisation of seed wealth in the form of a "bank". Seed collection, conservation, preservation and regeneration in this context states that :

- Women must regain control over seeds and the associated knowledge and skills. The common seeds should be preserved at the household level.
- A specialised network looks after specialised seeds, or seeds that are not considered economically valuable to the villagers in immediate terms. It conducts investigations and tests to know more about particular varieties. There is interaction within and between villages among the seed-network members. Men can also be members of such a network. Information on seeds and collection cannot be shared with any "unknown" persons or agencies without the consent of the group.
- As an initial experiment, a community seed wealth centre enables Nayakrishi farmers to exchange seeds free of charge.
- The community seed wealth centre is based on the knowledge of the women in seed preservation and germination. It uses earthen pots for the preservation of seeds. The seeds are kept in a place not different from a farmer's house. The impact of the weather is observed closely and a standardised drying method appropriate for long-term preservation is studied.
- All *gram karmi* must maintain a nursery, and conduct nursery activities on a regular basis. Nayakrishi *gram karmi* sell their seeds and seedlings for generating part of their income.
- More research is necessary to evaluate and compare the performance of different indigenous and "high-yielding' varieties (HYVs).

With no more poisons used in the villages, farmers see an increase in varieties of fish and a wide range of uncultivated crops, either as partner crops from the multicropping fields or grown on common land. Local species, breeds and varieties of crops and animals are given priority. The trend is in finding a pattern that is best suited for a particular farm in its totality, with livestock, birds and fish. Raising local breeds of livestock is easy and profitable. Local crop varieties are usually economically advantageous and ecologically suitable. Farmers are not against HYVs offered by the formal sector as long as they can collect and preserve the seed, and as long as the varieties do not need pesticides, chemical fertiliser and water. They are strongly against hybrids which make farmers dependent on seed companies. The HYV seeds that can be cultivated the Nayakrishi way play a key role in the transition from the modern to the Nayakrishi system of cultivation.

Preservation and use of medicinal plants

The medicinal species and varieties are maintained and managed in the wild, although a few are domesticated. Nayakrishi argues that the medicinal value of a plant can best be ensured if the plant is collected from its own natural habitat. According to this principle, the maintenance and management of medicinal plants is done at two levels: through the structure of traditional midwives, and through women farmers who specialise in medicinal plants.

There are always one or two households in the village, who take the responsibility

Mixed cropping, it is important to find a combination of crops that is best suited for a particular farm.

Photo: UBINIG

Photo: UBINIG

Nayakrishi farmers give priority to local varieties

to ensure that all the common species and varieties are replanted, regenerated and conserved by the farmers. Some women specialise in certain species and varieties. Their task is to collect local varieties from different parts of Bangladesh and to monitor and document the introduction of a variety in a village or locality. They keep up-to-date information on the given species. Such specialisation encourages individuals to develop in-depth knowledge in a particular area. Since this knowledge is highly valued by the group, the person gets much respect and recognition that contributes to the process of building up a collective spirit and knowledge-sharing.

Nayakrishi marketing

The Nayakrishi farmers produce enough food crops to meet their subsistence needs. The surplus of vegetables, rice, pulses and oilseeds is sold first in their own villages, in the local hat – the weekly market, and bazaar – the daily market. People are very interested in buying food products that are grown without the use of chemical fertilisers and pesticides. Consumers are willing to pay a slightly higher price for better-tasting products. However, Nyakrishi farmers do not want their products to be considered as exotic or luxury items. They must be for the common people. So the farmers do not charge higher prices if they do not have to.

In one area, the Nayakrishi farmers from several villages have formed their own market. They gather twice a week and sell all their products collectively. They have put up a Nayakrishi banner to attract people to this market, which is gaining popularity.

In Dhaka, the capital, there is demand for local rice varieties husked in the traditional *dheki* – the husking wood. The farmers, in a limited way, are supplying this rice to Dhaka.

Counting the benefits

Around 65,000 families all over Bangladesh follow Nayakrishi principles and the movement is spreading fast. Most important is the general confidence among farmers that Nayakrishi is "economically viable". Besides, the ecological situation is improving, the land is regaining fertility and biodiversity is being enhanced.

Farmers' livestock populations have increased by between 100-200%. Their cash income has increased by around 50-200%. Mixed cropping is seen to be three times more productive than monocultures. It also provides revenue from cash crops. Farmers are economically better off because they do not have to incur the costs of inputs, while the crop output is almost the same as that of HYVs. Besides providing food security, it also is a good risk management strategy.

The community seed wealth centres have also been extremely effective. After the harvest, the farmers are obliged to return two times the amount of seed they took. This condition is waived if the harvest is unsuccessful. Most farmers, however, return more than is required of them because the seeds and the seed wealth centres are "theirs" and they benefit directly from them. The farmers can also sell their seeds in the market. Many local varieties have been collected and reintroduced. One seed wealth centre has collected nearly 70 varieties of jak fruit.

The farming community is more confident than before in their capacity to change their life situation. Without pesticides and chemical fertilisers and with a diverse, nutritious diet the farmer families are a lot healthier. There are also cultural impacts such as reduced incidences of violence against women. The very nature of the relationship Nayakrishi brings into the life activities of the villages empowers women, instead of suppressing them.

Potential for upscaling

Poor farmers, those having less than one acre of land, make up 75% of the Nayakrishi farmers. Among them, more women take the lead in mobilising other farmers. Poor farmers are attracted to Nayakrishi mainly for economic reasons. The prices of chemical fertilisers and pesticides have increased significantly, and they have to use more fertilisers than before. Many of them are indebted and forced to sell land because they are unable to cultivate anymore for lack of money.

Over time, Nayakrishi is also gaining acceptance among the middle farmers with 1-3 acres and surplus farmers with 3-5 acres of land. The representation is 20% (middle farmers) and 5% (surplus farmers). While the poor farmers are joining for subsistence reasons, the middle and surplus farmers have acknowledged the economic viability of the organic farming system as a whole. They have also realised the environmental hazards and the loss of biodiversity due to the use of chemicals and the overwhelming practice of monoculture.

At the national level, Nayakrishi is increasingly being taken up by smaller NGOs in their rural activities. Links forged with agricultural scientists is a significant achievement. The Nayakrishi practice has been able to provoke critical reflection in mainstream agricultural thought. A very co-operative and supportive relationship has been built up between Nayakrishi and the main agricultural institutions of the country.

Although policy-makers in the Ministry of Agriculture are quite aware of the Nayakrishi movement, it has received little support at the national level. UBINIG is now trying to influence them through issues of pesticides, seeds and irrigation. Against all odds, it has proven that there is a viable alternative to the destruction of rural societies by "progress".

■

Farhad Mazhar, Farida Akhter, Jahangir Alam Jony & Rafiqul Haque

UBINIG, 5/3 Barabo Mahanpur, Ring Road, Shaymoli, Dhaka 1207, Bangladesh.
Phone: + 880 2 811 1465 / 811 6420/ 812 4533;
Fax: + 880 2 811 3065;
E-Mail: nkrishi@bracbd.net,
ubinig@citechco.net