

Mahaweli settlers in Sri Lanka diversify their farms using Farm Planning

Alice de Jonge

The Promoting Multifunctional Household Environments (PMHE) project, implemented by ETC-Lanka, was operational in Mahaweli System C in Sri Lanka, from 1991 to 2000. This article deals with Farm Planning for Sustainable Farming, an approach towards sustainable development of farms, initiated by the author and developed further in the project, which resulted in farmers moving away from a monoculture of paddy, to more integrated farming.

Paddy – main cash crop

Mahaweli System C is part of a large agricultural settlement scheme in the “dry” zone of Sri Lanka. Between 1980 and 1990 nearly 22,000 settler families arrived from various parts of the island to become paddy farmers. Each settler family was entitled to 1 ha of irrigated paddy land and 0.2 ha of highland for a homestead. The settler farmers were in turn supposed to transform Mahaweli System C into one of the key rice producing areas of the country. Agricultural extensionists of the Mahaweli Authority of Sri Lanka (MASL), were equipped to support farmers in cultivating rice.

Low profitability of paddy farming

After the first 2-3 years (5-6 seasons) of paddy cultivation, the majority of farmers began to see drastic yield decreases due to loss of soil fertility. Maintaining yields of around 4 to 5 tonnes per ha, much lower than the initial yields of 6 tonnes per ha, required application of increased quantities of inorganic fertiliser. With the price of fertilisers escalating steadily, the returns from paddy farming were marginal. Added to this was the lack of experience amongst farmers on how to maintain soil fertility under conditions that differed considerably from their areas of origin. The extension package offered by the MASL was hardly conducive in developing location specific farm systems suited to the different soil and water conditions in Mahaweli System C.

Finding alternatives to paddy

The deteriorating economic situation of the farmers, sub-optimal use of resources and degradation of the resource base prompted PMHE to consider principles of ecological farming and low external input and sustainable agriculture for developing alternatives to the existing farm system. Farm Planning for Sustainable Farming evolved through intensive interactions between farm families, MASL and PMHE extension staff and



Photo: Alice de Jonge

*Farm
planning,
a family
affair*

developed into a participatory extension methodology and a farmers' tool for resources management and farm development. (see box)

Farm planning helps farm families to search for alternatives and combinations of crops that would bring them more returns than paddy. It also helps them to find ways of utilising resources more efficiently. The families realise that bio-mass has to be created to make up for the nutrients that leave the field in the form of paddy grain.

Farm Planning and ecologisation

Farm Planning for Sustainable Farming is based on ecological principles (see box) and as such it contributes to develop a farm system in a more ecological way. In Mahaweli System C, it contributes, in combination and synergy with all of PMHE project activities, to the ecologisation of the paddy mono-crop in the irrigated tract. This is however inspired in the first place by an economic motive: how to get more returns from farming and how to reduce costs. Aspects of environmental conservation and health are of secondary importance. Based on ecological principles, Farm Planning enhances the awareness among farm families on the optimum, instead of maximum use of the environment.

A recent study shows a remarkable difference in ecological practices between farms of families practising Farm Planning and their neighbours without a Farm Plan. Almost 100% of the farm families involved in Farm Planning practise recycling of organic matter to improve the soil fertility of their paddy field - against hardly 50% of

those not acquainted with it. Incorporation of paddy straw has become an established practice among farm planning families in place of the former habit of burning it. Banana, peanut and vegetables are being grown in the irrigated fields alongside paddy. Some families have successfully incorporated livestock in the farm system. Glyricidia is planted along the bunds of the paddy field to serve many purposes: fodder, green leaf manure, trails for climbing annual crops, firewood, etc. In this way certain needs of the farm are fulfilled by material produced on the farm itself, which reduces the cost of and the need for external inputs. A majority of the farm planning families considers soil fertility as the most important criterion for sustainability of the farm. Despite the home garden and paddy field being located apart, farm families bring surplus organic matter from paddy field to home garden and vice versa to improve soil fertility.

An important effect of Farm Planning is that the paddy land is observed and analysed: which parts are suitable for paddy cultivation and on which parts other crops or even perennials would do better? While diversifying the paddy mono-crop, the ecological principle of a site-specific choice of plant species is increasingly practised.

A young farmer's story

Mr. Jayasinghe, a young farmer from Mahaweli System C, changed his entire approach to paddy farming, remarkably, since he started with Farm Planning in 1996. After analysing the situation he improved the paddy field step by step. By levelling his land in a planned way over dif-

ferent seasons, he is now able to control weeds by flooding. He has planted a plot of about 1/2 acre, less suitable for paddy cultivation, with banana, inter-cropping the young banana plants with vegetables at first. *Gliricidia* is being established on the bunds of his field. Jayasinghe uses the *gliricidia* leaves, together with the rice straw, to improve the soil fertility in poor plots. In the banana - vegetable plot he uses cow dung. He has also started to plant arecanut and coconut in his paddy land, thus diversifying his income and spreading the risk.

His external inputs have decreased considerably. "I use straight chemical fertilizer, which gives a good result in combination with the straw and leaves. Insecticides and herbicides are used only when necessary. I follow an IPM course with the extension officer", says Jayasinghe.

In the early years of settlement Jayasinghe sold his paddy crop directly from the field, like all his neighbours did at that time, and received the lowest price. In his Farm Plan he planned for storage of his paddy, to get better returns by selling it at the right time. Now he is a seed paddy farmer, delivering high quality seed to the South of Sri Lanka.

Jayasinghe is very clear about the benefits of Farm Planning for his farm and life: "After Farm Planning I have better results and I am more focused in my work. In the beginning, however, I had the feeling that I had lost my freedom, that I was trapped in a 'cage'. But now I have realised that it is my own plan, and that I can change it whenever I want."

Asked in which way his farm has become more sustainable, he answers: "When you plan your farm, you should use all your own resources first, before buying any inputs. I am now using all the crop and farm wastes, which I did not do earlier. I have been able to reduce my costs so much that I am no longer taking crop loans."

At the end of every season, the young farmer evaluates his well-kept records, to plan for the next season. "If you don't plan, you can't do all your activities in time, you miss things. It is also important to put your plans on paper, so that you can look at your objectives from time to time and build up your motivation". That maybe the reason why Jayasinghe has put his marriage into the plan for the near future: he has understood that Farm Planning is more motivating when it is a family affair.

Alice de Jonge, Advisor/Trainer for Participatory Approaches / Sustainable Livelihood; 44 Suffren Street, Pondicherry 605001, India. alicedejonge@satyam.net.in

References:

- Jonge, Alice de, **Farm Planning for Sustainable Farming - a trainers workshop for PMHE**, Kandy, Sri Lanka. 1996.
- Jonge, Alice de; **A study and evaluation of five years of Farm Planning for Sustainable Farming for PMHE**, Kandy, Sri Lanka. 1999.
- PMHE Trainers Team; **Farm Planning, a training manual**, (draft).1999

Key elements of "Farm Planning (FP) for Sustainable Farming"

1. Learning from the forest for the farm.

Before starting a farm planning process in a farm, farm families and extension staff learn from the example of a natural forest as a sustainable environment. The most important ecological processes through which the natural forest sustains itself and creates a **balanced environment** are in brief:

- Bio mass production
- Diversity and Complexity (a web of relations in unity)
- Living soil as a major component of soil fertility
- Recycling of all organic matter
- Efficient use of all the resources
- Site specificity of plant and animal species chosen.

By discovering and analysing these processes and their linkages in a natural environment, families and extension staff draw learning points for sustainable farming.

Efficient resource use serves as the starting point for FP. The **unity** in a natural forest environment as a **system with a web of interactions between its elements** is also important. Likewise, in FP the farm is considered in a holistic way, as a system with flows of material and energy between all the different farm enterprises.

2. Observation and analysis of the existing situation of the farm.

The planning process starts from the existing situation on the farm, which is carefully observed and analysed. How does the present farm **system** work and what are the available resources? The farm family members are the most important resource persons in the exercise of observation and analysis of **resources, processes, practices, opportunities and problems** in their own farm. Extension staff act as facilitators. Together they document the analysis of the farm system in maps, flow charts and written or "symbolised" text: this is the first part of the **farm document**.

3. Exposure visits to farm families who successfully developed their farms.

Groups of farm families who have mapped the existing situation of their farms visit others who are in the process of successfully developing their farms, and collect ideas for their own farm plans.

4. Planning for further development of the farm.

Before making the Farm Plan, farm families and facilitators discuss about planning in relation to needs, goals, dreams, and **vision on the future**. Planning starts with the 'here and now', the existing situation, and reaches a final goal. It describes changes and **improvements in different feasible steps**, keeping in mind the lessons learned from the natural forest environment and utilising **available resources** optimally.

In a Farm Plan this final goal, the more sustainable situation of the farm, is put on paper. Then, with the help of simple formats, often designed by the farm families themselves, the different steps of systematic development of the farm over several years, towards the desired situation, are chalked out: the **long-term plan**. The long-term plan is divided in **seasonal work-plans**, in which the activities for the season, the necessary resources and the expected returns are documented. This is the second part of the **farm document** made by the farm family.

This farm document, the Farm Plan, is not a blue-print but a **flexible framework for farm development**, which can be adapted to changing situations (e.g. weather conditions, availability of resources, changing views and priorities, new ideas, etc.). This makes Farm Planning an **ongoing process**.

5. Implementation of the Farm Plan.

Implementation of Farm Plans is the responsibility of the respective farm families. Their Farm Plan is a documented **commitment** to the systematic development of their farm. It increases the confidence of the farm families: "We can reach this goal on our farm with our own resources". At the end of each season the outcome of the **seasonal work-plans** is **reviewed** and **new work-plans** are made, based on the results, and with reference to the long-term plan.

Farm Planning for Sustainable Farming is a **family affair**, involving women, men and children and their experience, knowledge and views of the farm. The planning process, the plans and their implementation are 'owned' by the family and facilitated by extension staff.



Farm plan of a diversified home garden