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LEISA INDIA

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Family Farming

A way of life

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December 2013 Volume 15 no. 4

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COVER PHOTO

A small holder family in Magadi grows finger millet which is hardy and nutritious. (Photo: AME Foundation)

The AgriCultures Network

LEISA India is a member of the global Agricultures Network. Seven organisations that provide information on small-scale, sustainable agriculture worldwide, and that publish:

Farming Matters *(in English)*

LEISA revista de agroecología *(Latin America)*

LEISA India *(in English, Kannada, Tamil, Hindi, Telugu and Oriya)*

AGRIDAPE *(West Africa, in French)*

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LEISA China *(China)* and

BAOBAB *(East Africa, in English)*.

Dear Readers

Out of the 2.5 billion people in poor countries living directly from the food and agriculture sector, 1.5 billion people live in smallholder households, of which many are extremely poor, according to FAO. Smallholders, practicing agro-ecological approaches promote sustainable farming systems, using mainly family labour for production and using part of the produce for family consumption. Improving smallholder agricultural livelihoods is essential for achieving large scale poverty reduction and growth. Small holder farmers when supported with right incentives and opportunities, respond and innovate to produce more, sustainably.

This issue of LEISA India includes experiences that show how sustainable smallholders can be really productive. Articles focus on how well managed small holder systems using agro-ecological approaches invest in building soil health and nurture biodiversity, thereby increasing productivity and reducing dependency on external inputs. You can download the issues of LEISA India (English as well as language editions) from our website www.leisaindia.org.

We received very encouraging response to our Readers Survey. We are happy to share the survey results (See inside). We are extremely thankful to all those who responded and shared their views on the magazine.

While we thank all those readers who have been contributing voluntarily for the magazine, we request you to continue supporting us. To enable us to share a printed copy with you during the year 2014, kindly send your contributions along with the enclosed form.

Wishing you all a Happy New Year!

The Editors

LEISA is about Low-External-Input and Sustainable Agriculture. It is about the technical and social options open to farmers who seek to improve productivity and income in an ecologically sound way. LEISA is about the optimal use of local resources and natural processes and, if necessary, the safe and efficient use of external inputs. It is about the empowerment of male and female farmers and the communities who seek to build their future on the bases of their own knowledge, skills, values, culture and institutions. LEISA is also about participatory methodologies to strengthen the capacity of farmers and other actors, to improve agriculture and adapt it to changing needs and conditions. LEISA seeks to combine indigenous and scientific knowledge and to influence policy formulation to create a conducive environment for its further development. LEISA is a concept, an approach and a political message.

MISEREOR founded in 1958 is the German Catholic Bishops' Organisation for Development Cooperation. For over 50 years MISEREOR has been committed to fighting poverty in Africa, Asia and Latin America. MISEREOR's support is available to any human being in need – regardless of their religion, ethnicity or gender. MISEREOR believes in supporting initiatives driven and owned by the poor and the disadvantaged. It prefers to work in partnership with its local partners. Together with the beneficiaries, the partners involved help shape local development processes and implement the projects. This is how MISEREOR, together with its partners, responds to constantly changing challenges. (www.misereor.de; www.misereor.org)

AME Foundation promotes sustainable livelihoods through combining indigenous knowledge and innovative technologies for Low-External-Input natural resource management. Towards this objective, AME Foundation works with small and marginal farmers in the Deccan Plateau region by generating farming alternatives, enriching the knowledge base, training, linking development agencies and sharing experience.

AMEF is working closely with interested groups of farmers in clusters of villages, to enable them to generate and adopt alternative farming practices. These locations with enhanced visibility are utilised as learning situations for practitioners and promoters of eco-farming systems, which includes NGOs and NGO networks. www.amefound.org

ILEIA – the centre for learning on sustainable agriculture is a member of AgriCultures Network which shares knowledge and provides information on small-scale family farming and agroecology. (www.theagriculturesnetwork.org). The network , with members from all over the world - Brazil, China, India, Kenya, the Netherlands, Peru and Senegal, produces six regional magazines and one global magazine. In addition, is involved in various processes to promote family farming and agroecology. The ILEIA office in The Netherlands functions as the secretariat of the network.

5 Ten qualities of family farming

Jan Douwe van der Ploeg

Even in the International Year of Family Farming there is confusion about family farming: what is it actually, what makes it unique, and what distinguishes it from entrepreneurial farming or family agribusiness? Confusion tends to be highest in places where modernisation of agriculture has led society further away from farming. At the start of the International Year of Family Farming, Jan Douwe van der Ploeg provides some conceptual clarity. He takes us into the world of family farming, which is considered "both archaic and anarchic, and attractive and seductive".

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Sustainable Integrated Farming Systems (SIFS) is a system which focuses on increasing farm productivity by increasing diversification, resource integration and creating market linkages. Welthungerhilfe is helping 8000 small and marginal farm families in resource poor regions in India, Nepal and Bangladesh, in adopting this sustainable farming system.

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Productive and sustainable

R Manikandan, Subhashini Sridhar, R Abarna Thooyavathy and K Vijayalakshmi

Efficient use of resources, time and energy is possible by creating self replicating cycles within the system. The careful selection of species - both plant and animal, the effective utilization of space and resources and efficient recycling processes will not only add stability and resilience to the system, but can also increase farm income. Mr. Thilagar, a farmer from Tamil Nadu has proved this.

23 Multilayer vegetable farming

Small holder community innovates for improved production

Prakash Singh and G C S Negi

Farmers often try new ideas in their fields and develop many local technologies by innovations and adaptations. These innovations are based on deep knowledge of the local environments, ecologically and environmentally sound. This paper documents such an innovative practice of vegetable cultivation developed by marginal farmers in a mid altitude Himalayan village of the Uttarakhand state in India.

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Including Selections from International Edition

Family Farming

A way of life

India, which is more than billion populous, is grappling with growing inequities, rural poverty, hunger and malnutrition. With majority livelihoods being farm based, supporting family farming is not a 'primitive' strategy but a necessary one. World is being repeatedly warned through several independent studies that food crisis is imminent and industrial agriculture models are either stagnating or failing. They have been suggesting that small holders and ecological agriculture are the key strategies to realise multiple objectives - food and nutritional security, improve rural livelihoods and ecological stability. This is reflected in the recognition of 2014 as International Year of family Farming by United Nations with the support of several countries. The assumed trickle down effect of benefits through prevalent economic growth strategies is not happening enough, while raising inflation and accentuated climate changes are pointing out that future challenges are tougher to handle. There is a belief that corporatisation is the mantra, with choices, control and access to resources shifting away from farmer's hands. Also, doles and subsidies are being highlighted as solutions. While they do provide some relief, to a limited extent, they are in fact a short term measure, a 'band-aid' strategy.

In this contextual realities, does family farming offer some solutions? How is it being practiced – how it can be supported further, are the key questions. In India, traditionally, farming has been family based and majority of them are smallholders. The success of family farming lies not in 'specialisation' but in practising farming to meet diverse household needs rather than market opportunities alone. This edition illustratively brings together perspectives, practices and few innovations which highlight different dimensions of family farming.

"Family farming is a way of life" - there are unique advantages - the security of access and control over resources, meeting multiple needs of the family – food and income, the relationships with nature, the bonding with the past, present and future; ensuring freedom from external exploitation as well as freedom to do your own way. (Jan Douwe, p.5). It is believed that Family farming can have a significant role to play in eradicating poverty, ensuring sustainable management of natural resources and eco system services and preserving local heritage. In low income economies, given the right support, could become a country's backbone of both rural development and national economic growth (Eve Crowley, p.21).

Farming is a way of life for 78% of farmers in India

At the household level, farms which are designed to meet multiple needs through diversity, farms integrating resource flows, illustrate some practical models of family farms based on agroecological approaches. Sustainable integrated farming systems models being tried out by 8000 small and marginal farm families in India, Nepal and Bangladesh focus on increasing farm productivity by increasing diversification (Anshuman Das, p.8). Integrating resource flows – use of outputs from one subsystem as inputs to the other (Kamalasanan Pillai, p.12; R. Manikandan et al., p.14); integrating enterprises like pig-poultry-fish farming (p.28) are some examples. These examples highlight the multifunctionality of a family farm in its two dimensions – sustaining farm needs and making it productive as well as meeting diverse farm family needs – food income and nutrition.

Family farms as multipurpose enterprises have been serving as buffers in times of disasters, as glue of social bonding, often functioning as a 'value web' between farming families and communities. (Robert V Bishop, p.16). Innovations are a response too - approaches like multilayer farming – growing three crops with varying germination periods and crop durations planted at different depth on the same piece of land (Singh and Negi, p. 23), redesigning of equipment to suit small farmer needs and capacities (T J James, p. 19), construction of low cost protective structures from excessive heat to grow vegetables in the homsteads (p.27) etc.

There are serious challenges too – stifling and non supportive policy environment, lack of extension system to handle the farmer's distinct needs and capacities, and lastly 'converting' family farms to be 'business like' models. However, successful pilots can become big impact programmes, for instance, as in Andhra Pradesh, through NGO- GO collaboration (Zakeer Hussain et al., p.25).

Ten qualities of family farming

Jan Douwe van der Ploeg

Even in the International Year of Family Farming there is confusion about family farming: what is it actually, what makes it unique, and what distinguishes it from entrepreneurial farming or family agribusiness? Confusion tends to be highest in places where modernisation of agriculture has led society further away from farming. At the start of the International Year of Family Farming, Jan Douwe van der Ploeg provides some conceptual clarity. He takes us into the world of family farming, which is considered "both archaic and anarchic, and attractive and seductive".

Family farmers develop their farms through their labour, dedication and passion

What is family farming?

Family farming is one of those phenomena that Western societies find increasingly difficult to understand. This is due to many reasons. One of these is that family farming is at odds with the bureaucratic logic, formalised protocols and industrial rationale that increasingly dominate our societies. This makes family farming into something that is seen, on the one hand, as both archaic and anarchic, whilst at the same time it emerges as something attractive and seductive.

Family farming is also difficult to grasp and understand because it is, essentially, a complex, multi-layered and multi-dimensional phenomenon. Below, I identify ten qualities of family farming. These qualities are not always present at the same time in each singular situation. The most important thing to remember is that the reality of family farms is far richer than the two single aspects that are most commonly used to describe them: that the farm is owned by the family and that the work is done by the family members.

Family farming is not just about the size of the farm, as when we talk about small scale farming, it is more about the way people farm and live. This is why family farming is *a way of life*.

A balance of farm and family

Let's start take a closer look at the ten qualities. Indeed, the ***farming family has control over the main resources (1)*** that are used in the farm. This includes the land, but also the animals, the crops, the genetic material, the house, buildings, machinery and, in a more general sense, the know-how that specifies how to combine and use all these resources. Access to networks and markets, as well as co-ownership of co-operatives, equally represent important resources.

Family farmers use these resources not to make a profit, but to make a living; to acquire an income that provides them with a decent life and, if possible, allows for investments in order to develop the farm further. This applies even if the farm uses expensive machinery or irrigation systems and terraces that the farmers themselves have constructed.

Then indeed the family farm is the place where ***the family provides the main part of the labour force (2)***. This makes the farm into a place of self-employment and of progress for the family. It is through their dedication, passion and hard work that the farm is developed further and the livelihood of the family is improved.

The farm is to meet the many needs of the family, whilst the family provides the possibilities, the means and also the limits for the farm. This ***nexus between the family and the farm (3)*** is at the core of many decisions about the development of the farm. Each particular farm has its own specific balances, for instance between the mouths to be fed and the arms to do the work. These balances tie family and farm together and make each family farm into a unique constellation.

> Family farming is not just about the size of the farm, it is more about the way people farm and live. Family farming is a way of life.

Linking past, present and future

But there is more than ownership and labour. ***Family farms provide the farming family with a part (or all) of its income and food (4)***. Having control over the quality of self-produced food (and being sure that it is not contaminated) is becoming increasingly important for farmers around the world. However, ***the family farm is not only a place of production (5).*** It is home to the farming family. It is the place they belong to, as much as it is the place that gives them shelter. It is the place where the family lives and where children grow up.

The farming family is part of a flow that links past, present and future (6). This means that every farm has a history, it is full of memories. It also means that parents are working for their children. They want to give the next generation a solid starting point within or outside agriculture. And since the farm is the outcome of the work and dedication of this and previous generations, there often is pride. And anger when others try to damage or even destroy the jointly constructed farm.

The family farm is the place where experience accumulates (7), learning takes place and knowledge is handed over, in a subtle but strong way, to the next generation. The family farm often is a node in wider networks that make new insights, practices, seeds, etc., circulate.

Tied to its environment

The family farm is not just an economic enterprise that focuses mainly, or only, on profits, but a place where continuity and culture are important. The farming family is part of a wider rural community, and sometimes part of networks that extend into cities. As such, ***the family farm is a place where culture is applied and preserved (8)***, just as the farm can be a place of cultural heritage.

The family and the farm are also part of the wider rural economy (9), they are tied to the locality, carrying the cultural codes of the local community. Thus, family farms can strengthen the local rural economy: it is where they buy, spend and engage in other activities.

Similarly, ***the family farm is part of a wider rural landscape (10)***. It may work with, rather than against nature, using ecological processes and balances instead of disrupting them, preserving the beauty of landscapes. When family farming works with nature, it also contributes to conserving biodiversity and to fighting global warming.

Freedom and autonomy

The family farm is an institution that carries attraction, as it allows for relative autonomy. It embodies a "double freedom": there is freedom *from* direct external exploitation and there is freedom *to* do things in your own way. Along this, the work implies an ongoing interaction with living nature – a feature that is highly esteemed by the actors involved.

Family farming represents a direct unity of manual and mental labour, of work and life, and of production and development. It is an institution that can continue to produce in an adverse capitalist environment, just as anaerobic bacteria are able to survive in an environment without oxygen (I derive this nice metaphor from the work of Raúl Paz from Argentina).

Why is it important?

Family farming carries the promise to create agricultural practices that are highly productive, sustainable, receptive, responsive, innovative and dynamic. Given all these features, family farming may strongly contribute to food security and food sovereignty. In a variety of ways, it can strengthen economic development, creating employment and generating income. It offers large parts of society attractive jobs and may contribute considerably to the emancipation of downtrodden groups in society. Family farming may also consistently contribute to the maintenance of beautiful landscapes and biodiversity.

External threats

However, it may turn out to be impossible to effectively realize all these promises. This is the case especially today, when family farming is squeezed and impoverished to the bones. When prices are low, costs are high and volatility excludes any possibility for long term planning, and when access to markets is increasingly blocked and agricultural policies neglect family farmers, and when land and water are increasingly grabbed by large capital groups – yes, in these circumstances we see that it turns out to be impossible for family farmers to render positive contributions to the wider society. This is why we have now ended up in the dramatic situation that land of family farmers is laying idle. Or, to use a macro indicator, that 70% of the poor in this world today, are rural people

Internal threats

There are internal threats as well. Nowadays it is *en vogue* to talk about the 'need to make family farming more business-like'. It should be oriented 'towards making profits'. Some even argue that this would be the only way to 'keep young people in agriculture'. In short: family farming should become less 'peasant-like' and more 'entrepreneurial'. According to this viewpoint, , family farming in the Global South should be subject to a similar process of modernisation as occurred in the North.

Indeed, part of European agriculture has changed towards entrepreneurial farming. This turns the family farm into a mere supplier of labour, forgetting about all other features mentioned above. Formally these entrepreneurial farms are still family farms, but substantially they are quite different. One major difference is that 'real' family farms especially grow and develop through clever management of natural, economic and human resources, and through (intergenerational) learning. Entrepreneurial farms especially grow through *taking over* other family farms. This tendency to enter into entrepreneurial trajectories is a major internal threat to the continuity and dominance of family farms. And we see it nearly everywhere.

Re-peasantisation

There are important counter-tendencies as well. Many family farms strengthen their position and their income, for example by

following agro-ecological principles, by engaging in new activities, and by producing new products and new services – often distributed through new, nested markets. Analytically these new strategies are defined as forms of re-peasantisation. They make farming more peasant-like again, but at the same time they strengthen the family farm. Re-peasantization equals defending and strengthening family farming.

What is to be done?

Policy can be, and is, extremely important for the fate of family farming. Although family farming can survive highly adverse conditions, positive conditions can help family farming reach its full potential. Precisely here resides the enormous responsibility of policy, that is, of state apparatuses, multinational forums (like the FAO, IFAD and other UN organisations), but also of political parties, social movements and civil society as a whole.

By securing rights and by investing in infrastructure, research and extension, education, market channels, social security, health and many other aspects, investments of family farmers themselves can be triggered. This was recently confirmed again by the prestigious *High Level Panel of Experts* on Food Security and Nutrition.

Strengthening rural organisations and movements is equally of utmost importance. We have to keep in mind that family farmers, wherever in this world, are trying to find and unfold new responses to difficult situations. Thus, identifying successful responses, building on novel practices, communicating them to other places and other family farmers and interlinking them into strong processes of change must be important items on our agenda. In short: a lot is to be done. The good news, though, is that every step, including every little step, is helpful.

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Integrated Farming

An approach to boost up family farming

Nurturing biodiversity on the farm

Anshuman Das

Sustainable Integrated Farming Systems (SIFS) is a system which focuses on increasing farm productivity by increasing diversification, resource integration and creating market linkages. Welthungerhilfe is helping 8000 small and marginal farm families in resource poor regions in India, Nepal and Bangladesh, in adopting this sustainable farming system.

Back in the 60s, world was going through severe food crises. As we could no longer expand our production areas, the challenge was to increase the productivity to feed the fast growing population. The traditional agricultural systems were failing us. We needed to modernize our agriculture and we needed new technologies – as we were told. Green Revolution ushered in with the promise of giving us more food with promises of hiking up the productivity. It did so. World's food stores swelled over the next few decades. Whether that food reached our starved and half starved countrymen, is a different story.

Now, the modern technologies too seem to be failing us. Our rich agricultural crop diversity is wiped off, thanks to the handful of high yielding and improved crop varieties that now sway in our farmlands. Those who are left are threatened by GM crops. Rampant use of chemical fertilizers has led to the death of soil. Thanks to the indiscriminate and erratic use of chemical pesticides - our food and ecosystem is poisoned. The small and marginal farmers, the majority of the third world's population, who are ploughing their ancestral land, often own less than an hectare of land. This includes the field and the homestead. Owning a few livestock and a pond they neither have the capacity to earn nor borrow, to invest on land. Market dictates them what to grow and

The basic principle of Integrated Farming System is to enhance the ecological diversity

sell. Under such conditions, some farmers are painstakingly trying to make a livelihood out of their small pieces of land. However, unable to produce sufficiently, some have sold off or leased out their land to big commercial farmers. Such farmers have become a daily labour or shared cropper in their own land, or even migrated to cities in search of livelihood.

But where do we stand if both traditional as well as our modern methods, do not come to our rescue?

Perhaps we seldom tried to understand how nature works. We enjoyed the beauty of an evergreen forest, but never learned from her, how she recycles waste materials, how the living and nonliving components complement each other to make it ever productive.

A peep into IFS

Integrated Farming System (IFS) tries to look deeper into this crisis, particularly of the small family farms falling in between the modern and primitive production systems. Integrated farming is a system which tries to imitate the nature's principle, where not only crops but, varied types of plants, animals, birds, fish and other aquatic flora and fauna are utilized for production. These are combined in such a way and proportion that each element helps the other; the waste of one is recycled as resource for the other through LEISA techniques.

The basic principle is to enhance the ecological diversity - by choosing the *appropriate cropping methodology* with mixed cropping, crop rotation, crop combination and inter cropping so that there is less competition for water, nutrition and space and adopting eco-friendly practices; by following *Multistorey arrangement* so that the total available area is effectively used and there is a high level of interaction among biotic and abiotic components; by *integrating subsystems by which the various components interact positively,* so that the whole farm productivity is increased.

IFS is a labour intensive system, thereby engaging the farmer family productively on their own farms, throughout the year. IFS will lead to collective efforts among the farmers like collective purchase of inputs and collective marketing of produce, thus reducing their costs of production. It takes 3-4 years to establish a good integrated farm with market linkages to ensure nutrition and livelihood of a family. When we have many such farms in the village, there will be enormous scope for employment and business opportunities, especially for the youth for selling seeds, seedlings, manures etc.

Successful pilot initiative

The pilot model development initiative of IFS was a part of All India Coordinated Programme on BIOFARM implemented by DRCSC during 2003-08 with support from Department of Science and Technology, Government of India. The pilots were developed in 300 farms from 15 states to evolve resource integrated farm designs, appropriate for various agro-ecological regions of the country, through on farm participatory action research. It tried to develop models in hot humid ecoregion with alluvium - derived soils in Bengal plains, Eastern Ghats with red loamy soils, Chhota Nagpur plateau, North Eastern hilly region, Deccan plateau with shallow and medium black soil, Western plain in hot arid eco-region with desert and saline soil, Eastern coastal plain, Western Ghats, Central highlands, Northern plain and Western Himalayas with podozolic and skeletal soil. Later, more fine tuned studies were conducted under the initiative from Project Directorate of Farming System Research supported by ICAR of Government of India.

The pilot initiative produced encouraging results. Evidences from the field indicate that there has been increase in crop diversity. In comparison to the baseline, 33% of the farms recorded 50 – 100% increase in species diversity. Significant increase in uncultivated macro-fauna was observed in some of the sample locations as compared to the conventional farm.

Analysis of 300 farms showed an increase in net returns compared to baseline - more than 100% on 44% farms, 75-100% on 4% farms and 50-75% on 5% farms. However, on 36% of the farms,

Pravat Pal lives with his wife and son in Gopta, a village in the dry district of Birbhum, West Bengal, India. He owns an ancestral farm of size 0.81 acre. His son is physically challenged, and Pal fell into debt because they had to pay various costs relating to their son's treatment. The only way they could afford this was to take out loans and sell most of the produce from the farm, which was only rainfed paddy, along with his assets from time to time. This created a severe food and cash shortage for the family.

In the middle of this crisis, he decided to make a switch over to IFS influenced by an orientation session by DRCSC. Slowly he developed nutrition garden in his fallow land to cultivate 8 to 10 vegetables in every season, mostly used for consumption. He also keeps seeds of all the vegetables. His 0.81 acre of land is cultivated 3 times now with paddy and black gram in rainy season, 0.37 acre for vegetables, pulses like lentils & field pea and oil seeds like mustard and 0.44 acre of land for winter paddy. He also grows vegetables, sesame, black gram and green gram in summer in his 0.3 acre of land. With his 3 cows, 1 bullock, 1 calf, 3 goats and 2 hens – he is now independent of external inputs. He also set up a biogas unit - slurry is used as manure and gas is used as fuel. The livestock feed is now managed with straw, mustard cake, pulses and other agri-waste, the hens are fed with the food waste. He does not have any pond, but has share in 10 ponds in the village from where he earns a portion of his annual income.

Now, Pal's situation has been transformed, His farm has 5 subsystems, which interact with each other positively, waste products are consumed entirely within the system. Around 70% of his farm inputs, 100% of fodder and 100% of the fuel needs are met from his farm, which amounts to Rs. 28000 per year. They have managed to pay off part of their debts. Their income has increased as surplus production, seeds and seedlings are sold in the market after meeting all their family needs. The Pals hardly have to buy food now – they can rely on a steady supply of rice, oil, pulses, fish, milk, egg and vegetables throughout the year.

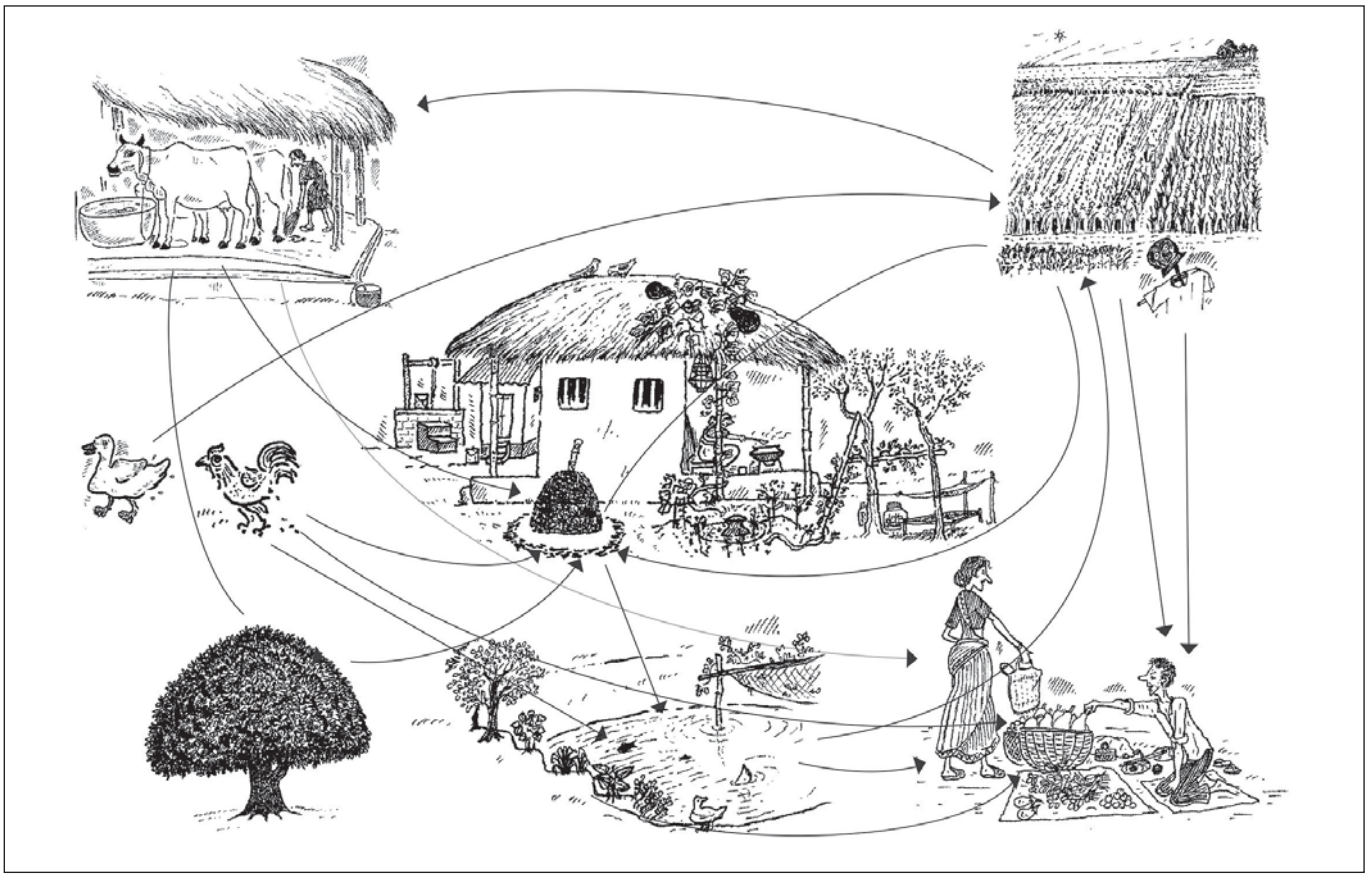

Fig.1: Integration of several components on the farm – a schematic representation

net profit declined. This was owing to initial investment in terms of land shaping and livestock integration. More diversification of income was seen in the sub humid region followed by semi-arid. Labour productivity also increased in most of the cases.

It was heartening to note that the number of linkages improved significantly for most project locations. It was as high as 26 linkages in some cases. Also, the number of work days increased significantly from 4-6 months in the baseline to 9-12 months in the third year, reducing the period of stress.

Scaling up with improvements

Based on the impressive results that emerged from the pilot programme, Welthungerhilfe and its partners in 2012, initiated extension of these learnings to 8000 small and marginal farm families as Sustainable Integrated Farming Systems (SIFS). These farm families are located in resource poor regions like dry areas of Jharkhand and West Bengal, terrain and hilly areas of Chitwan in Central Nepal and Chittagong hill tracts in Bangladesh.

The focus of the pilot programme was on developing the principles and tentative models, giving attention to technology development on individual farms. On the other hand, this phase of upscaling is trying to increase productivity by increasing diversification, resource integration and creating market linkages.

While the pilot programme focused on developing models on individual farms, the scaling up phase focuses on mobilizing farmers into groups and extending benefits to not only farm production, but also marketing as a collective initiative. Farmers who are willing to do some experimentation and train others and also those who have the capacity to pay back initial investment, are formed into a group.

Farmers are taken through a process of capacity building based on FFS principles. This is done through sessions on crop/tree management, soil/water management, soil nutrient management, pest and disease management, livestock management and multilayer designing. The sessions are organised in one of the farmer's field from the group on a rotational basis.

Farm analysis and designing has taken a priority in this phase. Each farm is analysed with the individual farmer in the presence of other farmers of the group to understand the existing production cycles, the available resources and the periods of scarcity of food, fodder, firewood, drinking and irrigation water.

Farm designs are made for each farm based on the farm analysis, which is different from each other. Generally, to begin with, the focus is on improving crop diversity. The diversity of the farm land is increased as much as possible by introducing at least 5-6 types of cereals and pulses/oilseeds, 10-12 varieties of vegetables, 5-6 varieties of trees of fruit, fuel wood and fodder, 5-6 types of spices or medicinal plans. Fast growing trees and shrubs like *Gliricidia, Ipil Ipil, Sesbania, Bauhinia, Pigeon Pea* are planted

Backyard poultry is a good source of income with little investment

as they add high nutrient content to the soil. They can also be used as fodder for livestock as well as fuel. Once the crop diversity is enhanced and integration between existing components is ensured, 2-3 types of livestock, 3-4 types of birds and fish are added, depending on the carrying capacity of the farm judged during farm analysis.

Integration is designed based on the existing subsystems. The process is facilitated by NGO by using the resource flow diagram (See figure 1 on p.10). Farmers are helped to design various components in a way that they integrate into each other – the output of one component becoming the input to the other. For eg., the agro/livestock waste gets recycled through a biodigestor for vermicompost or biogas. Some components are designed based on the need. For eg., if there is livestock, then fodder crops are integrated on the farm. The decisions are taken by the individual farmers as the new design, at times calls for additional financial investment. To help farmers to add new components/sub systems, farmers are linked to other programmes and schemes of the mainstream institutions, for eg., NABARD, NREGA etc.

Another improvement over the pilot programme is to create local resource persons to take IFS forward. The programme envisages to develop 200 resource farmers who can train others in IFS, thus ensuring sustainability of the programme.

Challenges ahead

While results of this scaling up phase is awaited, however, there are some positive indications with regard to increased production and income and reduced cost of cultivation. Also better resource management has become possible by integrating various techniques like soil water conservation, rainwater harvesting, cropping sequence management and multitier arrangement.

However, there are challenges which need to be addressed. In most of the states, lands are fragmented, where even 1-2 bigha land is further subdivided and fragmented. In such situations, having a IFS to fulfill the nutrition requirements of the family is often a problem. Also, location of the land poses a challenge. If the land is located at one corner along the side of the road or canal, it is easier to carry out certain activities like widening the bund, planting trees or maintaining an organic system as compared to the land at the middle of the field. At the farm level, for integrating components, it becomes necessary to link to a number of schemes, if available, to avail the resources. In the absence of a single source/scheme providing support on various aspects, it is a big challenge for small farmers to integrate various components on their farms.

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Expanding the web of agro-eco system

P.Kamalasanan Pillai

With monocropping, mechanization and modernization, agriculture has moved away from being a family based profession. Farmers in Kanyakumari district have proved that agriculture based on agro ecological principles which integrates several farm sub systems, provides an opportunity for the entire family to participate and engage themselves in farming, resulting in ecological and economic benefits.

Kozhikottupothai village is a backward area of Kanyakumari district near the forest area. Of the more than 85 farmers in the village, more than 50% are small farmers. Farmers have been practicing monocropping using heavy doses of fertilisers and pesticides.

During 2004 – 2007, Vivekananda Kendra – NARDEP, an NGO started working in the village with the support of NABARD. The baseline survey indicated that the micro fauna and micro flora in the soil were very low due to heavy and unscientific fertiliser application. There was no economic security and nutritional security for the farmers as they were practicing monocultures of two main crops Paddy and Coconut. Owing to the presence of a huge market for flowers, many farmers practiced floriculture which is chemically intensive. This apart, there were no livestock or other enterprises which could fetch income to these farmers.

To help farmers make a decent livelihood out of farming by productively engaging all the family members, VK-NARDEP promoted improvements in present cropping systems and also helped farmers in including and integrating various subsystems on the farm. Firstly, farmers were organized into groups and the groups were registered as Farmers Club. Weekly meetings were organised in the village and problems were discussed. Farmers were taken on a exposure trip to open up options for specific problems. During such visits, by interacting with other fellow farmers and the staff of concerned farms/institutions, farmers became more confident in accepting and implementing new practices and interventions.

Sub-systems integration leads to increased family involvement

Changes in cropping systems were made on some farms. For instance, banana was grown in coconut garden and catch crop was cultivated in paddy fallows. Farm interventions like inclusion of livestock, backyard poultry, bio-manure unit, bio-gas unit etc increased the subsystems within the farm and generated income and employment for the family, round the year.

Farmers use every inch of space in coconut gardens to grow vegetables

Over a period of three years, the diversity on the farm has increased. By the end of third year, 16 farm households had more than 7 species in their homestead garden, while there was none in the baseline year.

Previously, when the village was heavy on intensive chemical floriculture, the livestock sub-systems were almost non-existent. Today, all the farmers of the group have more than one subsystem. Around 13 farmers have 2-3 livestock species and 4 farmers have 4 livestock sub systems.

The increased synergy has led to further proliferation and integration of sub-systems like apiculture units, poultry, azolla etc. Increased subsystems necessitate the involvement of the household members. As more sub-systems get integrated into the farmers' homesteads, there is increase in the participation of the family members.

> By increasing and integrating a number of activities and subsystems on the farm, engaging the farm families throughout the year has become a reality.

Sri. Kasi Ramalingam, aged 65 along with his family - wife and two sons and a daughter - take care of the farm and the homestead garden. While the male members are looking after the main farm, thee female members managing the homestead based systems which include vegetable and herbal garden, poultry and livestock as well as the biogas plant and Azolla bed.

With many subsystems integrated, the family has achieved both income as well as nutrition security. With azolla consumption, the cows are yielding better quality milk. The quality of soil has improved.

Vegetable consumption of the family has improved and the market dependency has been reduced. With increase in production and weight of eggs, the egg intake has become self sufficient. Surplus is being sold.

Apiculture units and poultry units are seen in majority of the farmers' houses. These are looked after by women, primarily. School going children too get involved in their leisure time as a hobby, thus picking up skills at an early age. Today, the village is not only self-sufficient in egg production but also produces eggs in surplus.

Azolla have become well integrated into the farming cycles. Thus it is cultivated in almost all farmers' backyards and is incorporated into the fields of the farmers. Azolla production is largely managed by the women in the households. Besides using it in their own fields the women have also started selling them. Though they have started with a modest beginning they have earned a good reputation in the neighbouring villages.

Once again, the women in the households are the major managers of the biogas units installed in the households. Now, they are able to get clean energy under hygienic conditions. They also use the slurry from the biogas plant for the production of enriched bio-formulations including fish-amino, panchgavya etc.

Impact

The change in ecological parameters after the involvement of the family members is perceptible. The food security of the 19 family-based agriculture households is being met by the farmers themselves. Access to nutritious vegetables as well as medicinal herbs has increased. The quantity of vegetables bought from the market has declined and these families have totally stopped buying eggs. They are producing surplus eggs, fruits, milk and vegetables and selling them in the local market, thus earning some income.

Presently, the farms are not only sustainable but has provided the much needed economic as well as nutrition security. Also, by increasing the number of farm activities/subsystems, farm families are engaged throughout the year.

Moreover, as the farmers meet regularly and interact, there is lot of dynamism among the farmer club members. As a group, a number of activities are taken up. Labels for organically produced roses are designed which fetch premium prices for in the flower market of Thovalai. Members have started selling surplus vermicompost. Farm inputs like panchagavya, three-leaf extract bio-repellent and fish amino are being prepared by women and

Azolla is grown in flooded paddy fields

sold through local SHGs to neighboring villages. Farmers club with support from NABARD has also enlarged and strengthened the common resource center.

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Call for Articles

Family farmers breaking out of poverty

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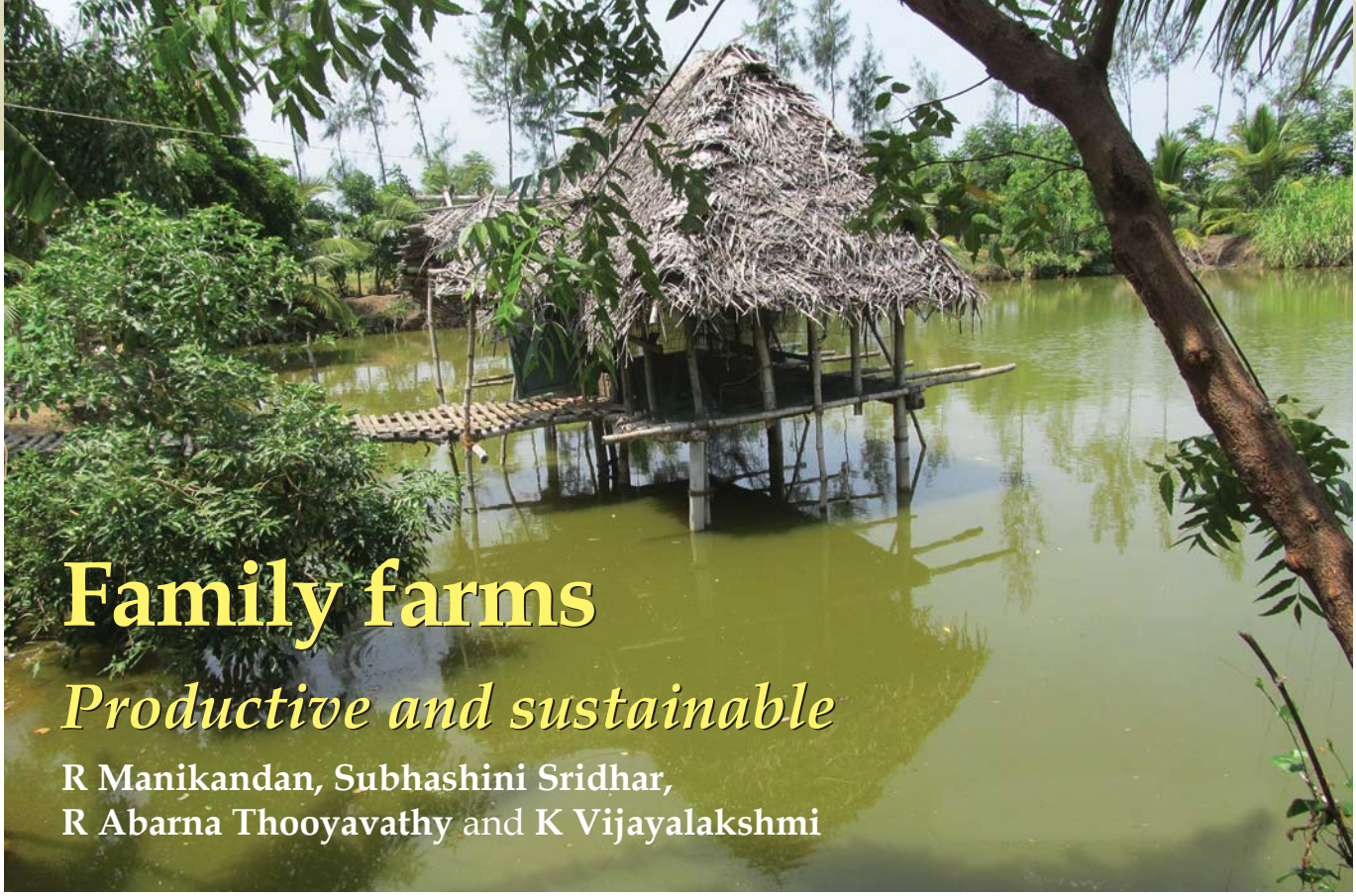
Family farmers produce more than half of the world's food. That is a reason to celebrate family farming. Yet, 70% of the world's most impoverished people live in rural areas and belong to family farming or pastoralist communities. How is this possible? And how can this situation be changed? We seek your groundbreaking views, your innovative proposals and experiences that show how family farmers can break out of the poverty trap and increase their resilience. How can poor people in rural areas break out of this vicious cycle? In the June 2014 issue of LEISA India we will focus on how agro-ecological approaches strengthen the resilience of family farmers and help them break out of poverty. We will look at how agro-ecological farming practices and the social dimensions of family farming contribute to strengthening resilience and sustainable resource management. We welcome your contributions, with supporting evidence.

Articles for the June 2014 issue of LEISA India should be sent to the editors before April 1st, 2013.
E-mail: leisaindia@yahoo.co.in



Family farms

Productive and sustainable

R Manikandan, Subhashini Sridhar, R Abarna Thooyavathy and **K Vijayalakshmi**

A poultry unit above the farm pond

Efficient use of resources, time and energy is possible by creating self replicating cycles within the system. The careful selection of species - both plant and animal, the effective utilization of space and resources and efficient recycling processes will not only add stability and resilience to the system, but can also increase farm income. Mr. Thilagar, a farmer from Tamil Nadu has proved this.

Mr. Thilagar from Nemmeli village of Sirkazhi taluk in the Nagapattinam district of Tamil Nadu is a farmer dependant on his seven acres of land for his livelihood. He started to experiment with sustainable methods of food production from 2002 onwards. He reduced the use of chemical inputs. But, in the absence of continuous guidance or mentoring to shift to organic agriculture practices, he could not muster enough courage to completely stop the use of chemicals. He was not keen on taking risks as agriculture was the only source of income for the family.

Nurturing biodiversity on the farm

The actual transition from chemical agriculture to organic agriculture started in 2006 when he joined the farmers' group working with CIKS, an NGO empowering farming communities through promotion of sustainable farming and allied technologies. An ardent lover of plants, animals and nature, Thilagar, initially limited his farming activities to cultivating crops like paddy, black gram, green gram and vegetables.

"Locally adapted traditional varieties of seeds are the true wealth of a farmer and that it is every farmer's duty to conserve as many of these traditional varieties as possible", says Thilagar. In his farm he grows four different traditional varieties of paddy – *Seeraga samba, Mappillai samba, Thanga samba* and *Thooya malli*, for purpose of conserving seed. However, for commercial cultivation he grows white ponni in thaladi (Rabi) season and ADT – 43 in kuruvai (Kharif) season. On an average, he gets an income of Rs. 1.26 lakhs from Kharif paddy and Rs.1.5 lakhs from Rabi paddy. During Rabi, after paddy, he cultivates black gram in six acres and gets a net income of Rs. 50,000/-. He sells all his farm produce to the Sirkazhi Organic Farmers' Association in Sirkazhi, where he gets a better price compared to the market price.

Vegetables are cultivated in an area of five cents where a whole range of seasonal vegetables are grown. Every day, on an average, 5 kg of different vegetables are harvested and sold. This fetches an income of approximately Rs. 18,000/- per year. Also grown on the farm are several fruit trees including mango, guava, sapota, pomegranate, moringa, coconut, goose berry, banana, papaya and lime. There are also several other multi-purpose tree species like teak, gliricidia, leucaena, neem growing on the farm. Plants like *Calotropis, Adathoda, Lantana, Vitex* that are used for pest and disease control are also grown in the farm along the boundaries.

By adding various components on to his farm, Thilagar has ensured that the output from one component feeds into the other, thus perfectly integrating different farm components.

Integrating various components on the farm

Thilagar was getting good yield from his farm (crops, vegetables and trees) by following organic farming methods. Yet, his thirst for sustainability led him to move into an integrated farm having several components like crop cultivation, vegetable gardening, poultry farming, fisheries, cattle and goat rearing. It is interesting to know how he diversified and included the different components on the farm.

Paddy fields were irrigated with water from a newly dug bore well. On testing the water, it was found to be saline, affecting paddy crop. Since Nemmeli village is located 25 kms from the coast and also due to excess pumping of water through bore wells in the region for several years, the water table had turned saline. In order to treat the water and remove the salinity, Thilagar dug a farm pond, availing subsidy from the Department of Agriculture Engineering in Sirkazhi. The pond is filled with water from the bore well and pumped out to the paddy fields after two days. This improvisation worked.

The pond within the farm seemed an ideal situation to rear fish. Thilagar started *pisciculture* with 5 different kinds of fishes like *Catla, Mrigal, Rohu* etc. He does not feed any special food for these fishes other than 1 kg azolla each day. Each year, he introduces 1000 juvenile fishes into the pond. On an average, he harvests 750 kg of fishes and sells it for Rs. 100 per kg. Thus Thilagar, through the spirit of resilience and determination, turned a limitation into an opportunity.

Above the pond at 5 ft. height, a cage of 10 ft x 16 ft x 8 ft size was setup in which 14 country chicken and 18 white legan are being reared. He prepares the poultry feed using paddy, cereals, paddy husk etc., from the farm produce. Apart from this, greens like *Sesbania, Moringa* and *Azolla* are also added to the poultry feed. Through sale of eggs and birds, he is able to get an income of around Rs. 10,000/- per year. The poultry waste which directly falls into the pond also nourish the fishes as well as the water that is used for irrigation.

Thilagar also maintains native and cross-bred cows on the farm. The cow dung is used in the production of vermicompost and biogas. The slurry from the biogas plant and waste water and cow's urine from the cattle shed are let into the pond, which not only enriches the water for irrigation but also provides nourishment for the fishes growing there. The cows yield 10 – 13 litres of milk per day which is sold at Rs. 20/- per litre, after meeting household requirements.

Six adult and 10 kids of native breed of goats called "Thalachery" are being reared in an elevated cage. This elevated cage ensures the safety as well as the health of the goats. The goat droppings are used as manure for the trees around the farm. He annually gets an income of around Rs. 50000 by sale of goats and kids.

The bunds of the pond are planted with fodder grass that serves two purposes – bank stabilization and fodder production. The green fodder crops like Co3, Co4, *Gliricidia, Sesbania* etc., are cultivated organically and fed to the cattle. This helps to maintain healthy livestock.

Thilagar discussing with farmers about integrated farming methods

Ensuring sustainability

By adding various components on to his farm, Thilagar has ensured that the output from one component feeds into the other, thus perfectly integrating different farm components. While the crop wastes and fodder grown on borders serve as feed for livestock, the livestock dung is converted to manure which is ploughed back into the field. Also, over the years, with continued use of organic manures, vermicompost, biofertilizers, panchagavya and practice of green manuring, mulching etc., there is a remarkable improvement in the soil quality which is evident from the improved crop production. His input costs have been progressively declining as most of the inputs are from the farm itself.

Farm of Thilagar is a typical family farm. Most of the inputs required for agriculture like seeds, soil fertility management inputs, inputs for pest and disease control are all being produced within the farm itself. Also, most of the farm activities are managed by his family members. For instance, his wife Mrs. Karpagam helps him in farming activities like vermicompost production, biopesticides preparation, maintenance of livestock etc., and supports him in each effort. There is a lot of recycling happening on the farm, thus reducing dependency on external inputs.

With a farm which is productive, which can be managed by a family and which also fetches around four lakh rupees per annum, today, Thilagam is proud to call himself a 'farmer'.

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Regional food hubs enable family farmers to deal directly with consumers

The mother of our breath

Robert V Bishop

In the westernmost region of the Caroline Islands of Micronesia lies the Republic of Palau. Palauan traditional farming shows how agriculture, family values and culture are interconnected. Despite these connections, family farms are facing challenges. By joining forces, the small-scale family farms of these islands stand up for their rights and call for support for maintaining important (agri)cultural customs.

Pride, power and income

Palauan traditional farms represent a form of agriculture that is strongly family-oriented. In the matrilineal society of Palau, agriculture defines the female sphere of influence and is a source of pride, power, and income for women. The importance of agriculture and women in Palau is illustrated by the Palauan proverb: "The taro patch is the mother of our breath." In general, women have been the nurturers of the family and providers of food on land, while men have been providers from the sea. Children are expected to help their parents and other elders in their different tasks. Palauan women are referred to as "walking libraries of family food production" – especially in the cultivation of taro, which women have developed and fine-tuned. Female-produced agricultural products together with additional marine and forest products have provided a self-sufficient food system with a built-in safety net against natural and economic disasters, pest intrusion, and old age.

> Family farms as multi-purpose enterprises have been buffers in times of disasters and the glue for bonding and wealth creation. This "sharing and caring" has had a multiplier effect and actually created economic and social wealth, even though this wealth creation is not reflected in official statistics.

In addition to providing food and income, the taro patch serves a number of other purposes in Palauan communities. Exchanging taro and other food has played a role in cultural customs ranging from birth ceremonies to funerals. Family farms as multi-purpose enterprises have been buffers in times of disasters and the glue for bonding and wealth creation. This "sharing and caring" has had a multiplier effect and actually created economic and social wealth, even though this wealth creation is not reflected in official statistics. The relationship between farming families and their beneficiaries has functioned as a "value web", not the often highly touted "value chain". Every connection in the web is a bond, ensuring better quality service to all beneficiaries. The goal of each exchange was not profit, but to provide a valued product or service. Family farms in Palau are more than farms owned and operated by families: they are farms with family – rather than corporate – values.

Family farms have been cultural and social learning centers. Children learned about health-promoting plants, about how, when and where to plant and about the sacredness of food; but also about taboos, the core values that empower and enable Palauan culture, birth control, reciprocity, and what the role is of the family and each family member – among many other things. As such, the family farm has not only been a way to keep youth engaged in and knowledgeable on agriculture, it was in many ways the forum for intergenerational communication.

A changing landscape

Traditionally, Palau was self-sufficient in food at the household, community, and national levels. In contrast, today imported foods constitute at least 90% of the average household diet. To break the dependency, Palau needs to (re)develop locally produced goods and services. Yet a political neglect of agriculture and people's reluctance to buy from multiple small farms, as well as the devaluation of traditional food such as taro, have caused diverse traditional family farming to lose ground.

Although colonial governments have attempted to turn agriculture into a commercial and male-dominated enterprise, agriculture generally remains a "female" vocation in contemporary Palau. At the moment, large commercially oriented farms, traditional farms and "hybrid" farms exist, side by side. Most of the large commercial farms are managed by foreigners, using foreign labour, with the profit leaving Palau. In hybrid farms, women commonly grow traditional crops for their own needs as well as for the market, but increasingly employing male Asian farm workers. Agriculture in Palau appears to be entering a phase where crops are produced for subsistence and for sale in a typical dual-economy mode, but maintaining production of traditional crops of importance to both social activities and subsistence.

The taro patch ladies and other traditional agriculturists, "organic" and "natural" farmers, supporters of traditional foods, the "health conscious" and others respond with concerns about the effects of commercial agriculture on people's health and the environment. This is not a total rejection of all non-traditional approaches, but rather a very selective adoption and adaptation of the elements which are compatible to family values. The changes in Palauan agriculture reflect not a dichotomy between "traditional" versus "modern", but rather show a difference in orientation: is a farm "profit-oriented" or "family-oriented"? Is it focused on sales, or on services? Elements of commercialism can exist in harmony with traditional values; yet unbridled commercialisation will render the "family" in farming meaningless. Family, culture and agriculture are intrinsically linked. Since the taro patch is "the mother of our breath," on the day when the last Palauan women has gone to the last taro patch for the last time, Palau's culture will have surely breathed it's last breath.

Traditional taro systems

Production for family sustenance is the predominant agricultural activity in Palau, with the main crops being taro, cassava, sweet potato, banana and coconut. Typical of Oceania, Palauan traditional agriculture features a multi-storey agroforestry system in which trees provide a protective canopy for the intensive production of 40 to 50 plant varieties. An invaluable aspect of this system – culturally, socially an economically – is the taro patch. Patches of taro, the major food staple in Palau, slightly resemble rice paddies, where dykes and pathways encase a wetland. The soil is turned over and enriched with large quantities of green manure. An analysis done in Palau shows that, when comparing the value of production to labour, cash and non-cash inputs of different crops, the taro patch is the most productive system.

Increased interaction

Farmers have joined hands to rescue the valuable contributions of family farming. Some state governments implement programmes incorporating family farming and agro-ecology through favourable leases, training events and infrastructure development, for instance. In addition, the joint Ministry of Health and private sector initiative "Healthy Foods" is resulting in greater demand for organic, traditional, "natural", nutritious and safe food. Nonetheless, farmers lament that government programmes, including environmental programmes marginalise family farming and assign agriculture a low priority. Calls for "intensification" of family farms reveal an ignorance of the reality that most of the farms are already intensified, that all areas of the farm already have a purpose. In most cases there is no way to squeeze in more without resulting in a loss of the many functionalities of the farm.

In contrast to such dominant calls for commercialisation and intensification, farmer organisations have started to implement initiatives to support family farmers. Palau has three main farmer organisations, which fight for the survival of their traditions. At the Palau Taiwan Farmers' Association (PTFA) and the Organisation for Industrial, Spiritual and Cultural Advancement (OISCA), we believe that preservation of traditional forms of agriculture is crucial for the preservation of Palau's culture. The Palau Organic Growers Association (POGA) is looking to "preserve the best and adopt the new". In all three organisations, women hold or have held officer positions. PTFA is composed of mostly women, while OISCA and POGA have around 40% and 30% women respectively.

The taro patch is the most productive system in Palau

The organisations supply services and improve access to existing services, including markets and value-adding processes. Educational events and demonstration gardens serve the farmers, but also help link producers to the rest of the community. We advocate for support structures that enable interaction between different actors. The organisations help showcase effective farming practices and try to build a strong positive image of family farmers and their products. By promoting traditional dishes through calendars or building farmer-chef alliances, traditional products and family values are popularised within the wider society.

Revitalising family farming

PTFA is now advocating for a multi-purpose and multi-functional site called "The Meeting Place". Providing more than the existing local markets, this type of regional food hub would enable family farmers to deal directly with consumers and attract wholesale agents, attract foreign visitors and local consumers, provide a venue for training and building relationships between farmers, chefs and consumers, function as an order-processing and assembling center, and serve as a cultural reinforcement.

The Meeting Place can also strengthen capacities to develop strategic action plans for import substitution and linkages to the tourism market. Tourism is the fastest growing economic sector in Palau. But, for tourism to be sustainable and sustaining, it needs to be supported by local food production so that we can re-circulate tourist dollars in Palau. A support mechanism like this can strengthen the value web and enhance recoveries from disasters such as destructive typhoons, as it links producers with markets.

Our experiences in Palau also taught us how traditional practices in family farms can strengthen cultural identity, build solidarity among farms, and assign greater value to traditional ethics. Revitalising and enhancing traditional practices would be a learning opportunity with applications to climate change mitigation and resilience to disasters and crises. Finally, family farming needs to be made more attractive for future generations, using social marketing and media to counter the devaluation of family farmers. Rather than considering farming as a last resort for the uneducated, we need to strongly promote family farming as a noble vocation.

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A farmer innovation spreads far and wide

T J James

Processed cardamom has more market value but processing of cardamom is a labour intensive process. Owing to lack of support from research institutions, farmers in the region have become innovative and have developed suitable technologies for some of the post harvest operations. Cardamom polishing machine is one such farmer innovation which is popular and being widely used by the farmers.

Processing of cardamom which involves drying, polishing, washing, and grading is a tedious and tiresome job which requires almost 70% of total labour requirement. Polishing is the process of removing the flower stalk and other dirt and impurities from hot dried cardamom. A lot of dust is generated during the process. Conventionally this is done by women, kneeling down and hard pressing the cardamom over wire net by hand. The job involves a lot of hard work and injuries to hand are common. Also the dust causes allergy to many.

Farmer innovation

N.J Thomas of Puliyanmala of Idukki district, Kerala started helping his father in cardamom farming at a very young age. They had around three acres of land under cardamom cultivation. As processing of cardamom is a tedious task, Thomas was keen on finding an alternative to this drudgery intensive process. First, he noticed the technique of a honey extractor. Honey extractor consists of a rotating drum with fixed wooden leaves. James tried processing the cardamom using the honey extractor. Initially, he tried processing 5 kg, but it was not successful. The movement was not smooth and he gradually reduced the weight. Once it was reduced

> Using the machine, around 10 to 15 kg of cardamom could be polished within 5 minutes. This saved women from drudgery and health hazards.

Thomas with his innovation - cardamom polishing machine

Table 1: Time line of diffusion of cardamom polishing machine.

1992-93	Idea conceived, developed first prototype with honey comb extractor, later modified
1994	Developed fully functionally prototype, demonstrated to farmers. Spices Board officials visited and appreciated, published in Spice India magazine of Spices Board
1995	Made a few more polishing machines, attended the training programmes conducted by Spices Board and demonstrated the functioning of polishing machine. Started own workshop. Large no of farmers visited him. Got award from Spices Board. Media coverage in news paper
1995-96	Started commercial production, sold more than 25 machines, one of his workshop mechanic started own workshop and started production
1996-1997	More and more workshops in Idukki district start the production by their own. Innovator closed down his workshop
1996-1997	More than 40 workshops in Idukki, adjoining border districts of Tamil Nadu, Cumbum started production of polishing machines. Cumbum is the nearest industrial centre from Idukki
1996-1998	Diffusion to other cardamom growing districts without any involvement of the innovator
1998: 2010	These workshops also improved the technology as per the customer feed back. The introduction of exhaust fan for removing the dust, lining with rubber on wooden blades for smoother rubbing, attached sieve for grading the cardamom, collection tray for dust are some of the additions. Parts of the machine become replaceable. Overall aesthetics has been improved. But the principle remains the same.

to half a kilogram, the cardamom got polished well by getting hard pressed between the inner wall of the drum and the wooden leaves.

Having understood the operational principle, Thomas got the machine done within a week, with the help of a local mechanic. He made a few changes in the design of the honey extractor - the wooden leaves were attached to the shaft rotating with the cylindrical drum, instead of the rotating drum. He changed the drum from being vertical to horizontal. The drum was lined with a wire mesh. The design was made to handle produce of 100 Kg. Initially, the machine was operated manually but later it was motorized using a ½ HP motor. In 1994, Thomas developed a fully functional prototype of cardamom polishing machine. Using this machine, around 10 to 15 kg of cardamom could be polished within 5 minutes, whereas by manual polishing it took half an hour for three labourers to do the same.

Spreading far and wide

Thomas invited fellow farmers to share his innovation. They all appreciated him and requested him to make the machine for them.

Very soon he visited the Spices Board field office and requested field officers to see his innovation. The Spices Board officials appreciated the innovation, gave a name CARPOL (cardamom polishing machine) for his innovation and took all steps to popularize this machine. Spices board featured this innovation in the popular magazine of spices board 'Spice India". Local media also highlighted this innovation. Huge demand for the machine surprised him. The news slowly spread among the farming community. Every week, at least 100 farmers visited Thomas' farm.

Spices Board arranged several training programmes in villages, where they invited Mr. Thomas for demonstrating the machine. At least 50 seminars and training programmes were organised for the farmers. This increased the popularity of the machine among the growers. Thomas also received an award from Spices Board. This resulted in enhanced popularity for him, especially among the officers of the Spices Board.

Thomas started commercial production with the help of local mechanics. He made 25 machines and sold them at a unit price of Rs 5200. Very soon all the workshops in his area started making the machine. Since these workshops had all the facilities and sufficient machineries, Thomas was not able to compete with them. So he stopped the production and encouraged these workshops to make the machine. Within 2-3 years, a number of workshops in Idukki started the production of cardamom polishing machine on their own. In a short span of 5 years, this cardamom polishing machine became very popular.

A lot of improvement and refinement has been made by the local mechanics and workshops in a span of 10 to 13 years (1995 to 2008). But the basic concept and technology remains the same. The introduction of exhaust fan for removing the dust, rubber lining on wooden blades for smoother rubbing, sieve for grading the cardamom, tray for dust collection are some of the additions. Parts of the machine became replaceable. Overall aesthetics was improved.

Today, wherever cardamom is being processed, this model is being used. And Thomas is very proud of it. Though Thomas did not patent his innovation and reap its benefits, he is happy that his innovation has addressed the pressing problem in this sector. Thomas is also happy that his innovation has been recognised by the Spices Board, accepted and used widely by farmers in the region.

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Family farming can lead to significant gains

Eve Crowley

Owing to its predominance and advantages, family farming can have a significant role to play in feeding the world, eradicating poverty, ensuring the sustainable management of natural resources and ecosystem services and preserving local cultural heritage. Family farming can be a viable form of agriculture, provided that certain conditions are present. The choices we make today could very well determine its future and the future of rural development.

Family farming is one of the most predominant forms of agriculture worldwide, in both developing and developed countries. The sector comprises a wide spectrum of farm sizes and types, ranging from very large land holdings in high-income economies that are easily cultivated by one or two family members with the use of labour-saving machinery and hired labour, to the small holdings of a few hectares or less in low-income economies, often oriented towards subsistence with low marketable surplus. These small family farms, run by small producers, are, by far, the most numerous: globally, there are approximately 500 million small family farms (280 million of which are in China and India alone) (IFPRI, 2007). Thus, although family farmers and small producers are not identical groups, they share a large common space and hence face a series of similar issues.

Despite its prevalence, however, the central role that family farming plays in food security is not often being discussed. Family farming is being defined here as a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on non-wage family labour, including both women's and men's. Indeed, family farmers produce most of the food consumed in developing countries, and use over 80% of the land in Asia and Africa. While it is not the premise of this article to advocate for family farming as an alternative to commercial farming, or to shy away from acknowledging its links with poverty, it should be said that family farming can be a viable form of agriculture, provided that certain conditions are present. However, it does not take too much to realize that these conditions are in fact generally lacking, and this has triggered an important debate on the future of family farming, which will culminate in the International Year of Family Farming (IYFF) 2014, an initiative coordinated by the World Rural Forum (WRF) with the support of more than 350 organizations from 60 countries across five continents, in collaboration with the government of the Philippines, facilitated by the FAO and endorsed by the UN General Assembly.

Even though family farming may not appear as neat and scientific as commercial farming, there are significant gains to be made by supporting family farming more effectively. One of the main reasons is that as the family and the farm are linked and co-evolve, they combine not only economic functions, but a range of other 'hidden' functions, including environmental, reproductive, social and cultural functions, often in lieu of state institutions or the private sector. In performing all these functions, family farming is also often a means of maintaining family patrimony, cultural heritage, territories, landscapes, and communities. As a result, the motivations of family farmers often go far beyond profit maximization, to encompass other social, cultural and ecological motives.

It is therefore no coincidence that family farming is such a predominant form of agriculture. The multiple motivations that confront family workers, in contrast to hired workers, and especially the strong incentive to work for the sake of their own families' well-being, greatly reduce the supervision costs associated with agricultural labour. Moreover, because family farmers often have intergenerational bonds with the holdings they work, their production also frequently provides continued ecosystem services and care for the natural resource base. Because of this, family farming is particularly well suited to holdings characterized by a highly diverse set of economic activities and mosaic type landscapes, in which the supervision and knowledge required for numerous small and on-the-spot production management decisions is most efficiently and cost effectively devolved to family workers.

In this respect, it would not be a stretch to posit that there is a correlation between the supervisory advantage of family farming, and the way the land looks: whereas family workers, in the absence of widespread mechanization, are suitable to mosaic type landscapes, the supervisory costs associated with hired labour would generally only be amortized with work on monoculture holdings. In essence, a family worker is better positioned to make

> Family farming in low-income economies is often an occupation of last resort, but under the right conditions, could become a country's backbone of both rural development and national economic growth.

semi-autonomous decisions on different micro niches of the farm in ways that reflect the best interests of the farm family and the environmental resources at hand. The incentive of eventual indirect gain that each family member enjoys is thus quite different to that of hired labourers, who rather respond mostly to wages for specific predefined tasks - a situation which does not fit well with landscape complexity. Supporting family farming would therefore also be giving preference to a specific type of landscape and set of traditions that are more conducive to biodiversity preservation, ecosystem balance, and good environmental stewardship.

Once again, this is not an 'either / or' case between family farming and large-scale commercial farming. However, even though it is clear that family farming has considerable advantages over large-scale commercial farming, it comprises a form of agriculture that is poorly documented and largely forgotten in relevant discussions, either in international fora or at the national level between agricultural, poverty reduction, and social affairs institutions. This is precisely what the International Year of Family Farming seeks to redress. The major aim of the IYFF will be to raise the profile of family farming and smallholder farming by focusing the world's attention on their key role in alleviating hunger and poverty, providing food and nutrition security, improving livelihoods, managing natural resources, protecting the environment, and leading towards more sustainable development, in particular in rural areas.

This is undoubtedly a positive development. Yet the rosy picture painted so far of family farming must be tempered with some limitations. Firstly, even though the lower supervision costs make family farming relatively productive in developing countries, the number of economically active family members often limits the scale of production that is possible, unless families have access to mechanization or are organized into producer organizations and cooperatives. Moreover, it is frequently the case that family farms operate in highly fragmented land, divided into several parcels, which further reduces the opportunities for economies of scale. Family farmers are also often poor because they have limited bargaining power and capacity to defend their interests in markets, and their response to market incentives is often constrained by the limited market and technical opportunities available to them. Because family farms combine production and consumption objectives, the relatively high proportion of basic consumption within the budget of poor families can also constrain their responsiveness to markets incentives.

Furthermore, family farming relies upon family members with different labour power, skills, capacities, opportunities and constraints, which vary in part depending upon gender and age. These characteristics influence intra-household relations, which in turn influence the distribution of resources, roles and responsibilities. Put simply, the intra-household distribution of resources and responsibilities in family farms is often *not* equitable, especially with regard to women and children. In addition, about 60% of child labour globally occurs in the agricultural sector, most of it in family based and small scale production. These are unfortunate realities that the family farming model has to reckon with and tackle if it is to enhance its contribution to social and gender equality, intergenerational well-being, and human welfare.

Beyond these shortcomings, there are a range of thorny questions that need to be addressed. For instance, would greater support to family farming by agricultural institutions come back as a boomerang in the form of even more child labour, gender disparity, and environmental degradation? Rural survival is about much more than food security: it requires access to energy, infrastructure, public services, and there are key functions in the household that also need to continue to happen. But if the 'farming' in family farming is intensified, there is always a risk that the 'family' might be accordingly diminished. So for example, how do we ensure that, if food becomes more expensive, children are not made to work more in order to make ends meet on the family farm? Also, if women increase their engagement in agriculture, perhaps as hired labourers, how do we ensure that young children are not taken with them to the field for lack of alternative options, or that rural girls are not taken out of school in order to assume the responsibilities left over in the household? Finally, if more land consolidation projects are implemented to amalgamate fragmented parcels, how do we ensure that the ecological benefits of mosaic landscapes are not sacrificed in the name of efficiency and competitiveness? These are among the issues that the Year of Family Farming seeks to find solutions to in order to enhance the contributions of family farming to sustainable development.

At the moment, the future of family farming over the long run is uncertain, however the choices we make today could very well determine its future and the future of rural development more generally. What is certain is that due to its predominance and advantages, family farming can have a significant role to play in feeding the world, eradicating poverty, ensuring the sustainable management of natural resources and ecosystem services and preserving local cultural heritage. Family farming in low-income economies is often an occupation of last resort, but under the right conditions, could become a country's backbone of both rural development and national economic growth. Hopefully, the International Year will support family farmers by working with all stakeholders, women, men, young and old, to identify new and better ways to enable them to enhance their prosperity, sustainability and freedom to achieve their own aspirations for a better future.

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Multilayer vegetable farming

Small holder community innovates for improved production

Producing more using multi layer sowing method

Prakash Singh and **G C S Negi**

Farmers often try new ideas in their fields and develop many local technologies by innovations and adaptations. These innovations are based on deep knowledge of the local environments, ecologically and environmentally sound. This paper documents such an innovative practice of vegetable cultivation developed by marginal farmers in a mid altitude Himalayan village of the Uttarakhand state in India.

Makrao a small Himalayan village in the Kumaon region of Uttarakhand state of India is situated at an elevation of 1100 meters. There are about 85 households dependent primarily upon agriculture and its allied activities. Around 50 hectares area in the village is under cultivation. Around 90% of the land is rainfed, where crops like finger millet, barnyard millet, paddy, wheat and mustard are grown. The small patches of irrigated area is under vegetable cultivation. The average size of arable land holding in the village is 0.58 ha. Arable land belonging to migrated families is either cultivated by their relatives or by their neighbors, thus there is no land left unused. The village is well connected with road networks, therefore, has ease in market accessibility and transportation.

The innovation: multilayer vegetable cultivation

About a century ago, the village elderly persons collectively developed a small piece of agricultural land of about 5 hectares area for vegetable cultivation. While earlier, the land was irrigated through locally developed *gools*, well-structured water storage tanks and irrigation canals have now been constructed in this land through the help of government departments/ schemes. Initially, vegetables such as carrot, potato, colacasia, green leafy vegetables and spices e.g. spinach, coriander, turmeric, garlic etc. were cultivated in this land as sole plantation.

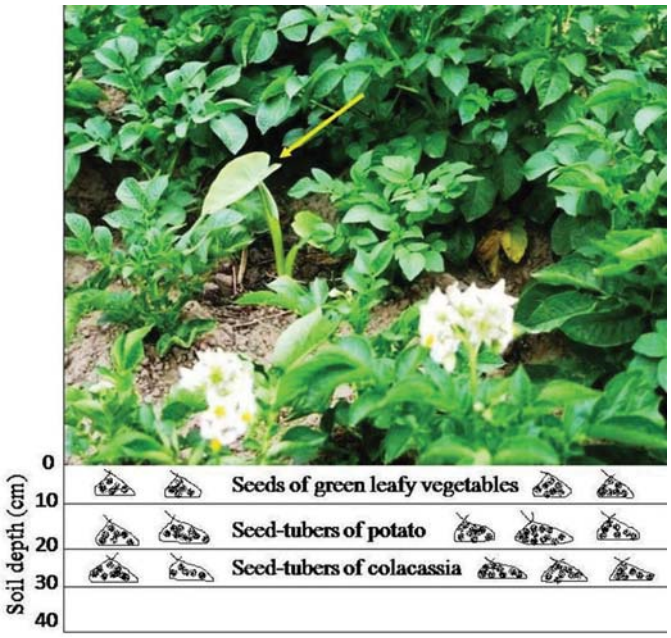
In lands where colocasia was being grown conventionally as a sole crop, there was no possibility of reaping another crop harvest. The crop duration of colocasia is about 7-8 months, starting from the month of January, each year. Also, the seed tubers of colocasia took 60-80 days to emerge above the ground. Realising that the top soil layer in the colacasia fields remain unused for a significant period of time due to late germination of the crop, farmers explored ways of utilizing the resources in a better way for improved production. Farmers first started cultivating short duration green leafy vegetables on the top soil layer, until the sown crop (i.e. colacasia) germinated and emerged above the ground. Since colacasia is late germinating crop and completes its crop cycle in 7-8 months, farmers made further experiments in the colacasia fields. They shifted colacasia's sowing depth from 10-20 cm to 20-30 cm and made vertical space in the soil for sowing potato simultaneously above the colacasia. Eventually, farmers came up with a

The multilayer seed sowing technique has successfully made extra space for additional vegetable cultivation without spatial expansion of the land.

multilayer seed sowing technique in which seeds/seed-tubers of three different vegetable crops i.e. colacasia, potato and green leafy vegetables are now being sown in the deep, middle and top soil layers, respectively and simultaneously in a single crop field. By using this new technique, popularly called as multilayer cultivation, farmers tried to maximize production from an unit area.

Following this improved cultivation practice, farmers first sow colacasia during the month of January in the comparatively large vegetable crop fields. Potato is sown above the colacasia at a soil depth of 10-15 cm and finally in the top soil layer (0-5 cm) they sow seeds of green leafy vegetables. The top soil layer sown crop (i.e. green leafy vegetables) germinates immediately and is harvested within 20-25 days by the end of February. Immediately, after the harvest of green leafy vegetables, the second layer crop (i.e. potato) emerges above the ground. It is weeded twice and harvested in May. Subsequent to the harvest of potato, colacasia emerges on the soil surface and is harvested in October. In the months of November and December the colacasia crop fields are utilized to grow onion saplings, which has a high demand as a winter season planting material in the entire region. In rest of the vegetable crop fields, which are generally small and not cultivated through multilayer seed sowing technique, a diverse range of seasonal vegetables are grown all over the year. The vegetables either sold directly by the farmers in the nearby markets or purchased by a village member who then sells these vegetables in the nearby markets.

Three types of vegetables grown on single piece of land



Growing three crops in place of one naturally results in competition among crops for water and nutrients. However, in the present case of multilayer farming technique practiced in the Makrao village, both of these competitions are well managed by the farmers. Since, water is drawn from natural spring and stored in cement tanks, there is no scarcity of water for land irrigation even in the summer season. Moreover, farmers (based on a general consensus) have developed a rotational system of land irrigation. In this system, a whole day is allotted to a farmer to irrigate the land using the water stored in the tanks. Through this system, each farmer gets his chance to irrigate the land at regular intervals. To overcome the problem of nutrient competition in the multilayer crop fields, farmers apply a huge quantity of farmyard manure during the month of December (before sowing seeds/seed tubers of colocasia, potato and green leafy vegetables) in each of such crop field. The land cultivated through multilayer technique is generally close to the farmer's household and therefore there is no difficulty in manuring these crop fields. Most importantly, the availability of enough water and farmyard manure has made this multilayer farming system viable in the Makrao village.

As three vegetable crops are now being cultivated simultaneously, the new technique has resulted in increased production of vegetables per unit of land in the colacasia fields. The input-output ratio (in terms of money) of this system was computed to 1:8, which is significantly higher than the input-output ratio reported for potato (1:2), tomato (1:5), capsicum (1:2) and pea (1:2) cultivation (as sole plantation) in the other villages of the region.

Conclusion

Multilayer vegetable cultivation in the Makrao village is an excellent example of judicious utilization of soil and water resources to take full advantage of limited land resources. Also, access to markets has been one of the major drivers of this innovation in farming practice. This village is considered to be one of the ideal villages among the agriculturists in the region. Soil moisture and nutrient dynamics in this vegetable farming technique should be of interest to further investigation.

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Small-scale farmers, big change

Zakir Hussain, G V Ramanjaneyulu, G Rajashekar and **G Chandra Sekhar**

The Agricultural Biodiversity Knowledge Programme (agrobiodiversity@knowledged) initiated by Oxfam Novib and Hivos aims to generate and share evidence and insights that will be of value for enhancing agricultural biodiversity. It aims to contribute to a change from mainstream high-input agricultural systems to biodiverse systems that serve farmers and nature; that ensure food and nutrition security; and that respect people and their knowledge and choices. The possibility of reversing high dependence on agrichemical inputs on a large scale, particularly among family farmers who work in close-knit networks, is illustrated by the experiences of the Centre for Sustainable Agriculture (CSA) in Andhra Pradesh, India.

Farmers use plant based decoctions to manage pests

Small-scale family farmers in Andhra Pradesh constitute the vast majority of farmers in the state, and are facing a deep and protracted crisis. Over the past eighteen years, more than 35,000 farmers have committed suicide – many because of enormous debts due to high costs of cultivation with heavy dependency on external inputs. Pests are an issue, all farmers agree on that. However, CSA realised that for many farmers, the main problem was not pests but their addiction to pesticides. Pesticides are expensive, are harmful to the health of farmers and their families, create ecological problems and, most importantly, do not solve the problem. The more pesticides you use, the more you disturb the ecosystem, and the worse the pest problem gets. Many family farmers in Andhra Pradesh have experienced this firsthand. It became clear that there was a pressing need for a solution to this problem. Farmers, NGOs and government jointly rolled out an effective strategy to widely spread the use of Non-Pesticidal Management (NPM).

Non-Pesticidal Management

A radical change was needed: the first step in stopping pests is to stop using pesticides and adopt integrated cropping systems and local resource-based practices. CSA works with family farmers, building on their knowledge, to make this change happen. NPM was developed during the early 1980s and has proven to be effective in different parts of the state. The basic philosophy behind NPM is to train farmers to better understand insect biology and behaviour and the crop ecosystem, building on their own knowledge and skills.

For family farmers, who live on their land and have a close relationship with all the crops they cultivate, NPM is a logical strategy. Their physical proximity to the land means that family farmers often have an intimate understanding of it and its workings. In addition, farming families are well aware of the hazards posed by exposure to these chemicals which can immediately affect all family members, through the air, their skin and their food.

In 2004, CSA set up Farmer Field Schools (FFSs) in twelve villages in Andhra Pradesh to help farmers develop their knowledge about pest management. Through these FFSs, family farmers learnt to understand their agro-ecosystems and plan their crop cycles accordingly. Today, the programme covers about 11,000 villages.

Andhra Pradesh used to have the highest pesticide consumption rate in India, but today it has one of the lowest. The villages that have given up chemical pesticides have not seen a pest outbreak in the last six years, and their yields have not decreased.

Different paths of scaling up

In development circles, one of the major questions that continuously arises is how to scale up best practices. The enormous change in attitudes towards pesticides in Andhra Pradesh provides a good illustration on how this can be done. By expanding, adapting or sustaining successful initiatives and the underlying philosophies, CSA has been able to reach many people in different places and over time. Instead of *reinventing* the wheel, we *reuse* the wheel and learn from the practice of inventing. Without this process, a number of valuable experiences would remain scattered as "islands of success".

Success stories can be scaled up in different ways. They can spread spontaneously, or projects can be directly replicated by NGOs or

government, or be propelled by grassroots movements spreading particular ideas and methods wider. In CSA's experience, two successful strategies for scaling up took place: collaboration between NGOs and the government, and scaling up by farmers themselves, as they adopt the concept of NPM and adapt it to their local conditions.

From farmer to farmer

Punukula is a small tribal village in Andhra Pradesh's Khammam district, which has acted as a beacon of hope for all the distressed farmers in the state. Punukula formally declared itself pesticide free in 2003. Here, farmers adopted alternative pest management strategies and became the navigators for a new development paradigm. They developed a simple and affordable method of preventing pests, based on understanding the pest's life cycles, and have since become experts in disseminating this technology in their region. Their success was widely recorded in the media and convinced the state Minister of Agriculture to scale up the approach.

In this example, the state government became motivated to scale up alternative farming practices after observing that they were being successfully adopted by farmers. Yet it is also an example of a bottom-up scaling up strategy. The wide spread of NPM in the state can be attributed to horizontal expansion from farmer to farmer. As people live and work on the land, farmers readily share new knowledge within and between communities. They understand other farmers' situations and can explain concepts and ideas in their own language. CSA enabled farmers to teach others in their communities and beyond. The small and labour-intensive scale of most operations, the closely knit social networks and the proximity to each others' farms means that this method works well in family farming communities.

Women played a particularly important role in this process, contributing to rapid change in hundreds of villages. Women's self-help groups were at the forefront of the grassroots movement that took charge of their farming, built their own capacities and found a way out of the agrarian distress they had been experiencing. In the programme supported by CSA, farming is seen as a livelihoods issue rather than as a mere technology issue. Women clearly understood the benefits of non-chemical farming, which brought them economic, social and health benefits. As more and more women's groups heard about this programme they began to demand that it be initiated in their villages too, and convinced their men that chemicals are not needed for farming.

Rolling out NPM

The growing demand for NPM among farmers put substantial pressure on the state government to scale up such models. This eventually led to the establishment of a scaling-up programme called "Community Managed Sustainable Agriculture".

Often governments claim that farmers are not interested in shifting away from pesticide use. Yet the successful farmer-to-farmer spread of NPM in Andhra Pradesh provided hands-on experience about the feasibility of scaling up NPM. Family farmers are ready to change, whether or not the government is ready. Farmers take up NPM approaches when they see and experience the lasting benefits, even if such an approach is not supported by government extension programmes. Fortunately, in the case of Andhra Pradesh, government departments were willing to support CSA's approach.

The roll-out began with CSA piloting the programme with partner NGOs, after which the State Department for Rural Development helped to further replicate it. This collaboration showed that scaling up sustainable poverty eradication initiatives on such a large scale requires all the partners to be actively involved. The success of this collaboration depends on the actors sharing similar or complementary objectives: CSA's goal to mainstream an alternative solution to pesticide use overlapped well with government's aim to improve livelihoods through cost reduction in farming. Based on the lessons in Andhra Pradesh, the national level "Women Farmers Empowerment Programme" has been implemented in several states across the country.

Joint ownership with the government has given the programme the potential for becoming more than an island of success. The partnership with the state government has expanded the programme's reach and has influenced policy at a state and national level. The state government has also benefitted from tapping into the expertise of NGOs, who act as innovators, developing and testing solutions, whereas governments are often tied to established procedures and often unwilling to take risks or adopt innovative approaches. One key issue here is that such collaboration requires trust and mutual acknowledgement between the partners involved, in order to dispel fears of being co-opted or one party having exclusive control.

Effective upscaling: the clue to sustainability

The sustainability of any farming practice or innovation might be judged based on the potential for scaling up of that practice. Many thousands of farmers have reported that ecological practices for managing pests, diseases and soil productivity are effective and successful. Equally there is a wealth of evidence about how this model is economically viable and increases farmers' self confidence. Reportedly, farmers who had mortgaged their lands to meet their debts are now able to reclaim ownership over their land. Out-migration has reduced and farming is once again a dignified occupation. Finally, women farmers have proven again that when they are in the driver's seat, their development approaches are more eco-sensitive, equitable, sustainable and have a longer term perspective.

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Rain shelters – A tool to strengthen family farming

Conventional crop production in the open field was at high risk against environmental stresses such as extreme solar radiation, high rainfall, weed competition, pest and disease incidence. These risks were at the peak due to climate change scenario. Krishi Vigyan Kendra Kollam, Kerala Agricultural University, implemented a project to create awareness among farmers about the use of low cost protective structures, for the year round production of safe vegetables.

Rain shelters are constructed with low cost materials like casuarina pole or any other available material affordable by the farmers. Adequate irrigation and drainage facilities are ensured. Cladding material used was 200 micron UV stabilized polythene sheet. Sides up to 2 feet are covered with nets to protect from livestock. Proper air circulation through the structure is assured. Shade nets were spread under the roof to enable crop cultivation during summer to protect from excessive heat.

Land under shelters was ploughed and made to fine tilth. More emphasis was given to organic cultivation. Soil is mixed with FYM enriched with trichoderma. Bio control agents like pseudomonas and trichoderma were used which helped in controlling diseases and pests. Generally, pest and disease incidence was very less in rain shelters as compared to open conditions. Botanicals like neemazol is used for controlling pest. As the shelter is of small manageable area, physical and mechanical methods of pest control were very effective. Proper crop rotation and multicropping is followed. Vegetables cultivated successfully in rain shelters are amaranthus, salad cucumber, chilli, cabbage, cauliflower, radish, capsicum, bitter gourd, tomato, carrot, bhindi, beetroot, brinjal, spinach, cowpea etc.

We can produce vegetables of good quality year round, with minimal use of insecticides under the rain shelters. High value crops like cucumber, capsicum and off season production of tomato and bhindi resulted in bumper yield of high quality, with reduced pest and disease incidence. Yield of the crops was found to be higher by 2-4 times than in open conditions. Production under structures not only increased yield per unit area, but also improved quality. The shelf life of vegetables was found to be better, which could reduce postharvest losses in vegetables, estimated to be at 30 per cent of the total production.

The goals of family farming can be achieved by farming in rain shelters. This low cost protected cultivation technology has immense power for strengthening the family. Women employment can be increased. Even children can work in rain shelters as they are protected from harsh weather conditions. Younger generation is also attracted to agriculture when the whole family is engaged in vegetable cultivation in these protected structures in homesteads. The rain shelters can also be constructed on roof tops in urban areas where open land is unavailable.

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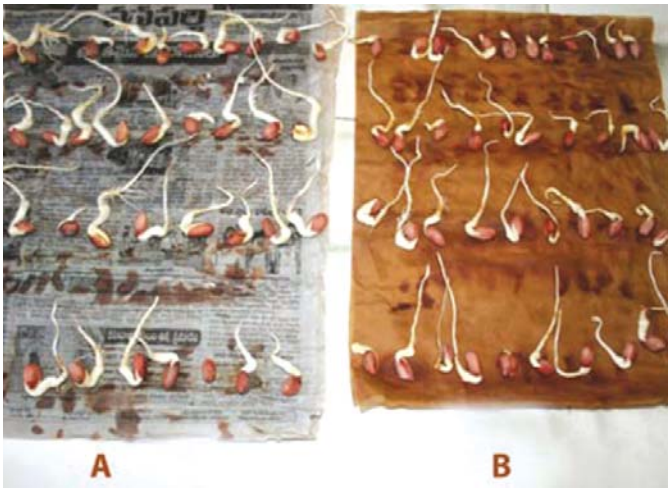
Vegetables grown under rain shelters

Low cost seed testing method for small -scale farmers

Quality seed of improved varieties is an important basic input for enhancing productivity of any crop species. Existing mechanisms to meet the groundnut seed requirements of small-scale farmers is not adequate and has serious limitations. The baseline studies in the project area (Mahbubnagar district of Andhra Pradesh) identified key problems related to groundnut seed supply system. Lack of timely availability of seed, high cost of seed and poor quality (low germination) were some of the major constraints contributing to stagnated yields of groundnut crop in the project area, where it is grown in post rainy season under irrigated conditions.

A training program on demonstration of innovative low cost seed germination test along with seed treatment was conducted in project villages for lead farmers. The main objective of this test is to recommend quantity of seed per hectare with a proper seed treatment. The germination test demonstrated was simple, inexpensive and reliable. It can be conducted at the farmer level at his/her residence without any additional facilities or equipment. It requires old newspapers and a plate. Four layers of a newspaper are spread on the floor and sprinkled with water to wet the paper. Groundnut seeds are placed on the paper at a spacing of 2 cm seed to seed and 4 centimeter row to row. The newspaper is thoroughly wetted with water and rolled; the rolled newspaper is tied with thread or a rubber band to keep the roll intact and is placed in the plate and incubated at room temperature for 3-5 days. The paper roll should be kept wet every day by pouring adequate water in the plate. Germination count was taken five days after incubation.



Low cost groundnut seed germination test

There was no significant difference in germination percentage between the newspaper method and the paper towel germination method which is expensive and more difficult to get the materials at village level. This method was used to evaluate the seed supplied by various seed agencies, thereby helping village seed bank committee to assess the seed requirement.

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Sustainability of an integrated poultry-pig-fish farming system

Scientific integration of different farm components like livestock, fish, poultry etc., is a viable option for sustainable production of different commodities with low investment, mitigation of risk and impact on environment. The sustainability of an ecologically sustainable livestock-fish farming technology suitable for poor and marginal farmers was studied over fifteen years. This system involving integration of three components, viz. chicken, pig and fish has been initiated in the year 1994 and has been under operation till date, in Fisheries Research centre, Assam Agricultural University, Jorhat.

The specially designed animal house connected to the pond with a drain

A specially designed two storied animal house was constructed on a suitable site of the pond embankment for lodging the pig (downstairs) and chicken (upstairs). The floor of the chicken coop is perforated to allow direct falling of the poultry droppings into the pig sty. The poultry droppings were used for supplementing 50% of pig feed requirement. The floor of the pig sty was connected to the pond with a drain. Pig droppings and left over feed were used for fish as manure and supplementary feed, thereby reducing 70-80% of fish production cost. The ratio of chicken, pig and fish was kept at 10:1:200. Thus, the system involves low external input supply but assures production of multiple commodities from unit area through utilization of available resources. Calculation of Benefit Cost Ratio, analysis of Cash flow pattern and Internal Rate of Return reveal that the system is economically sustainable in the long run. Additional advantages like mitigation of environmental pollution through waste recycling, avoidance of health hazards, convenience in management, reduction of risk and drudgery, add distinction to the system as a farmer friendly and eco friendly option.

In this integrated system no waste is wasted. Waste from one commodity is utilized as food source for other. External input in the form of feed for the whole system includes 100% ration for poultry and 50% ration for pig. Exclusion of external feed and manure input for fish and pig reduces cost of production of fish to the tune of 70- 80% and cost of production of pig by 60%.

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Wireless solar light trap reduces pesticide use in Brinjal

The wireless Solar light trap was developed to help the farmers who struggled to control the fruit borer in brinjal. This innovation was developed by Mr. P. David Raja Beula, Assistant Director of Horticulture, Kadayam of Tirunelveli district in Tamil Nadu.

Sakthivel, a farmer of Arumbattu village, chose to cultivate an Indian native variety of brinjal called *'Ilavambadi'*. The native variety of brinjal is resistant to most of the diseases. The farmer did not spend any money on fungicides. However, he struggled to control the fruit borer which during early stages causes damage to the shoots of brinjal plants. He sprayed pesticide once in 7 days to control the pest.

Then in one of the farmers meetings Mr Beula introduced the wireless light trap, his new innovation. Sakthivel decided to try the solar light traps. He installed two wireless light traps in one acre of land. The fruit borer moths were collected and killed in the light trap. The collection of brinjal fruit borer moths started from 3 moths/day/trap and gradually increased to 500 moths/day/trap. Gradually, the frequency of pesticide spray was reduced from once in 7 days to once in 15 days and finally to once in 30 days. The farmer thus saved about Rs.4000 per acre. The farmer saved US$60 on the cost of pesticide while the cost of light trap was US$80.

Author demonstrating the use of solar light trap

Sakthivel harvested 10 tonnes of brinjal from one acre of land. The native variety was preferred over other hybrids by consumers for its taste and shelf life.

By using the solar light trap, the farmer not only saved money but also protected the environment and reduced the load of pesticide in the food chain.

For more details, contact Mr. P. David Raja Beula, Assistant Director of Horticulture, Kadayam, Tirunelveli District, Tamil Nadu. Email: microeconomicsdavid@yahoo.co.in

Family farming

Only way to protect farmers and farming

Family farming is a characteristic of farms that can be maintained by the family members without much dependence on high cost external inputs. That was the tradition and the culture of the whole world. But, after the start of industrial revolution and urbanization, the system of family farming gradually started diminishing and huge farms and industrial type or centralized system of crop cultivation got importance. These farms relied on machinery for transport and crop cultivation, chemicals for fertilizing and plant protection and weedicides to control weeds, necessitating the use of fossil fuels, thus resulting in over exploitation of coal, petroleum oils, minerals. This also led to extensive deforestation resulting in global warming and the destruction of soil health.

In my 4 acre farm with a tube well which provides protective irrigation water, we produce almost all our food needs for a family of 6 persons. It is also sufficient for about 10 outsiders who visit us occasionally at our organic farming training centre. Annually we sell 5000 coconuts, 10 tons of sapota, 2 tons of banana, 2.2 tons of Avacado, 2 tons of papaya and 2 tons of vegetables apart from having 200 timber trees growing on the edges. We have 6 cattle, 8 goats and 25 backyard poultry birds. We make most of our seeds, enough compost manure and vermicompost. Our only external input is electricity and a few items for the kitchen. We lead a comfortable life with a little saving each year regularly. Four of the family members are regularly employed on the farm. We hire one person to help us on the farm.

Let us look at the change in landscape in Europe too. Anybody can understand that unit crop production is diminishing year after year inspite of quadrupled use of high cost external inputs. Large farms have come up by displacing small farms. One who visits Arnhem open air museum in the Netherlands (Holland) would understand the debacles of huge mechanized farms. Hundred years ago, families were managing farms very economically with sustainable agriculture production. Horses were used for land cultivation and transport, and the men in the household were maintaining them with inputs available on the farm. The women maintained the cattle which needed only hay, silage and grazing from 2 acres land. The cattle were yielding around 15 liters milk without any external concentrates. But over a period, this has changed. Since last 60 years, the cattle are being fed 5 - 10 kilos each of feed like brewery malt, sugar beet pulp, oil cakes, wheat brans and concentrates, to produce 40 liters of milk, on an average. This apart, cattle are also being injected with antibiotics and hormones along with other expensive medication.

Similarly, 40-50 poultry birds were maintained at the backyard and a few sheep or pigs were kept and fed with farm residues and lower quality grains and vegetables. All these animals like horses, cattle, poultry birds, pigs or sheep were held in the stable under their homes with wooden floor and the house was kept warm with breath of these animals without any heating equipments or fuels. But now the industrial farms have specialized dairy, piggery, poultry production systems, which depend on external inputs, thus leading to high production costs. Adding to the agony, charges for warming the houses constitute 20% of the family income. Now these huge farms of crops, dairy, poultry and piggery are under huge debts. Farmers are finding it difficult to even dispose the dung and urine produced on these farms.

I had visited many dairies who have huge stocks of cheese, skimmed milk powder and fat oils, unsold and protests are very common in almost all Scandinavian countries demanding for better prices. This is the same fate for piggery and poultry farmers. In the same country Netherlands, I visited a small farm on the bank of Rhine river. The farmer owns 8 acres of land, and still cultivates his lands by horses and grows 3 crops like wheat, sugar beets and potatoes.

It is a pity that giant corporate houses are encouraged to take over farming as an industry, displacing millions of small farmers from their lands. The use of expensive inputs in agriculture will not only be uneconomical but also unsustainable and destructive to the soil. Human health will be in danger with chemically produced crops. The farmers will be forced to migrate to cities and do odd jobs to meet out their needs. On the other hand, nurturing and supporting family farming is the only healthy way to meet food needs and provide more employment in the rural areas.

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Shri Narayana Reddy is a legendary organic farmer and is one of the most sought after resource persons on ecological agriculture.

L Narayana Reddy
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Empowering smallholder farmers in markets
Experiences with farmer-led research for advocacy

Giel Ton and Felicity Proctor (Eds), *2013, Wageningen: CTA-AGRINATURA-LEI*, 140p. ISBN 978-94-6173-891-2

The Empowering Smallholder Farmers in Markets programme (ESFIM) creates a space for learning-by-doing on institutional modalities to bridge the gap between the research community and national farmer organisations on issues relating to smallholder market access. It generates research-informed proposals for change in the enabling/disabling institutional environment and it supports the capacities of national farmer organisations to engage in related advocacy activities.

This book describes the dynamics in eleven countries that were included in the programme between 2008 and 2013. Context mattered and this is demonstrated in the diversity in themes prioritised and selected in each of the countries. These ranged from research on modalities of collective marketing to the generation of evidence on the impact of seed programmes, the design of market information systems and electronic trading systems to the legal and administrative hurdles that prevent smallholders from selling to government procurement programmes. The chapters give insight in the advocacy strategies of national farmer organisations and their use of research and evidence to strengthen the voice of smallholder farmers and formulate pro-active proposals for change.

The Future of Indian Agriculture

Yoginder K Alagh, *2013*, 220 p, Rs.90, ISBN 13:978-81-237-6736-6

Locating India's resource endowments in the context of its fast growing economy, the book assesses the growing demands on the country's agricultural sector. In doing so, it discusses the distinctive and rapidly diversifying food needs in rural and urban areas, the supply potential of India's agricultural resources and the impact of technology. Modelling an alternative growth path, the book offers policy solutions to the challenges of inflation, poverty and food security. Written by one of India's foremost agricultural economists, the book offers incisive insights on the future of Indian agriculture.

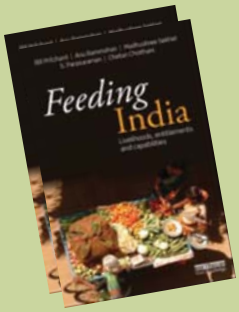
Food wastage footprint
Impacts on natural resources

A summary report

FAO, *2013*, ISBN 978-92-5-107752-8

FAO estimates that each year, approximately one third of all food produced for human consumption in the world is lost or wasted. This food wastage represents a missed opportunity to improve global food security, but also to mitigate environmental impacts and resources use from food chains. Although there is today a wide recognition of the major environmental implications of food production, no study has yet analysed the impacts of global food wastage from an environmental perspective.

This FAO study provides a global account of the environmental foot print of food wastage (i.e. both food loss and food waste) along the food supply chain, focusing on impacts on climate, water, land and biodiversity. A model has been developed to answer two key questions: what is the magnitude of food wastage impacts on the environment; and what are the main sources of these impacts, in terms of regions, commodities, and phases of the food supply chain involved–with a view to identify "environmental hotspots" related to food wastage.



Feeding India
Livelihoods, Entitlements and Capabilities

Bill Pritchard, Anu Rammohan, Madhushree Sekher, S. Parasuraman, Chetan Choithani, *2013, Routledge,* 194 p., Paperback: £24.99; ISBN 978-0-415-52967-9

Food security is one of the twenty-first century's key global challenges, and lessons learned from India have particular significance worldwide. Not only does India account for approximately one quarter of the world's under-nourished persons, it also provides a worrying case of how rapid economic growth may not provide an assumed panacea to food security.

This book takes on this challenge. It explains how India's chronic food security problem is a function of a distinctive interaction of economic, political and environmental processes. It contends that under-nutrition and hunger are lagging components of human development in India precisely because the interfaces between these aspects of the food security problem have not been adequately understood in policy-making communities. Only through an integrative approach spanning the social and environmental sciences, are the fuller dimensions of this problem revealed. A well-rounded appreciation of the problem is required, informed by the FAO's conception of food security as encompassing availability (production), access (distribution) and utilisation (nutritional content), as well as by Amartya Sen's notions of entitlements and capabilities.

Wake up before it is too late

Trade and Environment Review 2013, UNCTAD/DITC/TED/2012/3

Farming in rich and poor nations alike should shift from monoculture towards greater varieties of crops, reduced use of fertilizers and other inputs, greater support for small-scale farmers, and more locally focused production and consumption of food, a new UNCTAD report recommends.

The **Trade and Environment Report 2013** warns that continuing rural poverty, persistent hunger around the world, growing populations, and mounting environmental concerns must be treated as a collective crisis. It says that urgent and far-reaching action is needed before climate change begins to cause major disruptions to agriculture, especially in developing countries.

More than 60 international experts contributed to the report's analysis of the topic. The **Trade and Environment Report 2013** recommends a rapid and significant shift away from "conventional, monoculture-based… industrial production" of food that depends heavily on external inputs such as fertilizer, agro-chemicals, and concentrate feed. Instead, it says that the goal should be "mosaics of sustainable regenerative production systems that also considerably improve the productivity of small-scale farmers and foster rural development". The report stresses that governments must find ways to factor in and reward farmers for currently unpaid public goods they provide – such as clean water, soil and landscape preservation, protection of biodiversity, and recreation.

The report emphasizes that a shift is necessary towards diverse production patterns that reflect the "multi-functionality" of agriculture and enhance closed nutrient cycles. Moreover, as the environmental costs of industrial agriculture are largely not accounted for, governments should act to ensure that more food is grown where it is needed. It recommends adjusting trade rules to encourage "as much regionalized/localized food production as possible; as much traded food as necessary."

Small Farmers, Big Change: Scaling up impact in smallholder agriculture

Baden Sally, Harvey Claire, Wilson David, Wilson Kirsty (Ed.), *2011, Practical Action Publishing, Oxfam GB,* ISBN 9781853397127

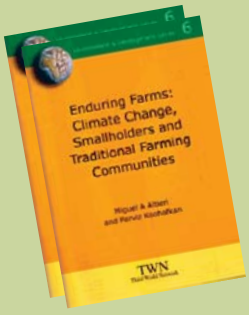
Support for smallholder agriculture is increasingly important, both to boost productivity during food crises and to raise the incomes of rural poor people. In 2005, Oxfam launched the Global Agriculture Scale Up Initiative (GASUI) with the aim of empowering smallholder farmers to improve their own livelihoods. A workshop was held in Oxford in 2009 which brought together 23 participants from 17 country and regional programmes and three Oxfam affiliates. This book is an outcome of that learning process. Small Farmers, Big Change will help NGOs build their capacity to identify the most strategic pathways and leaders for change, while working with small farmers as the key agents. The book presents very practical examples of achieving wider change in smallholder agriculture, documented by Oxfam programme staff.

Facing the Challenges of Climate Change and Food Security The Role of Research, Extension and Communication for Development

Occasional papers on Innovation in Family Farming, FAO *2013*, ISBN 978-92-5-107737-5 (print), E-ISBN 978-92-5-107738-2 (PDF)

This document is a revised and shortened version of the study of Leewis and Hall " Facing the challenges of climate change and food security: the role of research, extension and communication institutions". Its purpose is twofold: (1) to serve to sharpen the climate change focus of the Research and Extension Branch, FAO in developing effective and relevant support activities with its partners and (2) to communicate the need for new climate change support activities and promote possible strategies and approaches that will enhance the role of extension, research and communication institutions and services for climate change adaptation.

Besides the more explicit focus on climate change research, extension and communication needs, some practical examples were added in this revised edition of the report. It first discusses the context of climate change adaptation and its linkages with food security and the analytical framework which has been used for the study (chapter 2 and 3). Subsequently, it describes the lessons learned from the case-studies, followed by a sketch of a new-style agriculture innovation support services in the face of climate change and food security challenges (chapters 4 and 5).



Enduring Farms: Climate Change, Smallholders and Traditional Farming Communities

Miguel A Altieri and Parviz Koohafkan, *2008, Third World Network, 131 Jalan Macalister, 10400 Penang, Malaysia,* ISBN: 978-983-2729-55-6

Many rural and traditional farming communities seem to cope well with climatic extremes. In fact, many farmers adapt and even prepare for climate change, minimizing crop failure through increased use of drought-tolerant local varieties, water harvesting, extensive planting, mixed cropping, agroforestry, opportunistic weeding, wild plant gathering and a series of other traditional farming techniques. This points to the need to re-evaluate indigenous knowledge as a key source of information on adaptive capacity centred on the selective, experimental and resilient capabilities of farmers in dealing with climatic variability.

Understanding the agroecological features and coping/adaptation mechanisms employed by traditional societies provides useful insights into the relationship between the climate and agricultural systems in diverse geographical and agroclimatic regions of the world. This booklet describes the impacts of climate change on smallholder/traditional family farming communities, and the agro ecological features of indigenous agricultural systems which could serve as the foundation for the design of resilient agricultural systems and strategies for food security and poverty reduction in an era of climate change.

Official launch of IYFF -2014 in the UN headquarters. Mirna Cunningham and Ibrahin Coulibaly, special ambassadors for the IYFF-2014

Launch of International Year of Family Farming - 2014

The International Year of Family Farming 2014 is an initiative promoted by the World Rural Forum and supported by over 360 civil society and farmers' organizations from 60 countries across five continents. This worldwide celebration, declared by the United Nations General Assembly, aims to become a tool to stimulate active policies for sustainable development of agricultural systems based farmer families, communities, indigenous groups, cooperatives and fishing families.

All this work is being made from the perspective of effectively combating poverty and hunger and the search for a rural development based on the respect for environment and biodiversity.

Strengthening Family Farming is the most efficient means to combat hunger and poverty. Seventy percent of the food consumed in the world is produced by Family Farming, in all its diversity, and 40% of the families in the world live from this activity.

"The most effective way to combat hunger and malnutrition is to produce food near the consumers, precisely what Family Farming does, not the large itinerant investors", explains Jose Antonio Osaba (WRF), Coordinator of the IYFF-2014 Civil Society Programme. In his opinion, to strengthen the work of the millions of family farmers in the world (nearly 2,500 million people in rural areas live from agriculture in developing countries) it is necessary for countries to guarantee "the protected access to land, water, sea and other natural resources. In addition, "the right of people to produce their own food" needs to be acknowledged.

On November 22nd 2013, the official launching of the International Year of Family Farming -IYFF-2014, took place at the UN, New York. The WRF -representing more than 360 organisations from 60 countries together with the FAO Director General, Mr. Graziano da Silva, the representatives of the UN General Assembly, UN Secretary General, etc, shared messages. Without exception, the act was a great hymn of appreciation to the more than two billion women and men family farmers, traditional fishers, pastoralists, indigenous peoples, landless labourers. Many ministers and ambassadors from several countries took the floor and pledged to uphold and support Family Farming, as the best model to feed the Humanity and to care for the Planet. The three special ambassadors of the IYFF-2014, appointed by the Secretary General of the FAO,

Launch of IYFF-2014 at Bangalore, India – a family farm displayed on the ground

shared very strong and brave messages defending Family Farming, indigenous peoples, etc.

In India, several Civil Society Organisations marked the occasion by organizing the launching progrmame at several places - AME Foundation in Bangalore, SEWA in Gujarat and Deccan Development Society in Andhra Pradesh to mention a few. In all the three places, farmers took the center stage.

In Bangalore, farmers from three South Indian States participated. Shri Chiranjiv Singh, former Development Commissioner, Dr. R. Dwarakinath, Chairman, AME Foundation and former VC, UAS, Bangalore, Dr. Premnath, Chairman, PNASF, Bangalore, Dr. N Nagaraja, DE, UAS, Bangalore, Dr. Y V Malla Reddy, Director, Accion Fraterna, Anantapur, Dr. Narayana Reddy, Organic farmer, Prof. V Veerabhadraiah, President, UAS Alumni Association, and Dr. T M Thiagarajan, former Dean TNAU were the distinguished guests for the occasion. The occasion provided a great opportunity to all to hear farmers share how the family farms meet their multiple needs (food, income nutrition), how their ecological farms bring down costs of cultivation and dependencies on external inputs. Also, it was a beginning for exploring policy enabling mechanisms to support the small holders as a first step towards better conditions for family farming.

In the Launch programme organised by DDS in Zaheerabad in Andhra Pradesh, 500 women peasant farmers attended, All members of six farmer families were honoured, Representatives from top academic institutions, like DG, NAARM and State Agriculture University attended and appreciated the efforts, promised to highlight their efforts in their regular academic situations. In the event organized by SEWA, Gujarat women farmers representing 9 states participated to celebrate the launch.

In preparing this note, inputs from Mr. Jose Antonio Osaba, World Rural Forum, Dr. P V Satheesh, DDS and Dr. Reema Nanavathy, SEWA were used.

Call for Articles

Agricultural biodiversity: Breaking the barriers

Vol. 16 No. 1, March 2014

Agricultural biodiversity plays a huge role in maintaining resilient local economies, balanced diets and balanced ecosystems. The rapid disappearance of agricultural biodiversity and the lack of measures to protect it are therefore great causes of concern. Mainstream agricultural policies, which generally promote monoculture agriculture, Genetically Modified Organisms (GMOs) and Intellectual Property Rights threaten such agricultural biodiversity, having an impact on agricultural landscapes, species, varieties, breeds, the wild relatives of crops and livestock, pollinators, micro-organisms and genes. These policies and practices lead to the disappearance of plant and animal species, and the knowledge embedded in their management and use.

There is some good news though: in recent years many promising initiatives have been launched around the world that aim to preserve and manage agricultural biodiversity. Small-scale family farmers often play a central role in these, acting as custodians of biodiversity. But other actors and institutions also play important roles. Producers, public and private institutions and consumers are reconnecting with each other through innovative market arrangements, many of them at local or regional level. Farmers and researchers are taking up joint research initiatives, and farmers' organisations are engaging in dialogues with policymakers, pushing for policies that enhance agrobiodiversity.

The March 2014 issue of *LEISA India* will look at these emerging initiatives and at the insights gained from the efforts to up-scale these experiences. We particularly aim to explore the factors that influence the transformation towards more sustainable and diverse production systems, and the factors that help break existing barriers: why have some experiences been more successfully spread and scaled up? The topics we will look at will include the revitalization of local seed systems and indigenous livestock breeds at a large scale; the market mechanisms and policies that support agrobiodiversity; farmers' innovations and the role of knowledge and information networks. As 2014 will be the *International Year of Family Farming,* this edition will explore the close interconnection between agricultural biodiversity and family farming.

Articles for the March 2014 issue of LEISA India should be sent to the Editor, before 1 February 2014.
E-mail: leisaindia@yahoo.co.in

This is the moment!

José Antonio Osaba and **Laura Lorenzo**

At the eve of the International Year of Family Farming (IYFF), we congratulate the hundreds of organisations and individuals who committed to participate in it. All of you are doing a great job of communicating and raising awareness. We hope that the IYFF will give a significant boost to the demands of all family farmers, including peasants, indigenous peoples, traditional fishermen, pastoralists, and others. And the signs are hopeful – the preparations of the IYFF are already causing an unprecedented movement of farmer movements, civil society groups, governments and international agencies.

We would like to underline that this International Year's character and intrinsic value are shaped by family farmers themselves. They work diligently for their valuable and important rural way of life, which is marked by a special bond with nature. They, together with the World Rural Forum, convinced the international community of the need to dedicate a year to Family Farming.

The IYFF is our opportunity to claim universal recognition of the role of women and men family farmers, who provide food to humanity in a sustainable way. We must seize the IYFF to get our governments to agree on policies that respond to the demands of family farmers worldwide, such as access to land and water, improving the status of women and youth, access to markets and credits, and strengthening farmer organisations. In summary, we must support the right of people to produce a large part of their own food, guaranteeing their food security in the process towards food sovereignty.

In many countries, National IYFF Committees of agricultural and rural organisations are doing exactly this. They are designing a large number of activities, events, lectures, research, meetings, festivals and policy proposals calling for priority support for family farming.

In this perspective, we encourage you to participate in your own National IYFF Committee, through your farmer organisations, through us, or through our allies in the AgriCultures Network, to make your voices heard before governments.

Let's seize the IYFF 2014 to achieve a substantial improvement at all levels of the rights and the lives of so many millions of women and men farmers, indigenous peoples, traditional fishermen, herders and landless laborers.

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José Antonio Osaba and **Laura Lorenzo** are members of the World Rural Forum, which was instrumental in campaigning for the International Year of Family Farming (www.familyfarmingcampaign.net). They co-ordinate global civil society activities for the IYFF. E-mail: llorenzo@ruralforum.net

PHOTO COMPETITION

Visualizing the potential and contributions of family farmers worldwide

The International Year of Family Farming (IYFF) highlights the decisive role of family farming in the sustainable production of 80% of the world's food and in the conservation of ecosystems and biodiversity. The IYFF-2014 photo competition collects visual expressions to build stronger recognition and support for family farming, and encourage broad participation in the IYFF.

The IYFF-2014 photo competition is calling for photos that represent the motto: Family Farming: Feeding the world, caring for the earth.

Entries must visualize the strength, potential and challenges of sustainable, multifunctional family farmers worldwide, in all their diversity and contexts.

A jury consisting of Angèle Etoundi, Bernward Geier, S Jayaraj, Tomás Munita, Deo Sumaj and Jun Virola will choose the winning photos. The deadline for entries is 1 May 2014, but we appreciate receiving photos earlier. The winning photos will be announced in October 2014.

The photo competition is an initiative of the AgriCultures Network and the World Rural Forum, in close collaboration with the Asian Farmers Association, CLOC/La Via Campesina and the More and Better Network.

Read more and submit your photo at www.agriculturesnetwork.org/photocompetition