

Magazine on Low External Input Sustainable Agriculture



LEIS INDIA



***Sustaining gains
and scaling up***



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Madanapalli farmers sharing their experiences during a field day.

Photo: AME Foundation

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The editors have taken every care to ensure that the contents of this magazine are as accurate as possible. The authors have ultimate responsibility, however, for the content of individual articles.

The editors encourage readers to photocopy and circulate magazine articles.

Dear Readers

We are extremely grateful to all those readers who have made voluntary contributions for the magazine for the year 2010. Some of you have contributed a bit more than the production costs to be able to serve many more who may not be able to pay. In this issue, we continue to thank all those by name who have contributed subsequently after the last issue! (Last issue we circulated 225 names!). As of now, a total of 306 have contributed voluntarily. We expect the number to grow as the magazine is presently reaching around 12000 readers. We look forward to more generous contributions from institutions.

Presently, the contributions received is meeting less than 10% of the total annual cost. Donors too are expecting significant contribution from significant number of readers. We look forward to your spirited response.

You may be aware that we are bringing out special translated editions in Hindi, Kannada and Tamil. Meanwhile, we have brought out special edition in Telugu and Oriya with support of CDAC and ORRISSA, respectively. These are meant for non-english speaking readers who are comfortable with the local language.

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.

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

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ILEIA - the Centre for Learning on sustainable agriculture and the secretariat of the global AgriCultures network promotes exchange of information for small-scale farmers in the South through identifying promising technologies involving no or only marginal external inputs, but building on local knowledge and traditional technologies and the involvement of the farmers themselves in development. Information about these technologies is exchanged mainly through Farming Matters magazine (<http://ileia.leisa.info/>).

Non Pesticidal Management *Learning from experiences*

G.V. Ramanjaneyulu, M.S. Chari, T.A.V.S. Raghunath,
Zakir Hussain and Kavitha Kuruganti

Two decades of experience in Andhra Pradesh on Non Pesticidal Management shows that pest is a symptom of ecological disturbance rather than a cause and can be effectively managed by using local resources and timely action. The small success from few villages was scaled up into more than 1.5 million ha in three years. This experience also shows how the grassroot extension system when managed by the community can bring in change and help the farming community to come out of the crisis.

Regreening the Sahel *The success of natural tree regeneration*

Chris Reij

In the mid-1980s, farmers and NGOs developed a technique to regenerate “forests on the farm” in dry areas in Niger. Now, millions of hectares have become greener and more productive. This African tale of on-farm forestry stands out for its simplicity and impact on farmers’ lives.



Upscaling an innovative practice in rainfed paddy cultivation

Sangeetha Patil

Farm practices, even with inherent merits, are often difficult to spread over a large area. It is much more challenging for a practice like SRI to be tried and scaled up under rainfed conditions. In such situations, a well planned strategy is all that is required to make it possible.



Scaling up and sustaining nutrition interventions

Luc Laviolette and Venkatesh Mannar

Effective interventions aimed at reducing under nutrition need to be implemented at sufficient scale to be able to make an impact. There is now growing recognition in the nutrition field that the challenge ahead is much less about scientific research than it is about the operational and management challenges of a scaling-up process. Two examples of scale-up of nutrition interventions presented here highlight the factors influencing successful upscaling.

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Sustaining gains and scaling up

Project initiatives typically start small. Even when successful, they usually remain rather small - remaining as islands of excellence. As a result, scaling up - the expansion of positive impact beyond the local level has become an important issue on the agenda of people committed to social change. Especially in the context of the size of the problems we face and the scale of investments being made by public as well as philanthropic agencies.

Scaling up processes cannot be achieved uniformly across sectors too. Where the problems and solutions are well known, large scale scaling up takes place either autonomously or through investments. For instance, vaccinations in health care and welfare schemes like mid day meals.

Scaling up is perceived as a natural and almost organic process. If things are done well, people - whether beneficiaries or interested outsiders will take it up on a wider scale. Change leaders too, typically opt for wider rather than narrower impact. Donors too, while making investment decisions, fund initiatives in which they feel there is potential for success or long term utility. However, it is learnt that there need to be conscious efforts made, useful strategies in place to make it happen. Therefore, there are many who also believe scaling up in neither simplistic nor straightforward.

There have been numerous innovative, ecological experiences of farmers and programmes oriented towards farmers' development. Some might have remained as islands of successes, most often remaining small or even disappeared owing to want of support. At the same time, some have, and some are spreading fast. It is important that initiatives spread and impact a large number of lives positively. To understand and learn, it is important to analyse which approaches and strategies are necessary and why. In this issue we have presented cases from across sectors illustrating diverse models of enabling scaling up.

Scaling up – views and dimensions

An earlier issue on Lessons in scaling up (LEISA India v.3 no.3 September 2001) dealt with some strategies learnt from harvesting a debate of several workshops as well as field. It was agreed that scaling up (based on multi dimensional understanding) leads to more quality benefits to more people over a wider geographic area more quickly, more equitably and more lastingly.

Also four types of scaling up were recognized (*quantitative* - numbers; *functional* - diverse activities; *political* - structural and policy changes; *Organisational* - optimizing and diversifying resources). There were strong views articulated too - 'For enabling scaling up - No universal solutions', 'Quality scaling up is not merely replication but multiplication through adaptation'. For enabling scaling up, lot of emphasis was placed on organizational and learning capacities.

The potential **driving forces** identified were: *Local champions; Committed development practitioners; Enabling stakeholder groups; Networks, partnership and alliances; a success; and a Crisis*. The strategies understood as enabling were:

- Ensuring participation and quality while scaling up
- Bottom up decentralized approach
- Deliberately planned scaling up process supplemented by top down enabling policy environment
- Need for donors to fund programmes on a wholesale basis rather than a retail basis for enabling flexibility and complementarity.

Lastly, the World Bank's report on sustaining the successes of rural development (Scaling up for Increased Impact of Development Practice, 2003) defined scaling up both as a means - referring to the replication, spread or adaptation of techniques, ideas, approaches and concepts - and as an end - increased impact.

Ways and means

The most obvious and common method for enhancing impact is to increase the number of beneficiaries directly served. Also called as quantitative scaling up, this is often followed by organizations in their early years. It is the most common path through out the world and is thus frequently associated with the term 'scaling up'. NGOs like BRAC and Grameen Bank in Bangladesh and Amul Dairy in India are well known examples, each serving a more than a million households through direct programmes. To raise beneficiaries welfare, programmes often expand to include a wide range of activities, often done responding to local needs or based on the change agents vision and strategies supported by donors or public agencies. Both vertical and horizontal integration of activities is done - like linking with input agencies or creating output linkages like marketing, processing etc.

Broadening impact

Scaling up is about 'expanding impact' and not only about 'becoming large', the latter being only one possible way to achieve the former. In the emerging paradigm of scaling up, NGOs are also seen as catalysts of policy innovations and social capital; as creators of programmatic knowledge which can be integrated into government programmes; and as builders of vibrant and diverse civil societies.

Organizations create an indirect impact through training, advocacy, knowledge creation. The aim is to change the behaviour of all the actors in ways that further goals of the organization and benefit poor. Most NGOs employ this strategy of indirect scaling up.

Training and knowledge creation is yet another way of expanding impact. Organizations that are capable of learning lessons from their operational programmes can seek to diffuse the resulting knowledge through training, information sharing, consultancy and advice. For instance, AME Foundation, has been spreading the message of ecological agriculture since 25 years through durable learning situations and processes.

Not only organizations, but motivated individuals have been enabling scaling up of successful practices. Innovative farmers like Narayana Reddy, Prafulla Chandra, Chandrasekhar are one such kind. Development Journalists like Shree Padre, Devinder Sharma, P Sainath are strongly spreading the message. Legendary development role models like Bhaskar Save, Vijay Zardari are spearheading several movements. For several years, they have been motivating other farmers, NGOs, public agencies and scientists and policy makers. For instance, Narayana Reddy has been popularizing organic farming and SRI. For more than three decades now, he has been running an organic farm in Doddaballapur, in the southern Indian state of Karnataka. His work is a permanent demonstration that small-scale farming is feasible and viable, in economic, social and ecological terms. But apart from farming, and from regularly receiving hundreds of visitors, Mr Reddy travels extensively throughout the state, meeting hundreds of farmers and advocating family farming and small-scale agriculture.

Joint venturing is another way of scaling up successful NGO programmes. The NGO scales up its direct impact in so far it delivers services to large number of people. At the same time, it has indirect impact that it gets its partners to undertake new activities. For eg., Myrada experimented in one state with a self help approach model and involved NABARD, the premier agricultural bank in the country in the administration of this programme from the beginning.

When NGO programs are successful, the government or the profit enterprise take over the programme over a much larger scale. This is integration. In the rich countries as well, almost without exception every major social service was originally undertaken by the voluntary sector. CSA's initiatives (p.6) of developing chemical free villages caught the attention of the Government of Andhra Pradesh, which began scaling up by adopting an institutional approach across the state.

Critical issues in Scaling Up

While the sustainable models, particularly in agriculture are established on smaller scale, scaling up these experiences poses a real challenge.

Most often, initiatives are location specific and cannot be generalized and applied widely over a large area. What is relevant to one location may not be relevant to the other. While the processes and approaches could be replicated, the initiatives need to be developed based on people's needs and priorities. Often, when government programmes try to scale up, this fact is ignored which may be disastrous to the project. This limitation is being addressed through joint collaborative efforts between NGOs and Government, by playing complementary roles.

Putting people in the center of development is the crux of success to any programmes. This holds true for the large scale programmes as well. But, most often, large government programmes include people's participation as a component of the project, not fully understanding the meaning and relevance of true participation. For instance, the Swajaladhara programme (p.24) was scaled up to the entire country, without proper preparation and learning from past

experience. The government had to pay a heavy price for this negligence.

Human resource development is central to for sustaining any activity. Farmers and rural folk with enhanced knowledge levels and requisite skills and capacities to manage resources will be able to sustain the initiatives as well as the benefits thereof. AMEF (see p.15) has taken this route to sustainability with good success. Also, AKRSP (I) was successful in addressing the issue of ground water management by developing local entrepreneurs (p.27).

The more successful examples of scaling up have been achieved by drawing on the different strengths and perspectives of various sectors - the public, private, and civic sectors. Each sector brings a unique perspective and usually different skills. Programmes that integrate the perspectives and abilities of each sector are much more likely to succeed, rather than being implemented by one single institution.

While project initiatives are small, it can be handled by one institution as the coverage is small and the consequences are on a small area. But when the programmes are scaled up, more number of issues will need attention, affecting larger population. This calls for interactions on a continuous basis, among various organisations, whether involved directly or not in the programme, for effective implementation (eg., Umesh, p.10).

The 2008 World Resources report, *Roots of Resilience*, puts it equally clearly: "Scaling up will not occur without good communication of success stories". To a limited extent, this is what LEISA India has been trying to do for the past 10 years - not just publish articles, but also identify ideas, promote material for discussion and analysis, and facilitate the "social interaction" mentioned above, though on a modest scale. We have been able to play that role as our readers and contributors have been keen to share. Together, we feel we are playing a meaningful role and feel determined to keep improving.

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Non Pesticidal Management

Learning from experiences

**G.V. Ramanjaneyulu, M.S. Chari, T.A.V.S. Raghunath,
Zakir Hussain and Kavitha Kuruganti**

Two decades of experience in Andhra Pradesh on Non Pesticidal Management shows that pest is a symptom of ecological disturbance rather than a cause and can be effectively managed by using local resources and timely action. The small success from few villages was scaled up into more than 1.5 million ha in three years. This experience also shows how the grassroot extension system when managed by the community can bring in change and help the farming community to come out of the crisis.

Farming in India evolved over centuries of farmers' innovations in identifying locally suitable cropping patterns and production practices. The crisis of food production and geo-political considerations during 1960s created conditions in many developing countries, particularly in India, to strive for food self-reliance. The country has chosen the path of using high yielding varieties (more appropriately high input responsive varieties) and chemicals which brought about what is popularly known as the Green Revolution. The country could become self reliant for a while, farmers lost self reliance in the process due to excessive dependency on external inputs and are caught in serious ecological and economic crisis.

In midst of the deep crisis in agriculture, farmers and various organizations associated with farmers are trying innovative approaches to sustain agriculture. One such initiative is the "Non Pesticide Management" (NPM) of crop pests to reduce the costs of cultivation by adopting a set of practices. It is based on farmers' knowledge supplemented by modern science which makes best use of local resources and natural processes by the farmers and women self help groups in Andhra Pradesh.

The "Non Pesticidal Management" which emanates from collaborative work of public institutions, civil society organizations and farmers in Andhra Pradesh shows how diverse players join hands to work in generating new knowledge and practice as a sustainable model of development. Non Pesticidal Management is mainly based on understanding crop ecosystem and suitably modifying it by adopting suitable cropping systems and crop production practices. The type of pests and their behavior differs with crop ecosystems. Similarly the natural enemies' composition also varies with the cropping systems. In NPM, no chemical pesticides are applied to the crops. For an effective communication to farmers about the concept, and to differentiate from Integrated Pest Management which believes that chemical pesticides can be safely used and are essential as a last resort it is termed as Non Pesticidal Management.

Genesis

In 1988, ASW and EZE organized People's Science Conference at Bangalore to promote concept of substituting synthetic chemical pesticides by a non-pesticide approach based on locally available resources. This led to a collaborative program for non pesticidal approach for controlling Red Hairy Caterpillar in 1989. Zonal Coordinator, Transfer of Technology (ToT) Unit, ICAR, Hyderabad; Department of Agriculture, ASW, Center for World Solidarity (CWS); OXFAM and village based voluntary organizations were the partners.

In 1994, the Center for World Solidarity organized a workshop in collaboration with National Academy of Agriculture Research Management (NAARM), Hyderabad to bring together initiatives working in NPM across the country. This workshop devolved a joint strategy paper on NPM.

In 1998, CWS organized a second National Workshop on Non Pesticidal Management in collaboration with MANAGE in Hyderabad. The workshop which was attended by eminent scientists and civil society organizations, called for expansion and popularizing the concept and practices. In 2004, Punukula, a small village in Khammam district of Andhra Pradesh which used to spend about Rs. 4 million annually on chemical pesticides to grow crops like cotton and chillies declared itself as a pesticide free after five years of NPM work. Meanwhile, Centre for Sustainable Agriculture was formed to promote sustainable models in agriculture.

In 2005, in the context of serious crisis in agriculture and farmers suicides, NPM got the attention of the Society for Elimination of Rural Poverty (SERP), Government of Andhra Pradesh. SERP which works with Federations of Women Self Help Groups began scaling up NPM by adopting an institutional approach across the state.

Box 1: NPM practices

Seed: Selection and use of good quality seed which is locally adopted either from traditional farmers' varieties or improved varieties released by the public sector institutions. Farmers decide on the suitability of the different varieties into their cropping patterns, based on the soil types, reaction to insect pests and diseases and their consumption preferences. They maintain the seed in their seed banks. This ensures farmers to go for timely sowing with the seeds of their choice.

Stress management: The pest and disease susceptibility increases with abiotic stress. Practices like mulching will improve the soil moisture availability and reduce the stress levels.

Soil management: Building healthy soils gives healthy crop. Chemical fertilizers especially nitrogenous fertilizer makes the plants succulent and increases the sucking pests like brown plant hopper.

Crop diversity: Crop diversity including trap and border crops is another critical factor which reduces the pest problems. Traditionally, farmers have evolved mixed cropping systems, intercropping and crop rotation systems. Under NPM, farmers adopt mixed and intercropping systems with proper crop rotations.

Pest and disease management: Generally, out of the four stages for complete metamorphosis in the four stages of the life cycle, insects damage the crop only in larval stage and in at least two of the stages are immobile [egg and pupa]. Every insect has different behavior and different weaknesses in each of the stage. They can be easily managed if one can understand the lifecycle and their biology. The pest complex and the natural enemy complex are based on the crop ecosystem. Main emphasis is to prevent insect from reaching damaging stage and proportions. If the pest reaches damaging stage, reactive inputs locally made with local resources are used. Insect population may reach pest status if the preventive steps are not taken in time, changes in weather conditions and insects coming from neighboring farmers fields. In these situations, based on the field observations, farmers can take up spraying botanical extracts and natural preparations (Green sprays) instead of chemical pesticides. There are wide ranges of these preparations which are evolved by the farmers, CSA, 2007.

Other Agronomic Practices: Several crop specific agronomic practices like alley ways in rice to allow enough light to reach the bottom of the plant are documented by the farmers and suggested by the scientists (*Vyavasaya Panchangam*, 2007).

Scaling up with SERP

Society for Elimination of Rural Poverty (SERP) is a registered society under Department of Rural Development implementing the largest poverty alleviation project in the state of Andhra Pradesh. The project understands that sustainable poverty eradication requires the recognition of the poor as active partners in the processes of social change; therefore, all project interventions are demand based and are in response to the proposals conceived and planned by the poor.

SERP works towards empowering the poor to overcome all social, economic, cultural and psychological barriers through self managed institutions of the poor. The project reaches the rural poor families through social mobilization processes and formation of SHGs, federation of these into Village Organizations at village level and Mandal Samakhya at the mandal level. The project envisages that with proper capacity building, the poor women's federations would begin to function as self managed and self reliant people's organizations. The poor have started to demonstrate that they can shape their own destinies when adequate knowledge, skills and resource support is accessible to them.

In this context SERP, learning from the experiences of villages like Pudukula, initiated scaling up of NPM in collaboration with a consortium of Non Governmental Organizations, technical support being provided by the Centre for Sustainable Agriculture (CSA).

Process of Scaling Up

In December, 2005, a small pilot project was launched in Kosigi Mandal (Blocks in Andhra Pradesh) as a livelihood intervention with the help of WASSAN. Farmers were trained systematically and technical support provided in the form of coordinators who were accountable to the women SHGs. In 90 ha, with an average savings of US \$ 75/ha on pigeon pea the total savings were US \$ 6875.

Based on the experiences drawn from the pilot program, a bigger program was launched in 2005–2006 by establishing clear institutional system and a community managed extension system in nine districts of AP. Five villages were grouped into a cluster and were provided with a cluster activist. Each village has a practicing farmer selected as village activist who coordinates the village level capacity building programs in the form of Farmer Field Schools. All over nine districts, 12,000 farmers with 10,000 ha in both *kharif* and *rabi* adopted Non Pesticidal Management.

Sixty-two Federations of women SHGs (Mandal Mahila Samakhya or MMS), 150 cluster activists and 450 village activists are involved in managing the program. Each MMS entered into an agreement.

Box 2: Critical issues in Scaling Up

While the sustainable models in agriculture like NPM are established on smaller scale, scaling up these experiences poses a real challenge in terms of:

- relevance of small experiences for a wider application,
- availability of resources locally,
- farmers willingness to adopt these practices,
- lack of institutional and support systems,
- supplementing farmers' knowledge and enhancing the skills,
- reducing the time of transformation,
- reaching to larger areas with minimal expenditure, and
- establishing extension system which give community a central stage.

This clearly established that a paradigm shift in understanding pest management both at farmers' level and extension system level can effectively tackle the pest problem and also give ample benefits to farmers in terms of savings on input costs, health costs etc. Better quality products from such production systems also fetch a better price to farmers and are highly preferred by discerning consumers. Also, the NPM intervention for the first time shifted the control in terms of production back to the farmer.

Awareness was created through state level campaign about the ill effects of pesticides and the potential alternatives. Communication material was developed and distributed for use.

Moving to community managed sustainable agriculture

The successful grounding of NPM during 2005–2006 has given important learning on how any ecologically sound and economically benefiting technology can be scaled up by providing proper institutional support. In 2006–2007, higher number of farmers in the same villages and more villages in the same districts and few newer districts joined the program. The program covered 1250 villages in 17 districts covering wide variety of crops like groundnut, rice, chillies and cotton. Program expanded to districts like Guntur where the pesticide problem is serious and north coastal Andhra Pradesh where the productivity of crops, in general, is low. The program was implemented in Adilabad, Ananthapur, Chittoor, Guntur, Kadapa, Karimnagar, Khammam, Kurnool,

Mahaboobnagar, Medak, Nalgonda, Nellore, Ranga Reddy, Srikakulam, Visakhapatnam, Vijayanagaram and Warangal. Program covered more than 80,000 farmers cultivating about 80,000 ha. In addition to pest management, initiations on soil productivity management and seed management have begun on a small scale.

In addition to the NPM, efforts were initiated to establish seed networks so that farmers produce and share their seed. Seed banks have been established in 100 villages where farmers could retain, replace, reuse and revive seed, and are managed by the community.

Efforts are also on to develop non-chemical soil productivity improvement practices based on the experiences of the villages like "Enabavi" in Warangal (See Box 3) which became the first organic village in the state.

In 2006–2007, while the institutional systems were further strengthened; focus was also given to specific commodities like rice and groundnut in Kurnool district, pigeon pea in Mahaboobnagar district, cotton in Warangal and Khammam and chillies in Guntur district. The marketing links were established. The NPM products were in demand and could command premium in the market. The local processing and marketing of the commodities have also brought in additional benefits to the farmers. Agriculture credit from formal banks was mobilised in 3 districts to the tune of US \$ 150 million.

Box 3: Enabavi village shows the way

Enabavi, a small village in Lingala Ghanpur of Warangal district shows the way out of agricultural distress that almost all farmers find themselves in today. Warangal district presents a classic paradox of an agriculturally developed district [with most area occupied by commercial crops] showing the worst manifestation of the distress of farmers – that of the highest number of suicides in the state in the past decade or so. It is a district where farmers' frustration with lack of support systems manifested itself in almost a spontaneous and well-planned agitations of unorganized farmers. Farmers in this district are known to have resorted to violence to end their problems, including resorting to a violent end to their own lives.

Enabavi is a small village which showed the resolve of a strong community which decided to take control of its agriculture into its own hands. With just 45 households in the village belonging mostly to the backward castes, the village started shifting to non-chemical farming about five years ago. Then in 2005–2006, the entire land of 113 ha was converted to organic farming. This is not organic farming as you would normally expect. No expensive external certification here. It is a model of "declared organic farming". Though there are no formal participatory guarantee systems established in the village in this alternative model of organic farming, there is strong social regulation within the community to ensure that there are no "erring farmers".

The elders in the village take the youth along with them. They also have started investing in teaching their school-going

children the knowledge and skills of non-chemical farming. Special training sessions have been organized by CROPS to rope in children into this new system of cultivation in the village. The farmers here grow their food crops of paddy, pulses, millets etc., mostly for household consumption. In addition, they also grow crops like cotton, chilli, tobacco and vegetables for the market.

The process of change began with a program that CWS had initiated to control the dreaded red hairy caterpillar, in the late 1990s. This was followed by converting all crops to the NPM. Later, some farmers came forward to shift from chemical fertilizers to other methods of soil productivity management. They started looking for other options like tank silt application, poultry manure application, vermicompost, farm yard manure etc. CROPS stepped in at this point of time and subsidized the costs up to 50% for tank silt application and setting up vermicompost units. The farmers set up their units at their fields and started following various ecological practices being recommended to them. They also started to depend on their own seed for many crops, except for crops like cotton. They set up farmers' self help groups for men and women separately and started thrift activities too.

Today, Enabavi has many valuable lessons to teach to other farmers, not just on how to take up sustainable farming. They also have lessons to share on social regulation, learning from each other, the benefits of conviction born out of experience and most importantly, the way out of agricultural distress by taking control over one's own farming.

In 2007–2008, the program was further expanded to cover 1,800 villages in 18 districts. There are more than 350,000 participating farmers cultivating 280,000 ha.

Special focus was on certain commodities to deal with post harvest management to increase the value of the commodities. In 2007–2008, village level quality control centers were initiated in chilli producing villages. The marketing Community Resource Persons working with women SHGs were also trained in NPM. In 50 clusters (250 villages), they started motivating farmers to adopt NPM practices. Best performing villages were identified as resource villages and best practicing farmers were identified as community resource persons who will help in further scaling up of the program. Community Seed Banks where farmers produce, save, share and use their own quality seed were established in 70 villages.

In September 2007, CSA and WASSAN (sister organizations of CWS engaged in promotion of NPM) have organized a National Workshop on ‘Redesigning support systems for rainfed farming’ in collaboration with Rainfed Farming Authority and ICAR in New Delhi. The nationwide experiences of public sector and civil society organizations on local resource based, sustainable models in agriculture were discussed. The government was urged to redesign the support systems to help promotion of such practices.

It is planned that the program will also be integrated with other ongoing programs like National Rural Employment Guarantee Program (NREGP) to provide further employment opportunities to the agriculture workers. The state government has proposed to scale up NPM into organic farming in 5000 villages over next five years covering 10 million ha with an outlay of US \$45.5million.

The proposal has been accepted under Additional Central Assistance from Prime Minister’s package for distress states called *Rashtriya Krishi Vikas Yojana*.

Conclusions

The NPM scaling up model proves that community based organizations like federations of women self help groups form an excellent institutional platform for scaling up such models. To sustain agriculture and agriculture based livelihoods, this calls for a complete paradigm shift in the way agricultural practices are understood, developed, promoted and supported. The new paradigm is based on the local resource based technologies and a community managed extension systems.

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Themes for LEISA India

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Finance and transition to sustainable farming

Farmers need timely access to finances to meet their farm needs. For small farmers, it continues to be difficult to access credit facilities through the formal banking system. They depend on informal forms of credit, for instance provided by local money lenders. Interest rates are generally high. We also know that, often, they are the only sources accessible in rural communities – even influencing the choices and decisions of farmers. Often, these farmers are caught in fragile eco-systems where the risk is high too.

Over the past decade, many innovative micro finance facilities are emerging. Many groups of small farmers and landless people, notably women are reportedly benefiting, though not to the extent and scale desirable. But, it is always challenging to get the amount of credit they need at an affordable rate, also, at the time when they need. However, we are coming across interesting examples of proactive efforts being made

by Financial institutions and Non-banking financial institutions to innovate with new models to address financial inclusion.

Farmers who are interested in making a transition from highly chemicalised agriculture to eco-friendly alternative agriculture need support. Also, they need the ‘transition’ financing too. The present mainstream systems are not geared up enough to meet these needs.

In this issue, we look forward to readers sharing their experience of alternative working models – involving both alternative institutional as well as mainstream financial institutions. These stories could be successes as well as challenges. We are also interested in experiences highlighting the transition efforts as well as realistic time frames.

Please send us your articles to the Editor, at leisaindia@yahoo.co.in

Deadline for submission of articles - July 15, 2010

Shrimp farmers in India

Empowering small-scale farmers

N.R. Umesh, A.B. Chandra Mohan, G. Ravibabu, P.A. Padiyar,
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Implementation of simple and locally relevant management strategies have reduced disease risks in shrimp farms significantly. Farmers have been able to sustain shrimp farming and gain multiple benefits by working collectively as a group. Active involvement and contribution of the many players involved in the sector is key to shrimp farming sustainability.

Shrimp industry is a key sector in India's economy owing to its significant contribution to export earnings and gainful employment. Presently, coastal aquaculture in India is synonymous with shrimp aquaculture and mainly carried out by small scale farmers. Small holders owning less than 2 hectares account for 90% of the total area utilized for shrimp culture contributing to around 80% of the total shrimp production.

Majority of the shrimp farmers do not have access to useful technical information essential for shrimp farming. The awareness levels of farmers are inadequate and neither the Government nor the farmers are geared to meet the challenges that are posed by issues, such as pollution, viral diseases, and traceability and food safety concerns. Vital extension functions at the grassroots level are quite inadequate, resulting in poor transfer of technology. With the conventional top-down approaches showing limited success in extension services, there was a need to promote the bottom-up participatory approach with effective coordination and convergence at the appropriate levels.

In response, to address the rising concerns about the sustainability of the sector, in the year 2000, the Marine Products Export Development Authority (MPEDA), Government of India, with the technical assistance of The Network of Aquaculture of Centers in Asia Pacific (NACA), initiated the "Shrimp disease control and coastal management" project. The objective was to address disease and environmental problems in the shrimp industry in India, and ensure that small shrimp farmers of India meet high standards for biosecurity, food safety, and environmental protection. The project aimed to address capacity building in shrimp health and quality management at the grassroots level by organizing small scale farmers into aquaculture clusters.

The beginning

In 2001, following the base line survey, a study involving 365 ponds in West Godavari and Nellore districts of Andhra Pradesh state, was done to better understand the key risk factors contributing

to shrimp disease outbreaks and low pond production. The study results were discussed widely with farmers and other agencies in Andhra Pradesh, and some consensus was reached on the study findings and their practical application to improve performance of shrimp farming systems of Andhra Pradesh. Risk factors significantly associated with disease outbreaks and low pond productivity were then used to develop locally relevant management strategies and Better Management Practices (BMP) to reduce the identified risks.

In 2002, demonstrations were conducted in five selected private farms, involving ten ponds, in three villages in West Godavari and Nellore districts. The demonstrations were used more widely to disseminate information on risk management strategies to farmers. Although the adoption of BMPs did not completely eliminate shrimp disease problems, the outcomes were very promising. In demonstration farms, returns shifted from a loss in 80% of ponds in 2001 to a profit in 80% of ponds in 2002. During district level

Key steps adopted in the project

- 2000: A baseline study of the major diseases affecting the shrimp aquaculture operations.
- 2001: Longitudinal epidemiological study in 365 ponds in Andhra Pradesh to identify major risk factors associated with WSS and low productivity in *P. monodon* culture ponds.
- 2002: Development of farm level contextualized BMPs to address the identified risk factors. Pilot testing of BMPs in selected farms.
- 2003: Development and testing of the concept of cluster farming for effective BMP adoption among farmers in a cluster.
- 2004: Expansion of BMP promotion to a large number of clusters. Extension of some of the BMPs to downstream activities such as hatcheries.
- 2005: Review and refinement of BMPs and production of BMP extension leaflets for each stage of the culture operation.
- 2006: Expansion of the BMP program to clusters in five different states. Conceptualization of an institutional framework for sustaining the cluster approach as aquaculture societies for sustainable aquaculture.
- 2007: Establishment and inauguration of National Center for Sustainable Aquaculture (NaCSA) to carry forward the MPEDA/NACA project activities.

workshops in November 2002, with over 470 farmer participants from Nellore and Bhimavaram, farmers responded positively to the findings, and requested urgent support for more demonstration activities and initiatives to extend the concept of BMPs to the wider farming community.

In 2003, the programme was extended from individual demonstration farms to groups of farmers to promote adoption of BMPs widely within a village community. The core NACA/MPEDA team lived in the selected villages and supported farmers to establish the Aquaclubs or SHGs. Self help groups were formed and their capacities strengthened through various means. Weekly farmer meetings were facilitated for information exchange and “service provider – farmer” contacts were established, thereby trying to build up mutual trust among these parties. The groups were thus enabled to collectively address common shrimp health and farm management problems using a participatory approach (collective planning, decision making, and implement crop activities).

Expansion of the Program

Following the success of BMP promotion at the group level, the program moved one step higher and in 2004, promoted BMP adoption among clusters along a creek (their shared water source). Around 130 farmers with 254 ponds were assisted to organize into seven aquaclubs/clusters in Andhra Pradesh and BMPs were promoted at the level of clusters.

Each society consists of 20–75 farmers. Membership to a society is purely on voluntary basis. Each society has its own guidelines and implements them. The societies are audited every year by MPEDA for the implementation of guidelines and BMPs. Further, all society farmers agree not to use any antibiotics and avoid chemical use.

Members select a coordinator from among its members or from the community with a prescribed education level. The society coordinator is trained in society management, BMPs, and extension techniques by National Centre for Sustainable Aquaculture (NaCSA). The coordinator is responsible for implementing BMPs in societies, and act as link between society farmers and NaCSA. Each of the NaCSA field managers coordinate and manage the activities of ten such societies. MPEDA's society scheme provides partial financial assistance for farmers to employ a society coordinator for the first 2 years.

Field staff stay closer to farmer societies for the entire cropping season. Key farmers from other villages where MPEDA/NACA, NaCSA had worked previously are invited to new villages to share their experiences. Wherever possible, field visits are arranged for farmers to other villages for first hand information exchange among farmers. Farmers' field days are organized at the end of successful crop cycles in societies to spread the message of success to more farmers.

Extensive awareness program through village level meetings, are organized for educating farmers about market requirements and promoting the benefits of implementing BMPs through organized societies. During 2007–2008, a total of 251 village level meetings

involving more than 5,000 farmers were conducted. The concept of BMPs and its implementation through society formation and the market requirement are explained in detail to all the farmers in a given area. In the process, farmer leaders in each society who are willing to work for the benefit of the group have emerged.

Stakeholder interactions and involvement

The government of India provided opportunities for local, national, regional, and international institutions, organizations, and agencies to take part in these projects. In India, MPEDA, State Department of Fisheries, ICAR and its relevant institutions particularly the Central Institute of Brackish water Aquaculture (CIBA), All India Shrimp Hatchery Association, Farmers' Associations, Seafood Exporters Association of India, academic institutions like the College of Fisheries, Mangalore, ACIAR, and FAO all had various roles to play.

Farmers are being linked to hatcheries, input suppliers, processors, scientists, Research Institutes, Government institutes, banks, and others. Bank loans for working capital, which are not available now for most of the small scale farmers, are likely to be made available once the societies are linked up with the market. MPEDA is extending financial assistance in the form of the society scheme to kick-start the formation of the clubs and implement the BMPs. There is better flow of valuable information from field to research institutes.

Outcomes

The project has made significant progress, increasing from five farmers who adopted the cluster farm approach in 2002 to 730 farmers (813 ha) in 28 aquaclubs in five states (Andhra Pradesh, Karnataka, Orissa, Gujarat and Tamil Nadu) in 2006. The production of BMP shrimp through the program has increased from 4 tons in 2002 to 870 tons in 2006.

Implementation of simple, science-based farm level plans (e.g. BMPs) and adoption of cluster farming through the participatory concept reduced disease risks in cluster farms significantly. The prevalence of shrimp disease in the demonstration farms was reduced from 82% in 2003 to 17% in 2006, while in non demonstration ponds, the reduction in disease prevalence was limited during the same period. Compared to surrounding non demonstration ponds, there was a 30% increase in production, 8% increase in size of shrimp and 30% improvement in survival. 10% random BT samples from society ponds tested negative for presence of antibiotics

Farmers adopting BMPs have higher profitability, lower cost of production, and are able to produce quality and traceable shrimp without using any banned chemicals. In the demonstration ponds for every Rs. 1,000 invested by a farmer, around Rs. 520 was earned as profit in 2006.

The program also led to reduction in other aquaculture-related risks. The environmental risks were also reduced by the decrease in pollution resulting from efficient use of resources (energy and feed), reduced use of chemicals, antibiotics, and limited discharge of sediment and water exchange. In addition, abandoned ponds are being revived.

There has been an increased social responsibility. The social impacts of group farming include reduction in risks to livelihoods and improved awareness of biosecurity and environment integrity among cluster farmers. Some of the key indicators of increased social responsibility among cluster farmers are: Regular information sharing among farmers during weekly meetings; Cooperation in selecting/testing and buying seed through contract hatchery seed production systems; Increased cooperation in sharing common facilities-deepening inlets, drains, etc.

The initiative has helped to create change towards policies that are more favorable to the small scale shrimp farmer. In the state of Andhra Pradesh, as soon as 100 societies were registered, all the society farmers gave a representation to the Chief Minister of the state requesting to intervene in helping small scale shrimp farmers with favorable policy changes. The Ministry of Commerce and Industry has approved a scheme for implementation through MPEDA on registration of Aquaculture Societies for adoption of code of practices for sustainable shrimp farming, with a total outlay of Rs. 25,000,000 during the 10th and 11th plan period.

Self propagating nature of the model

Indeed, today we are seeing the emergence of numerous farmer societies throughout India because of the farmers' confidence in participatory group farming and the concept becoming mainstreamed. Cluster organization is progressing very well, which is mainly due to the belief among the farming community that if they have to succeed as shrimp farmers, they have to organize themselves. The reasons for this confidence in group farming according to a farmer are, "we are strong as a group, we can address issues affecting us, but alone we cannot progress especially in shrimp farming." Grassroots action in India demonstrates that group activities of the farmers can improve their well-being in many ways that individual approaches cannot. Farmer organization as groups is generating improvements for the individual producers in the following areas:

- Enhancing their incomes, self-respect, and bargaining power in markets. Clusters offer economies of scale, buying inputs and improve market power when dealing with suppliers and selling product.
- Clusters improve information exchange and sharing of experience among participants.
- Farming skills and technical knowledge.
- Ability to articulate demands and interact with markets and market forces, other political, and social actors.
- Access to financial services and ability to manage funds.
- Knowledge and tools to use information on markets, services, technologies, and rights.
- Self respect, social esteem, and relationships to authorities and other social actors.

With better informed farmers and the awareness building about the society concept, more and more farmers are approaching NaCSA to help themselves organize as societies.

Factors which made the approach successful

A number of factors are thought to have contributed to the success of the approach adopted in the present exercise. Foremost among these are:

- (a) Empowered small-scale farmers
- (b) Ideal model for small scale farmers to meet market requirements
- (c) Contributing to Sustainability of Shrimp Farming
- (d) Increased Stakeholder Interactions and Involvement
- (e) Acceptance of the model by other NACA member countries
- (f) Self propagating nature of the model

Way forward

For the small scale shrimp farmers to continue to advance, we need a new approach to development. Similarly, for poor and marginalized farmer groups to access benefits of poverty reduction efforts, the position of the farmers in relation to public and private institutions has to change. The farmers must move from being passive recipients of information, services, and regulations to a situation where they take full responsibility for their own development and use public and private institutions as resource providers.

Effectively, engaging with the thousands of aquaculture producers in India and helping them to develop farm level plans for sustainable development will not be a small task, but it is one that can only be achieved with the involvement and contribution of the many players involved in the supply chain, from producers to consumers. The farmers, especially in the current market economies, need the strength that groups can offer for their economic and social advancement. Linking small farmer clusters to sustainability conscious buyers will go a long way in sustaining small farmers' livelihoods.

Society produced shrimp and selling the same with a unique brand name, thereby giving a premium price to the product, which would motivate the farmers to grow the shrimp to the buyer specifications and ensure steady supply of best quality, chemical free, traceable shrimp. This market recognition for the society produce will help us to spread the message of "sustainable aquaculture" far and wide to more areas across India, and will help in sustaining shrimp sector, thereby contributing to a new vision for the aquaculture sector in support of small farmers' livelihoods in India.

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Regreening the Sahel

The success of natural tree regeneration

Chris Reij



In the mid-1980s, farmers and NGOs developed a technique to regenerate “forests on the farm” in dry areas in Niger. Now, millions of hectares have become greener and more productive. This African tale of on-farm forestry stands out for its simplicity and impact on farmers’ lives.

In LEISA Magazine 23.2 (2007), Tony Rinaudo reported on the development of farmer-managed natural regeneration of on-farm trees in Niger. Since the mid-1980s, this technique has been developed and, with occasional set-backs, has kept on spreading. In the 1990s several researchers noticed that villages had become greener, but its scale only became clear when Gray Tappan, a remote sensing specialist from the United States Geological Survey, compared aerial photos of 1975 with satellite images of 2005. He estimates that the number of onfarm trees has increased by 200 million, over an area of 5 million hectares. The speed of the re-greening process is surprising. In some densely populated parts of Niger, the transformation occurred in about twenty years. On average, farmers added 250,000 hectares each year. This makes it the largest environmental transformation in the Sahel.

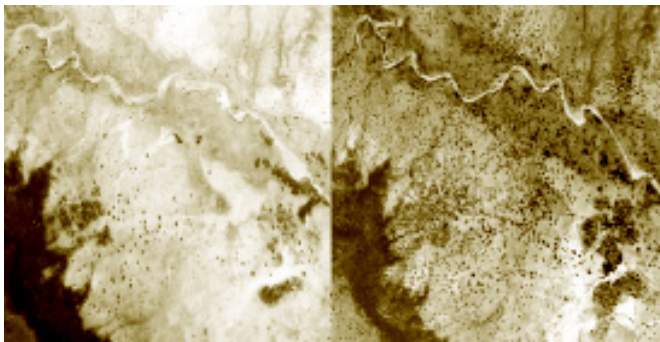
More children survive

In 2004/2005 a drought and locust infection hit Niger. In October 2005, field visits to villages with and without on-farm re-greening showed that villages which had invested in on-farm trees had little or no infant mortality. People had been able to prune or cut some

trees to sell as timber or for fuel on the market, allowing them to buy expensive cereals. The villagers could also harvest fruit and leaves for consumption or for sale. Villages with few on-farm trees lacked this possibility. These days, trees produce fodder for livestock. Higher tree densities reduce wind speed, retain more water, provide shade and reduce local temperatures. Women benefit most from the higher on-farm tree densities as they can now collect firewood on-farm rather than walk long distances. In 2009 it was estimated that farmer-managed natural regeneration in Niger feeds about 2.5 million people.

Why this success?

Although local researchers and officials knew about the increase in on-farm tree densities, nobody realised its scale and intensity, until it was detected and verified through remote sensing. This re-greening is only partially the result of project interventions. It happened mainly in regions with high population densities where environmental degradation had become very severe in the 1970s and 1980s. Farmers felt a sense of urgency to do something. Before the 1980s, all natural resources belonged to the state. But after 1985 farmers began considering themselves the owners of their



The same area in 1975 and in 2005 in southern Zinder (Niger). The increase in number of on-farm trees is striking.

on-farm trees, which induced them to protect and manage them. As soon as farmers felt the different benefits, they copied the example. In re-greened areas, a sense of property developed and taking wood from the neighbour's land is now considered stealing.

The standard reaction of governments and NGOs to environmental degradation is to launch tree planting campaigns. Yet, in dry areas, four out of five trees die soon after planting. Therefore, nurturing trees that pop up naturally is a more efficient strategy. Natural regeneration comes from what Rinaudo (2007) called the "underground forest" (the roots and stumps of trees cut in the 1960s and 1970s) but also from the "seed memory" of a soil (seeds stored in the soil and from manure of livestock). The Maradi and Zinder regions of Niger have about 500 mm rainfall, but in regions with higher rainfall natural regeneration can be even quicker, as experiences in southern Ethiopia show. In the Asian monsoon climates, degraded forests regenerate quicker naturally than through planting trees. (the roots and stumps of trees cut in the 1960s and 1970s) but also from the "seed memory" of a soil (seeds stored in the soil and from manure of livestock). The Maradi and Zinder regions of Niger have about 500 mm rainfall, but in regions with higher rainfall natural regeneration can be even quicker, as experiences in southern Ethiopia show. In the Asian monsoon climates, degraded forests regenerate quicker naturally than through planting trees.

Not only in Niger

There are many more examples of natural regeneration. On Burkina Faso's Central Plateau, farmers have rehabilitated an estimated 300,000 hectares of barren degraded land since the early 1980s. They used simple water harvesting techniques like *zai*, contour stone bunds and half moons, and in-between they produce crops on land that was unproductive before.

Mali adopted a new forestry code in 1994. An NGO, SahelECO, decided to inform the farmers through the regional radio of Bankass that they could refuse woodcutters with a permit issued by the forestry service arriving on their fields. They began doing so and since then on-farm re-greening on the Seno plains, between the Plateau Dogon and the border with Burkina Faso, has spread like wildfire. SahelECO also helped revive the Barahogon, a institution traditionally responsible for management of trees. Tens of thousands of hectares have been regreened. Agro-forestry is part

of a long-established tradition, which is getting stronger for two reasons. The first is that increasing population densities oblige smallscale farmers to intensify agriculture. Investing in the protection and management of on-farm trees is productive and cost-effective: it does not require cash, but labour investments. The second reason is the environmental crisis: environmental degradation pushed many farmers to act. Since the middle of the 1990s average rainfall in the Sahel has increased, but it has also become more irregular and unpredictable. When crops fail, trees produce. Trees are a local "safety net" by which farmers survive in times of drought.

Conventional tree-planting is not always effective. Recently, plans were announced to expand rainforest in Brazil, which has dwindled to 7 percent of its original size. Tree planting at a cost of US\$ 1,000 per hectare should bring it back to 30 percent of its original size. Estimated costs: US\$ 11 billion. Probably, the same results can be achieved at almost no cost through natural regeneration, complemented where necessary by tree planting.

Convincing people

For several reasons the interest in farmer-managed natural regeneration is likely to increase in the coming years. Populations grow. It is an urgent necessity to adapt to climate change in Africa's drylands, and at a large scale. Increasing the number of on-farm and off-farm trees not only fixes carbon, but also reduces temperatures and wind speed. The first thing to do is to convince people and to inform them about the phenomenon and the way it works. Besides informing farmers, it is vital to develop policies and legislation conducive to re-greening.

Recently, a number of people decided to bring this home-grown success under the attention of policy makers, through the African Re-greening Initiatives (ARI). The idea for a Sahel re-greening initiative emerged in 2007, inspired by the large-scale on-farm re-greening in Niger. ARI became operational in Burkina Faso and in Mali in June 2009, and will most likely soon expand to Niger and Ethiopia.

ARI is not about creating a big and expensive regional project, but much more about creating a movement and a process. It is important that NGOs and other stakeholders are aware of the multiple impacts generated by re-greening, move away from conventional tree planting as the sole solution and re-direct their activities to promoting natural regeneration. ARI wants to support the sharing of relevant experience, to initiate policy debate and to develop advocacy initiatives based on the role of trees in adapting to climate change, improving food security and reducing rural poverty.

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The re-greening initiative also features in the recently published "Millions Fed: Proven successes in agricultural development".

Upscaling an innovative practice in rainfed paddy cultivation

Sangeetha Patil

Farm practices, even with inherent merits, are often difficult to spread over a large area. It is much more challenging for a practice like SRI to be tried and scaled up under rainfed conditions. In such situations, a well planned strategy is required.



Paddy is one of the important food crops grown in Veerapur, Kallapur, Ramapur and Nagalavi villages in Dharwad district in Karnataka. The farmers in these villages have been following time-tested methods of growing crops to accomplish the challenging task of feeding themselves. Paddy is the major crop occupying 95% of the total cultivable area in the villages. The region receives moderate to heavy rainfall, with an average annual rainfall of 772mm. Paddy is therefore cultivated under rain fed conditions. Majority go in for direct sowing using seed drill. Less than 2 per cent farmers undertake transplanting.

Farmers have been facing problems like excessive weed growth, high incidence of pests and diseases, and hence poor yields resulting in marginal returns. They were however living with these problems, not knowing how to address them. AME Foundation, an NGO working in the area was keen to address this issue by promoting a different way of growing paddy using lesser resources, popularly called as System of Rice Intensification (SRI). AMEF was already promoting SRI with success, in other areas where paddy was grown under irrigated conditions.

SRI is based on a set of new ideas and practices that give rice plants more favorable environment, to get more output and returns, in an eco-friendly way. By changing the management of soil, water, plants and plant nutrients, SRI practices lead to healthier, more productive soil and plants by supporting greater root growth and by nurturing the abundance and diversity of soil microorganisms. For the first time, SRI was being promoted in rainfed paddy, a unique experience to AMEF.

The Beginning

AMEF conducted baseline survey in Veerapur, Kallapur, Ramapur and Nagalaavi villages in Dharwad district. Grama sabhas were conducted in each village. This was followed by PRA for understanding the village situation and identifying the problems jointly with the communities. AMEF recognized large scope for

improvement in paddy farming and initiated SRI promotion through a structured capacity building process with groups of farmers.

AMEF has a firm conviction that farmers' capacity building through participatory approaches is the most effective way to address problems in farming. It is necessary to widen the farmer's perceptions, deepen their insights, modify their attitudes and upgrade their managerial abilities. For this purpose, AMEF has been effectively using Farmer Field School (FFS) as a methodology of building capacities of farmers.

AMEF strongly believes in enabling learning situations where farmers are encouraged to understand the relationship/interactions between the crop and the existing abiotic and biotic factors in the field before taking any crop management decisions. Hence, Farmer Field School, a discovery learning process, was considered to be most appropriate means.

To promote and sustain SRI methods in the area, it was felt necessary that at least some of the local people who are motivated to spread the SRI practices be involved in the programme, beyond the farmers. Local volunteers were identified from these villages. They were trained through a two week residential programme on the basics of SRI and also the FFS methodology. They in turn with the support of AMEF conducted FFS in their villages.

Groups were formed with 20 interested farmers in each village. Season long FFS was organized in each of the villages during the cropping season - May -December 2008. Group members were very enthusiastic to learn paddy cultivation by discovery learning process in FFS mode. In different sessions, group members were involved in different short studies which made them to learn by doing and experiencing. In each session, groups actively participated and conducted different short studies which made them confident.

In the inception year 2008, 80 farmers belonging to four villages in Dharwad taluk adopted this innovative method of rice

cultivation. Significant changes were observed, such as reduction in seed rate from 30- 35 kg/acre, wider inter row and intra row spacing, use of new weeding implements, etc. as a result of which there was an increase in the number of tillers and yields were enhanced by 40% (12q/ac as against 8 q/ac under farmers practice).

With the seed rate reduced by **83%** and a similar reduction in the plant population, the SRI plots have still turned out 40% extra yield as compared to the control plot. This is explained by the significant increase in the number of tillers in SRI plots (133% more, particularly the productive tillers **171%** higher). There was an increase in the production cost by about 7% in SRI owing to use of bio agents and higher organic matter (EFYM). Yet, the returns were considerably higher in SRI plots with 40.34% yield increase and 106.32% higher net returns.

The FFS has played a critical role in motivating farmers to adopt SRI practices in a short time. Moreover it has enhanced the experimenting capacity of farmers leading to innovations. With good results in the very first year, SRI has shown the potential for wider spread in the region.

Scaling up SRI

For wider scaling, meetings and field days were organized. The results of the efforts were discussed during these events. Farmers from the region participated and got to know the good impacts of following SRI method.

Though the events helped in building awareness among a large number of farmers about this practice, yet it did not help in making them practice SRI. SRI being a new method, farmers were not very confident in practicing it. Moreover, the principles of SRI were almost divergent with what they had been following for ages. A planned effort and a continuous support were therefore required to motivate farmers to follow this innovative practice.

In 2009, AMEF with the support of Deshpande Foundation & WWF planned a scaling up strategy to reach around 1500 farmers spread across 25 villages. Also called as “SRI Abhiyaana”, this programme aimed at sensitizing not only the farmers but also all other promoters and supporters of SRI in the district. The Abhiyaan was formally inaugurated on 29 May 2009, wherein representatives from the mainstream institutions like the Agriculture Department and Agriculture University, locally elected people’s representatives and a large number of farmers and volunteers participated. A wide publicity was given to the programme and the event by organizing a press meet in Dharwad Media Club. The media gave a wide coverage to the programme both in the print as well as the electronic media.

The timing of the launch of the programme was well planned. It was planned ahead of the kharif sowing, so that farmers could take advantage of the season to practice SRI.

The strategy for scaling up was well defined to be carried out in phases.

a) Building human resources

Building human resources has been the key strategy for AMEF in all its initiatives. This strategy also worked well in the pilot phase

Farmer innovations in Weeders

The iron blades in the **cycle weeder** were modified and an additional hoe was attached, which helped in ploughing in wet soil conditions.

The size of the weeding wheel in **roto weeder** was increased and the double bar handle was fixed (similar to the cycle weeder), which made the operations much easier and more effective.

The cone shape of the **cono weeder** was changed to round shape; size of the wheel was increased from 3 inches to 6 inches diameter. The existing single bar was replaced with a double bar handle, which ensured firmer grip and easy operation.



and gave good results - by promoting SRI among farmers by knowledge building through FFS methodology and training local youth for spread and sustainability of the initiative. AMEF scaling up strategy was also built on this premise.

About 70 local farm youth, majority from the project villages were selected. They were trained on SRI concept, principles and practices through 3-day training program, Training of Trainers (ToT). Volunteers, also called as *SRI Preraks*, were trained to conduct campaigns and to provide hand holding support to farmers. Focus was more on building their capacities in guiding farmers during the sowing period, particularly on the practices like seed selection, seed treatment, sowing skills using lesser seed rate. These trained volunteers were to spread SRI in 25 villages spread across three taluks – Hubli, Dharwad and Kalghatgi.

b) Campaign

The *SRI Preraks*, in pairs, started various activities giving wide publicity to the programme. They organized Gram Sabha in the

selected villages. They discussed with interested farmers and registered them for the programme. They oriented farmers on SRI principles and practices and also trained them on specific skills required to practice SRI. They facilitated huge publicity by helping prepare wall paintings with SRI messages, displayed banners and distributed handouts. During this period they also facilitated preparatory activities like mobilizing inputs and implements.



c) Field support

After the campaigning period, the SRI Preraks helped the farmers in their sowing activities, guiding them the right way. This included crucial on-field support to farmers to adopt SRI sowing practices, including seed selection and seed treatment. They helped procure 57 improved seed drills from the department of agriculture for farmers adopting SRI practices, during the sowing period. They also facilitated procurement of about 200 kg of bio-agents like Azospirillum, PSB and 20 gm of Trichoderma for treating the seeds. About 25 kg of Zinc Sulphate was procured from Department of Agriculture. This was provided to the farmers who were doing small trials on micro nutrient management.

SRI Preraks, in consultation with the scientists from Mugud Paddy Research Station, promoted weed management trials by including sunhemp with paddy crop in SRI plots of 67 farmer's fields.

Scaling up SRI through convergence programs

AMEF keen on upscaling this innovative practice to new areas, planned a different strategy. In areas where AMEF was not working at the grassroots, it started influencing the mainstream institutions, like the Department of Agriculture which had a mandate of spreading good agriculture practices in the area. One such experience is the convergence programme in Sakleshpur taluk in Hassan district in Karnataka.

The department of Agriculture in Hassan had earlier initiated SRI promotion. In 2006-07 few farmers in the region were motivated to take up SRI. But the programme did not sustain as the farmers backed out, mostly owing to lack of continued support from the department. In 2009, AMEF initiated a convergence program with Dept of Agriculture (DoA) providing technical support. DoA has adopted an "out of box approach" where young, local boys were hired who also practiced agriculture back home. These volunteers were trained through exposures to SRI and were instrumental in demonstrating SRI practices through motivation and on-field supervision of operations particularly nursery and transplanting. With technical back stopping from AMEF, around 40 farmers spread over 10 villages under ATMA program took up SRI.

With this planned strategy, the SRI programme in 2009 reached around 1012 farmers. Around 806 farmers adopted SRI in rainfed conditions and the remaining adopted during the summer season. Around 130 acres was covered under SRI in 2009. The same approach was later extended to Kolar district as well where AMEF was working with the local communities.

Factors influencing upscaling

Upscaling is not an easy process. A number of factors influence the way a practice or programme is spread. Following are the factors identified that have influenced the upscaling of SRI programme in and beyond Dharwad.

Inherent merits of a practice

A practice like SRI has a number of inherent merits – like reduced inputs, their cost, increased yields and returns, if practiced properly. Farmers who experienced the benefits in the first year itself have been responsible for farmer to farmer exchange and are a source of motivation for many others to follow.

Continued support through building human resources

The benefits in the first year were achieved owing to the able and continuous support provided to the farmers through the FFS process. Being a season-long process, farmers were guided at every step, helping them achieve good results. This has helped in enhancing the confidence among farmers in accepting a new innovative practice. The support provided through the local volunteers during the upscaling period was also most crucial in enabling widespread adoption.

Well defined strategy

Whatever may be the merits of the practice, large scale up scaling hardly happens on its own. A well thought out plan and strategy is crucial. This is clearly evident from the Departments experience where SRI did not take off initially.

Institutional convergence

Lot of efforts were made to convince and converge various institutions in helping promote this practice. The mainstream institution, i.e., the Department of Agriculture was involved from the beginning, which later helped the programme upscale by providing its support. Institutional linkages and their support become crucial in sustaining a programme.

Sensitisation and large scale awareness programmes in a campaign mode do play a positive role when complemented by robust capacity building processes like FFS.

Acknowledgements

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Scaling up and sustaining nutrition interventions

Luc Laviolette and Venkatesh Mannar

Effective interventions aimed at reducing under-nutrition need to be implemented at sufficient scale to be able to make an impact. There is now growing recognition in the nutrition field that the challenge ahead is much less about scientific research than it is about the operational and management challenges of a scaling-up process. Two examples of scale-up of nutrition interventions presented here highlight the factors influencing successful upscaling.



Child consuming a micronutrient fortified midday meal in India

Despite economic progress and technological advances across the globe, under nutrition rates (encompassing stunting and micronutrient deficiencies) in most developing countries persist at unacceptably high levels. More than one-third of child deaths and more than 10 percent of the total global disease burden is attributable to maternal and child under nutrition. Although there is much variation in the region, some areas of Asia have among the highest under nutrition rates in the world.

Years of experience in field implementation and evaluation have shown that effective interventions aimed at reducing under-nutrition – when implemented at sufficient scale – would reduce deaths and disability adjusted life years (DALY) among children under five years of age, globally by ten percent. The main platforms through which nutrition interventions can be scaled up are health systems (where government is usually in the lead and the private sector also has a role) and food systems (where the private sector is most active but government has an important role to play). Two examples of scale-up of nutrition interventions from Indian region are presented briefly, along with a summary of the critical success factors.

Case 1 : A successful example

Addressing Micronutrient Deficiencies in Children through the Integrated Child Development Services (ICDS) in the State of West Bengal

The Government of India's Integrated Child Development System (ICDS) aims to reduce under nutrition in children under six years of age and to improve early childhood education and development. The program is implemented by individual states and provides, inter alia, a food supplement either through an on-site lunch or take-home ration. Although there is an overall national framework for the program, states have flexibility in choosing specific

modalities for implementation. At the national level, the program has so far had very little impact on child under nutrition rates, which suggests the need for more innovation and quality improvement. However, some states have in recent years experimented with innovations that have shown impact. A number of states, such as West Bengal, have made impressive progress in scaling up these new approaches.

In West Bengal, a multi-micronutrient powder called Vita-Shakti™ was developed to fortify meals at the village level. This innovation has been proven to work and has now been scaled up to the entire state. This program in West Bengal is one of the few interventions in ICDS that has led to an improvement in nutritional status in recent years. In addition to an efficacious product, this scale-up effort owes its success to very high-level political commitment: the Chief Minister officially launched the initiative with a coordination committee chaired by the Chief Secretary. This committee enforced strong coordination between the various state ministries involved. A special “West Bengal Micronutrient Society” was established by the Government of West Bengal to ensure proper management and monitoring of the initiative.

Factors for successful scaling up

- Strong coordination between West Bengal's ministries and high levels of state government leadership
- Stable sources of funding are provided by the Government of West Bengal and other partners
- Leadership Champions within the highest levels of government
- Technical capacity provided by development partners and the private sector
- Strong Monitoring System
- West Bengal Micronutrient Society established to ensure proper management and monitoring

- Well-designed program with a clear focus on an intervention that works

Case 2: Example of persisting challenges

Iron Folic Acid (IFA) supplementation during pregnancy in India

Despite nearly four decades of operation, the National Nutritional Anemia Prophylaxis Program has failed to reduce high levels of iron deficiency anemia in India. The most recent survey (NFHS III 2006) showed that six out of every ten Indian women and eight out of ten young children are anemic. While there is widespread recognition within Indian technical circles that anemia must be addressed, and a strong policy framework has identified IFA supplementation as one of the ways to control anemia in women, the coverage of IFA tablets in the country remains very low and has not increased in recent years. The Indian Clinical Epidemiology Network (INDIAClen) carried out a study in 2002 to assess perceptions among healthcare workers and women who should take the IFA program supplements and made some recommendations. Essentially, it is possible to overcome the barriers that are typically identified when attempting to scale up IFA supplementation programs. So why has this not yet worked in India?

A number of factors may explain why India's maternal IFA supplementation program is not scaling up.

- Although anemia is recognized as a problem in India by nutrition and medical specialists, as is the issue of nutrition more broadly, it is still not a high political priority and so it is therefore not a high priority of government departments.
- There are a multiplicity of supply channels involving state and central government departments and international agencies. This often creates confusion and results in irregular supplies at the field level.
- In order to be successful, IFA supplementation requires significant behavioral change by individual women, and for that to occur there must be strong training and program implementation.
- Success also requires coordination of health and nutrition workers at the village level, a convergence that does not always exist. Providers often have a passive attitude and lack of clarity on program components such as product management, client identification, and counselling. Because of these factors, conditions are not favorable to implementing the IFA supplementation program at a large scale in India at this time.

How to Make it Work:

Key Determinants of Success

Experiences to date in scaling up nutrition interventions have shown that a number of critical factors must be in place in order to achieve sustainable scale-up. These include:

Government leadership and championship

Strong leadership from government is required for a number of reasons. Nutrition interventions that are implemented through the public sector often fall under the responsibility of several ministries and this often leads to a situation where nutrition is “everybody’s concern but nobody’s baby”. Strong leadership at high levels of government have helped overcome this problem in countries where there has been successful scale-up. Such strong leadership not only helps coordinate the efforts of government ministries, it also establishes norms for the private sector that oblige them to participate in and comply with public programs.

Clear public policy

Strong government leadership must be supported by public policies and programs that are tailored to reach those who are most in need of nutrition interventions. Public policy is required to provide incentives and penalties to guide the work of the private sector. For example, programs can encourage private-sector initiatives by funding some of the initial research required for product development and reducing initial market risk associated with trying to reach the poor through market mechanisms. There is a continuing need for public programs that directly address the needs of people with incomes in the bottom one or two quintiles. By supporting these groups (including through subsidies that reduce the direct or transaction costs of nutritious foods), governments not only can target their investments in nutrition to those who need it most, but they also can invest strategically in increasing national productivity and generating economic growth that helps people out of poverty.

Focus – Appropriately targeted public programs

A critical success factor for nutrition programs is focus. The example of successful scale-up outlined in this paper was sharply focused on a few key interventions, as opposed to “integrated development programs,” which provide a broader range of services to communities but tend to be limited in scale.

Partnerships

The more successful examples of scale-up have been achieved by drawing on the different strengths and perspectives of the public, private, and civic sectors. Each sector brings a unique perspective and usually different skills. Under nutrition is a highly complex problem that requires all these skills and perspectives.

However, it is not easy for these three sectors to work together. In recent years some mechanisms such as national fortification alliances have been initiated in order to bring these sectors together around a common goal. Effective nutrition partnerships between the government, food processors, technical agencies, and consumer groups are currently in the early stages in most countries, and so far the experience has been mixed.

Incentives and penalties

Although the private sector is vibrant in the Asia-Pacific region and can and should provide much of the needed push to address under-nutrition through sustainable business models, there remains an important role for the government to ensure that the right

incentives and penalties are in place to protect consumers. As noted above, successful and sustainable scale-up requires that the government send clear signals to the private sector.

Effective advocacy and communications

One of the biggest gaps in countries where nutrition interventions are not scaling up as rapidly as they should be is communications. While it is often important to have government as the messenger in communications and messaging for nutrition (government can be a neutral voice), it is also critical to draw on the expertise of the private sector to develop and implement effective strategies and tools. At the pilot/small-scale level, it is relatively easy for independent bodies such as NGOs to organize and deliver a communications and advocacy program. However, advocacy and communications change and shift as programs scale up, and it is much more important at that stage to have a strong voice from government.

National managerial and technical capacity

Successful scale-up requires national technical capacity in areas such as food technology for product development and refinement; biochemistry for food testing and impact assessment studies; epidemiology for nutrition surveys that help target interventions; and engineering for technological development (e.g., fortification devices). This capacity is present in some countries of the Asia-Pacific, but its absence is a serious impediment in others. Some countries, like Vietnam, India, and Indonesia, have created national public institutes of nutrition, which contribute to varying degrees. In other countries, such as Pakistan, the private sector and academic institutions are the main sources of technical expertise.

Special attention will need to be given to harnessing this expertise where it exists and developing it where it is weak. Ultimately, however, programs cannot scale up unless countries have “strategic capacity.” In other words, countries need citizens who are skilled at managing their way through political systems to move the nutrition agenda forward at the national and subnational levels. These “nutrition engineers” also need to have strong project/program management skills.

Multi-year resource commitment

Scaling up national nutrition interventions requires a significant investment of finances, administration, and human capital. Small-scale programs begin with relatively limited resources, which can be provided by development partners, but a different financing mechanism, such as budgetary allocation or recovery from consumers, is needed for carrying small programs to a national scale. While these resources can come from both the public and private sources, and from domestic as well as external sources, it is critical that funds be committed over several years and ideally come from a variety of sources to minimize the risk of cancellation of funding. As with any development intervention, attention also needs to be given to avoiding conflict of interest with regard to financial contributions from the private sector.

Monitoring and feedback mechanisms

Any successful intervention requires regular performance monitoring. The private sector monitors sales and consumer acceptance closely because sales and profitability depend on this feedback. Unfortunately, the incentive to monitor within public programs remains weak, although it is increasing as programs become more driven by results and evidence. The most successful examples of scaled-up nutrition programs have had well-designed and managed monitoring systems.

Monitoring helps programs focus corrective measures on areas of lower performance (either program components or specific geographic areas). The feedback provided by monitoring is particularly important in nutrition because the experience of scaling up many specific interventions is limited. Thus, in most cases an iterative approach is required where changes in implementation strategy are expected (and made based on the results feedback) when programs are launched. These performance-monitoring systems should be simple and focused on essential performance areas. As such they do not need to be highly complex or expensive. Nevertheless, they do require dedicated resources. Monitoring a smaller scale program requires a different approach than monitoring a large scale program. While the former can often be managed by personal interactions, the latter requires more sophisticated systems and tools, including sampling and independent assessments.

The world could be a remarkably better place for women and children in less than a decade if even only a small number of the most cost-effective nutrition interventions were scaled up. There is now growing recognition in the nutrition field that the challenge ahead is much less about scientific research than it is about the operational and management challenges of a scaling-up process. As this paper has outlined, there are lessons to be learned from initial scale-up successes in nutrition, but the field should also draw from other areas of development work, such as microfinance and HIV/AIDS awareness campaigns. A focus on scaling-up will require much more effective collaboration among the current development partners working in nutrition and a change in the core skill set expected of a typical nutrition worker.

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Interview – Parviz Koohafkan



“The glass is half full”

Parviz Koohafkan is currently director of the Land and Water Division of the Food and Agriculture Organisation of the United Nations, FAO. His is a positive view: in spite of the difficulties that small-scale farmers face, they play a very important role in rural development, and this is increasingly being recognised. Their role will therefore become even more important – especially in the face of climate change. Interview Jorge Chavez-Tafur



You have been supporting small-scale farmers for a very long time. But many people say that small-scale farming is disappearing, and that it has to disappear if we are to feed a growing population. What is your view on this?

I don't agree. Even though there has been a lot of migration, the number of small-scale farmers remains the same over time: we are talking about one billion people. And small-scale farmers, particularly in developing countries, not only work for their own food security and that of their region and nation, they also contribute extensively to rural development. The problem is that these farmers have not benefited from governmental policies. Most developing countries have put a lot of emphasis on the urban sector and on the development of services, and they have neglected agriculture and the rural sector. Any support to agriculture has gone to high potential areas, favouring large-scale infrastructures. Rural communities working on fragile lands in mountainous areas or drylands have not received much attention.

Are small-scale farmers less efficient and less productive than large enterprises or “modern” farmers?

No, this is not true. There are some areas, of course, where small-scale farming is inefficient, just as some big enterprises are inefficient... When we think of efficiency, we have to consider the lack of investment. Governments tax small-scale farmers, but

farmers see very little return in terms of investment. Without specific investments, and without access to markets or additional support, many farmers end up in a vicious circle: they don't have resources to invest, they mine the soil, the soil becomes poorer, and so do they.

But as you say, in spite of all these difficulties, there is still a large number of smallscale farmers, they continue producing, and they continue contributing...

If we take a broader look at their production system, we see that small-scale farmers are often much more efficient, and much more sustainable than larger farmers. As the only resource base they have is their natural resources and their human capital, they do all they can to maintain it. Therefore they diversify their genetic resources, they diversify their production systems and their sources of income, and all this builds resilience. This contributes to food production, but also to environmental health, to the sustainability of the natural resource base and thus to the sustainability of their livelihoods. If you look at the total productivity and compare a family farm with a business community, you have to include all externalities resulting from intensification, such as the emission of greenhouse gases and the contamination of soils and water. The whole picture shows that most family farmers and traditional farmers perform much better. And don't forget that maintaining

the very large production systems, particularly in developed countries, costs an estimated 365 billion dollars per year in subsidies. One billion dollars per day of subsidies! How can any small-scale farmers compete within this system? This is a totally distorted system.

Considering this “distorted system”, how do you see the future of small-scale farmers?

Of course, the predominant value systems and policies are not favourable. But things are changing: it is now common to hear that the dominant ideas about agriculture and rural development do not fit, because they are not contributing to food security, they are not helping reduce poverty, and environmental degradation is getting more acute and more problematic...

But do you think that change is possible?

I think it is possible in several ways. We now recognise that our policies have been wrong. The World Development Report of the World Bank last year said that the engine of growth in developing countries is and should be agriculture. So there is already a paradigm shift. The second thing is the evidence that all countries which became developed in terms of income growth and wealth are the ones which invested in their agriculture sector and in small-scale family farming systems. In addition to that, it is evident that if we want to have a more sustainable planet, we need to take care of our environment, we need to invest in land, water, and genetic resources, and we should support the custodians of these systems, who are the farmers.

But apart from investments, is access to land not the real problem?

Sure! This is one of the biggest messages currently being conveyed: access to resources and rural development are the two faces of the same coin. You cannot have rural development without land reform. But it is the same in terms of genetic resources, that is why I think it is important to talk about farmers' rights. Farmers have been custodians of the multiplication, production and maintenance of so many varieties. They, and not an outside company, should have the right to continue doing so.

If these ideas are so clear, what can an organisation like FAO do?

Well, an intergovernmental organisation like FAO reflects its constituency. We are an intergovernmental organisation made up of many sovereign governments. When we try to take decisions, there are sometimes confrontations and disagreements, or we only get a minimum common denominator. Besides, FAO has many tracks of work. It is not easy to prioritise, because priorities are different in different countries and in different locations. This is one of the greatest problems, but also the strength of the UN system: the plurality and the diversity found within it.



But when we talk about a paradigm shift, we refer to one global problem, and countries should not follow different paths ...

Of course there are compromises to be made, because industrial farming is there. It is part of the agricultural production system and it has to be accommodated. But we aim to have at least the same attention and the same amount of resources for small-scale farmers as for big farmers. And we will succeed: many governments and scientists are already changing their opinion on the possibilities of small-scale farming. In some cases a compromise is not possible, as we saw with the IAASTD report. But even this had some positive outcomes: we are using all the materials and all the ideas coming from those discussions, and we are also trying to create new avenues for using this material and these ideas in other places.

Have you seen changes in recent years? Is there more recognition for the importance of small-scale farming?

Cherishing the past for the future

Mr. Koohafkan was born in Iran, studied in Tehran and Montpellier, France, and has been working with FAO for 24 years. He has been director of the Rural Development Division and is currently also co-ordinating the Global Partnership on Dynamic Conservation of the Globally Important Agricultural Heritage Systems (GIAHS). This initiative is meant to showcase the best examples of traditional farming systems and communities in the field. It will make people realize how important small-scale and traditional farming is for present and future generations. The initiative works at global, at a national, and also at the local level where it strives to empower farmer communities by helping them to realise the importance of these systems. To gain recognition of the concept and sustain the impact of GIAHS, this programme works with national governments, international organisations, civil society organisations and local NGOs, and also with other partners and allies within and outside FAO.

**“One billion dollars per day in subsidies!
This is a totally distorted system”**

Absolutely! I think there are changes, definitely. The biggest shift was the recognition by the world community, back in 1992, of the fact that the Green Revolution recipes were creating a lot of problems, both in social and in environmental terms. The thirty years of Green Revolution were helpful to feed a lot of people at a very difficult time. But at the same time, we've depleted resources and polluted soils and water. The problem is that the mechanisms, the institutions and the policies taking advantage of the Green Revolution thinking, are still dominant. Fortunately, now those ideas are changing. To some extent, the financial crisis has been good for the agriculture sector: there is less money, but more reflection about the path to follow.

What are the main difficulties you face within FAO?

Perhaps one of the main difficulties is that "western" and "productivist" values dominate. Most of our managers have been educated in Western universities, and do not recognise the importance of safety nets, social values and diversity. And there seems to be a bias to put more resources on the type of agriculture systems found in developed countries. So we are replicating them and we want to transfer the technologies that have proved to be good in the west to the south. We continue thinking that if this is good here, then it should be good there. Fortunately, things are gradually changing, even if these changes are very slow.

What would make these changes go a little bit faster?

We need to recognise that the bottlenecks and the problems are still there, that there is food insecurity, that poverty is increasing, that there are more conflicts... So understanding that something

is not working, this is the first thing. The second thing is increasing the exchange of information, and the way we interact with the rural population. The development of communication means, such as mobile phones, has been great in this sense. And the third thing is, again, working at the policy level, realising that we need to do things differently. And we are starting to do so. Maybe I am idealistic, but I think that there has been good progress. Of course, we have weaknesses and the resources are fewer and fewer, the UN system has been questioned, but nevertheless there has been progress.

Things are difficult, but is the glass half full or half empty?

I think it is half full. We are moving forward. Not only is there a wider recognition of the role of small-scale farmers, there is also a growing participation of the civil society. We have programmes, for example, on indigenous peoples or rural women. We also have the Globally Important Agricultural Heritage Systems (GIAHS) initiative, which I believe is extremely important for flagging the importance of these indigenous systems [see Box]. In collaboration with the World Rural Forum, we are even trying to get a year declared as "international year for family farming". This will help us highlight the role of family farming even more. If we would have talked about this three or four years ago, probably you would have perceived it as utopia; now it is becoming a reality. So there are many positive changes, the glass is definitely half full.

Themes for LEISA India

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The Water Issue

Water is a scarce resource, and one which is unevenly distributed. Estimates say that only one percent of the world's water resources are fresh and renewable, and thus available for man's many uses. Agriculture uses 70 percent of this, and much more water is required if we are to increase production. Population growth, deforestation, urbanisation, industrialisation, and certainly climate change, all point to a worsening situation. How are small-scale farmers, and the institutions that support them, getting ready to tackle this situation?

At least 60 percent of the world's food is produced under rainfed conditions. For the millions of farmers who do not have access to irrigation, an uneven distribution of water means much lower yields, and therefore less production. Providing irrigation water is expensive, and irrigated areas also face difficulties. The overexploitation of groundwater has dramatically reduced its availability, while many canal-irrigated fields have become salinised.

If water is an increasingly scarce resource, how do we ensure its availability for agriculture, and also for sanitation and all our other needs? What steps are being taken in order to diminish uncertainty, or in order to make the best decisions? What rights, and what possibilities, do small-scale farmers have in order to increase yields, and improve their livelihoods? In this coming issue we want to explore how groups of farmers, communities, or various stakeholders are working together, look at the co-ordinated steps which are needed at a watershed level, and at the possibilities for improving our overall efficiency.

How can policies support small-scale farmers in improving their access to water? How can good governance ensure a more prudent, less wasteful use of water, and promote the production and consumption of water efficient crops? How can urban planners create space for urban agriculture that uses recycled wastewater?

Send us your suggestions for articles, the articles themselves, photographs, names of people you feel we should talk to, ideas for topics you feel we must definitely address, your opinion, or just information about the issues mentioned above, to the Editor, at leisaindia@yahoo.co.in

Deadline for submission of articles - before July 15, 2010

Scaling up community managed water supply programme

J. James

A demand based, community-managed and conservation-focused approach was envisioned to bring about a reform at the sectoral level. However, the large scale programme faced a set back when factors like people's participation and community ownership were ignored. This experience brings forth a lot of lessons to be learnt before implementing such large people centered projects.

Despite the history of community and government investment in rural water supplies, the high official statistics of rural water coverage, and the vast sums of money spent on providing rural drinking water so far, there are still severe problems in India's water sector. 'Water is becoming an increasingly scarce resource in India, yet it continues to be used inefficiently on a daily basis in all sectors, while sectoral demands (such as in drinking water, industry, agriculture and others) are growing rapidly in line with urbanisation, population increases, rising incomes and industrial growth. There is, furthermore, insufficient water available in most basins to address environmental and ecological considerations or ensure adequate supplies for other non-consumptive uses.

A concrete step to redress this situation, at least with respect to rural drinking water supply, were the sector reform pilot projects (SRPP) started by the Government of India in 1999, which were scaled up in 2002 as the Swajaldhara programme.

Against this backdrop, a comprehensive reform agenda for the water sector in India was laid out by a large joint exercise by the Government of India along with the World Bank and other bilateral and multilateral donors in the late 1990s. The vision for rural drinking water supply included a demand-based, community-managed and conservation-focused approach, which are the key characteristics of the SRPP. These sector reforms were implemented on a pilot scale in selected villages in 67 districts spread over 26 states in the country. The idea was that once the strategy of reform is demonstrated successfully in these 67 pilot districts, PRIs can take on the responsibility of implementing this innovative concept in future projects in other districts. This article discusses the experience, issues, concerns and lessons learnt in implementation of the pilot project in Khammam district in Andhra Pradesh followed by the scaling up programme.

Pilot project in Khammam district

Khammam district was considered a progressive district in Andhra Pradesh because the Panchayat Raj Engineering Department (PRED) had begun community mobilisation efforts on its own

from 1997, 2 years before the Sector Reform Pilot Projects (SRPP) were introduced. Around 325 *Grama Deepikalas* (Village-level Women Workers), had been appointed and were carrying out community mobilisation and awareness generating activities to prepare communities to bear the costs of operation and maintenance of water supply schemes. Around 125 villages had formed village water user groups and committees and collected around Rs. 6.8 million (around Euro 121,000) by March 1999. This was one of the major reasons why Khammam was chosen for the SRPP.

Yet, Khammam district had its share of problems, with around 30% of its 2,900 rural habitations (average of 160 households and 600 people) not having access to safe potable water despite spending around Rs. 200 million on on-going schemes. All this was the 'normal' supply driven mode of provision, and much was expected of the new 'demand-driven' mode initiated in 1997. The announcement of SRPP was thus a fillip to their on-going efforts. The proposed water schemes were envisaged to tackle four distinct types of water supply problems in these habitations: excess fluoride, brackishness, excess iron and a declining ground water level.

The district administration in Khammam had begun its demand-driven initiative in 1997 without the help of NGOs. But it soon found that in order to implement this large work order, in a demand-driven participatory mode with communities, its past experience of working through government staff was insufficient. Convinced still that NGOs were unnecessary and unreliable, and unhappy with APARD's capacity to provide the required training, it looked elsewhere for support. Finally, UNICEF funded 7 development professionals in the District Project Monitoring Unit (DPMU) in Khammam district, who joined in February 2002 and, along with 8 facilitators to work in a variety of implementation fields. By this time, more than 18 months had passed since the project sanction, during which the district went ahead with physical work, contrary to the spirit and provisions of the SRPP.

An assessment carried out during May 2002 brought out some interesting, yet disturbing findings. While the project made an impressive physical coverage, it fell short on awareness generation and capacity building aspects. Moreover, MOUs were in English and not understood by villagers. No base line survey was conducted for water management, operation and maintenance, etc. There was no PRA/PLA exercise conducted, nor PRA/PLA training been imparted. There was no Project Implementation Plan in place. Villagers had not discussed any village-level plan before start of any activity. Major expenditure on implementation of water supply schemes were taken up as suggested by PRED and there was no 'people's estimates' in regard to the materials required.

In short, pilot project implementation was not adequately oriented towards participatory and people-centric approaches, central to

sector reforms. Hence, the casual departmental supply driven mode continued.

Observations

It is clear that national and state governments were unprepared for the SRPPs, and it took a long time to put in place even the minimal support structure required for implementation, including conceptual clarity, capacity building inputs and a monitoring system. District administrations did the best they could to switch from their supply driven mode of water supply provision to the new demand-driven approach. Even a progressive district like Khammam found the new scale of operation a daunting task.

Village communities responded to the opportunity of sector reform by making their contributions in the hope of an improved water supply. But the formation of committees and a functional takeover of O&M and finances do not constitute community management in the full sense of the term – in the manner in which NGOs and some donor-assisted projects like Swajal had demonstrated prior to the SRPP. The lesson that all members of the community have to be involved for success does not seem to have informed implementation efforts. The poorest of the poor continue to be left out of ‘community’ management.

Yet, before these insights could be gleaned from the SRPP implementation experience, the GoI scaled up the SRPP into a country-wide programme of community managed water supply and sanitation called *Swajaldhara*. The *Swajaldhara* Programme inaugurated on 25 December 2002 scaled up the Sector Reform Pilot Project into a countrywide programme, with few alterations to the basic design. But scaling up without examining and acting on the available evidence on SRPP performance has overlooked problems that could be potentially expensive to the country as a whole.

Factors responsible for inadequate Scaling Up

i. Analysis

Documenting and analysing its performance systematically should have been a pre-condition to scaling it up to a countrywide programme.

ii. Adequate awareness

While there were facilitating government orders, training manuals, clarity on institutional structures, establishment of a project support unit, and IEC guidelines, the operational details of the sector reform approach were just not understood well enough by senior and junior level government staff in state and district offices. Thus implementation of these pilot projects continued in the same supply-driven top-down community-insensitive mode of traditional rural water supply infrastructure delivery – except that the same government engineers were not doing community mobilisation as well.

On the other hand, the communities too were unprepared for the programme. While the central government had a reform agenda and vision, this was not adequately transferred to villagers whose effective participation in and ownership of SRPP could have made it a successful example of community managed rural water supply.

Sustaining Reform: Learning from the Past

Several lessons from India’s rich heritage in community managed rural water supply systems as well as contemporary research are as follows:

- i. Systematic Monitoring and Evaluation
- ii. Relevant Technology
- iii. Effective Convergence
- iv. Defining government’s facilitation role
- v. Need for long term support
- vii. Need for reviving neglected traditional techniques and water bodies
- viii. Need for a wider range of technical options
- x. Behavioural change needs patience and time
- xi. Supplementary activities are necessary to sustain success.

The cascading flow of information from centre to state to district to village reduced to barely a trickle of relevant and timely information. Even where communities were visited by government staff or NGOs, the messages they carried did not manage to fully inform the communities about the scope of true community management.

iii. Effective Capacity Building

Training manuals are necessary for uniformity in disseminating the project approach and for informing trainers and trainees alike, but a common understanding of the approach is a prerequisite. However, effective training has also to be tailored to requirements. Teaching engineers how to do a PRA is less important than teaching them why a PRA is useful!

But district-level demand for good training and trainers – prior to even community mobilisation – had to come from awareness of the importance of good training. And the only way district administration and RWS officials would know about the importance of training is if they were to go through training themselves. Thus, capacity building has to be planned in an iterative fashion, so that personal experience of trainees can turn them into trainers and crusaders for training.

iv. Lack of people’s participation

In many cases, including Khammam, the way in which physical works were undertaken under the SRPP were almost identical to that under the ‘old’ system: the engineer prepared the technical drawings of the proposed scheme, the contractor was given the job, the cheque was given by the engineer to the contractor, and the villagers watched the scheme being built and commissioned by a local VIP. What was perhaps different was that some meetings were held in the village concerning the proposed project; the village headmen was now required to sign on the technical drawings and on the cheques to the contractor, and the villagers were supposed to elect a VWSC and pay 10% of the total cost as contribution.

v. Realistic O&M costing

Contrary to the earlier official perception that people are not willing to pay to maintain government assets, the SRPP demonstrated (yet again) that communities are willing to pay - so long as the need is acute and they can expect improved service after payment. While

senior government officials in the country seem to have explicitly realised this and made 100% O&M as a requirement for the sector reform projects, what is not so well understood is that this may not be sufficient for system sustainability. For, to be truly sustainable, O&M collection has to ensure that there is money to *replace* the water supply system at the end of its lifetime. If not, systems will have to be constantly replaced. Such O&M costing, however, while insisted upon in the sector reform project guidelines, is hardly ever followed for the simple reason that this is often beyond the paying capacity of communities. Recognition of this situation ought to have elicited innovative financing schemes by the government.

vi. Business as usual

In the absence of any special measures to include the poorest and the women in decision making, to ensure that information was available to all members of the 'community', and that the proposed water supply scheme would service the traditionally discriminated sections of village society – the scheduled tribes (like the *lambadas* in AP), the poorest of the poor (who are not credit-worthy and cannot take loans or join Self Help Groups), including widows, the physically and mentally disabled, the chronically ill, and the aged – the SRPP could be mistaken for business as usual.

Small lessons for Scaling Up

The Indian experience yields several lessons not only for the future but also for other developing countries. In addition to the issues mentioned above, detailed facilitating action is necessary at the district and sub-district levels. Since these are very often brushed under the carpet or lost in the fine print or broad sweep buzzwords and phrases like 'participation', 'capacity building', 'IEC' or 'HRD', multi-stakeholder workshops, it is useful to review these briefly.

- Define operating rules at the local level – by involving major stakeholders, including village communities, NGOs, local line department staff, resource persons, donor agencies and others working in the area. This could be part of the awareness raising activity, but getting this group to discuss the project thoroughly will enhance their understanding of the project – and their individual roles and responsibilities.
- Write a clear manual in the local language setting out these operational aspects. This can be used in subsequent capacity building sessions at local and district levels, and to orient new government officials posted to the district.
- Hold regular multi-stakeholder meetings at the district and sub-district levels with line department staff, representatives from local government and community-based organisations (e.g., women's self help groups), to inform them about the intricacies of the new scheme and to discuss trends and problems in implementation, for speedy redressal. Issues that cannot be resolved at this level could be sent up for discussion at similar meetings at the state level. But this has to be done on a long term basis – as a permanent district and state-level support for future interventions.

- Set up a network with office bearers and clear operating principles to assist village communities facing problems in implementing the new scheme. Only if a permanent structure of self-help is set up can communities truly manage their own (water) resources. Critical information needs require resolution at watershed or basin level, in an integrated approach to water management, which requires periodic assessment, and thus a permanent institutional structure. Since local water use is affected, participation by local community representatives in such a network is essential.
- Set up a learning alliance for feedback into future policy: A cohesive effort is needed from the entire water sector, including government, NGOs, donor agencies, and the private sector, to learn and improve, based on the key elements of information flows, networking of effort and multi-stakeholder campaigns. Only such an effort can address the challenges posed by the new dimensions of scaling up – effectiveness and sustainability.

Scaling Up: Swajaldhara and Beyond

The Swajaldhara is acknowledged as a scaling up of sector reforms. In this sense, the scaling up of community management of rural water supply has already taken place in India. However, there are several lessons that could have been learnt from the initial pilot projects undertaken under the rubric of Sector Reforms.

It is still not too late for the Government of India to make a comprehensive action plan to improve performance of the Swajaldhara and to initiate similar reforms in other areas of water management, including the inter-linking of rivers, within the overall perspective of integrated water resources management. But all this still requires a massive effort to understand what is required, generate awareness and agreement among the major stakeholders, and to build capacity to carry forward the initiative. While the Government is adept at framing policies, finding funding, and organising facilitating action through government orders, the real challenge is in motivating district level staff to perform up to the expectation of their real clients, the rural communities. And, rural communities need to be given the institutional space to enforce their status as rural clients for government services, and the capacity to exploit this space effectively, while taking on the responsibility of maintaining assets created by government efforts.

Only when the Sector Reform Pilot Project is placed in this context, does it appear in its true perspective – an important first step in a long and difficult journey. Completing one step is an achievement, no doubt, but resting so early will make it more difficult to rise again in order to complete the rest of the journey.

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Upscaling through local Entrepreneurs

J P Tripathi and Kirit Jessani

Technological interventions to be successful need to be supported with human resource development. AKRSP(I) adopted a model of preparing rural entrepreneurs in handling and maintaining water saving devices towards conserving ground water.



Junagadh, a coastal district of Gujarat is known for intensive agriculture practices, mainly cultivating water-intensive crops like groundnut. High pressure on groundwater resources has led to coastal salinity ingress and drinking water scarcity in parts of the area.

Micro Irrigation Systems (MIS) has many advantages for the region. Besides water saving, less draft from ground water meant improvement in ground water levels and financial gains for the farmers through increased production and reduced irrigation costs. However, the way the technology was implemented in the region could hardly help farmers to reap the intended benefits. MIS was highly subsidized by the government and was largely a target driven exercise for the private companies. The installation was not accompanied by training farmers in maintenance of the system. Elaborate procedures to acquire one system along with dependence on the company staff for maintenance were the factors that did not motivate farmers to adopt this system. The adoption rate was therefore very low.

AKRSP(I) Intervention

AKRSP(I)'s work in the semi-arid regions of Saurashtra, Gujarat had largely focused on water harvesting through percolation tanks, check-dams etc. Field experiences showed that with an increasing population there was no way that supply could always meet the growing demand. In most villages, farmers increased the area under irrigation after constructing water harvesting structures, and hence, water levels came down to the earlier levels. Salinity levels, which had come down, increased as extraction increased.

By 2000-01, the organisation felt that there was a need to focus on groundwater management as a whole rather than just promoting community managed water harvesting structures. In Junagadh district, where groundwater overuse was very high AKRSP(I) decided to pilot groundwater management with two objectives:

- Revive the Meghal river, which had become dry,
- Arrest salinity ingress along the coast in Mangrol Block, where groundwater overuse was leading to increased ingress annually.

With these objectives in mind, AKRSP(I) started working on groundwater management in 64 villages of Malia block in Junagadh district, which were part of the Meghal river basin.

Various options to reduce water use in agriculture were looked at. These included promoting crops that use less amount of water, appropriate agronomic practices and promoting the use of water use efficiency devices like drip and sprinklers. AKRSP(I) felt that farmers would be willing to explore options where the current agricultural income would remain the same or increase and where they could see an immediate result in terms of water saving and/or increased productivity. Research and field trials showed that the most substantial savings in water end use is through water efficiency devices like drip and sprinklers. It was well understood that mere use of such devices by farmers does not reduce groundwater extraction, as farmers use the water saved to irrigate larger areas and earn more income. The idea was that with widespread adoption of drip and sprinkler on larger areas, there would be overall decline in ground water extraction.

Alternative approach

AKRSP(I) reflected on the inherent weaknesses of the present approach and felt that the only hope for large-scale expansion of MIS was to identify an alternative low cost drip system which was user-friendly and a delivery mechanism that was sustainable. To achieve these objectives, AKRSP(I) collaborated with International Development Enterprise (IDE), an NGO which works on low cost technical solutions for the poor. IDE had been experimenting with low cost drips in Rajasthan, Gujarat and Maharashtra.

Though generally IDE promotes bucket and drum kit systems which are useful on small size garden or vegetable plots, AKRSP(I) was interested in systems that could be used on larger areas. Since AKRSP(I)'s main objective is groundwater management, it was interested in promoting this technology for large farm sizes and crops like groundnut, banana etc which are the main groundwater guzzlers in Junagadh. Therefore, AKRSP(I) adapted the approach with its own system of extension and financial support.

Micro tube based system, a more appropriate drip irrigation system was available with IDE. It was cost effective (Rs.12000- Rs.16000 per hectare), as compared to the government subsidized drip systems (Rs 40000/ hectare). More importantly it addressed the problem of salinity. The new system used material which was locally available and therefore was much cheaper. The system could be easily assembled by the local villagers, thus providing gainful employment to them. The system was user friendly and flexible and could be installed and maintained by farmers on their own.

Promoting local entrepreneurship

One of the extension volunteer was trained as an 'assembler' of drip systems. He became a key figure in expanding the adoption of drip irrigation. He earned good money, and soon became a model for others in the area. And, he also started employing fitters of the drip systems.

Promising local youth were selected as para-workers/ volunteers. The para workers were selected based on their zeal to grow along with their community and having good communications skills. They were trained on technological aspects of good entrepreneurship, customer service, etc. Frequent sharing sessions help them to update themselves on new technologies and kept their motivation levels high.

Table 2: Number of farmers serviced by the entrepreneurs

Year	Item	Mangrol	Maliya	Talala	Veraval	Keshod	Total
2006	Sprinklers	520	450	0	-	-	970
	Drip	160	95	-	-	-	255
	Seed	200	70	-	-	-	270
	Accessory	142	90	-	-	-	232
	Organic Manure	200	100	-	-	-	300
2007	Sprinklers	392	325	100	-	-	817
	Drip	168	144	10	-	-	322
	Seed	210	111	30	-	-	351
	Accessory	250	300	15	-	-	565
	Organic Manure	145	30	50	-	-	225
2008	Sprinklers	39	225	70	140	210	684
	Drip	190	120	3	70	6	389
	Seed	310	198	90	45	20	663
	Accessory	350	410	10	35	40	845
	Organic Manure	150	30	20	11	15	226
	Alternate Energy	-	-	35	-	-	35
	Farm Forestry	20	30	60	-	-	110
	Total	3446	2728	493	301	291	7259
Villages covered	69	60	20	40	30	219	

The Assembler/ Entrepreneur is a person with 'Social commitment' which is generally found less in traditional local traders. The basic motivation for them is their development along with the community, growth in social-stature, and increased income potential.

Because the first assembler was a person of credibility, the technology could spread fast and farmers were willing to pilot the new technology. Thus "villager as an assembler/ entrepreneur" model, was a success.

Initially, support to entrepreneurs establishing independent shops, was subsidized by AKRSP(I) over 4 years. Later it was decided to modify this to 2 years on the basis of the initial experience gained by the team.

The outreach has been very impressive with these local entrepreneurs. Previously, it took AKRSP(I) staff two years to reach out to about 200 farmers. Now the local entrepreneurs were reaching far more numbers in the first year itself.

As it is not possible for any entrepreneur to grow with a single product, these entrepreneurs also have diversified services to customers, based on the needs. Currently, they have dealerships of reputed manufacturers of MIS, seeds, pumps and harvesters. In addition, the entrepreneurs also supply organic manure and tree saplings to farmers.

Outcomes

Organizational experiences show that after initial support for two years on shop rent, salaries and recurring expenses which comes roughly around Rs. 40000 – 55000 per entrepreneur, on the other hand entrepreneurs are earning a net profit of more than Rs. 120000 per annum; sufficient for sustaining himself and para-workers team. There is an increase in profits as the business grows.

As the para-workers are part of the local communities from villages where they work, this model has enhanced the livelihood options of the communities. By this, supply of quality agricultural inputs is ensured along with dissemination of relevant information to the community.

Impacts

The impacts have been many. In the last five years, around 7000 farm households have been enabled to access affordable and appropriate technology. The irrigated area increased by about 8000 acres. The staff time on travel was reduced as the village communities were able to promote and also manage these systems on their own.

Beyond the organizational advantages there are some additional and noteworthy impacts for the agriculture development of the region.

- New area under MIS
- Increased area under winter cropping
- Increased incomes for farmers
- Water efficiency increased
- Time and cost saving for the farmers
- Local employment generation
- Old idle MIS re-installed

Sustainability factors

The model is sustainable for the following factors:

- Enterprise once established generates its own funds through services provided to the farmers
- Increasing trends among farmers for installation of MIS
- Appropriate policy environment facilitating promotion of Micro-irrigation systems and also access to formal institutional forms of credit
- Close monitoring and evaluation and live contacts will help in assessment and guiding the entrepreneurs
- Farmers have easy access for repairs and maintenance of MIS

This model has good potential of being replicated. Based on the success of this model, a number of such entrepreneur models in alternative energy, organic pesticide production etc., have evolved. Other factors which are in favour of this model are

- Low fund requirement; even banks can finance the businesses;
- Highly qualified human resource not required.
- Use of drip and sprinkler is going to increase as ground water levels are depleting in most parts of the country. Hence this model directly or with modifications can do wonders for the programme.
- Above all, this being a business model, is a viable model for service delivery to rural communities.
- Other companies working on MIS installation do not have appropriate post-installation services providing mechanism; these existing service gaps are being used to the advantage of the village entrepreneur model who provides follow-up.

Challenges ahead

There are some risks and challenges in scaling up this programme. There are also ways of overcoming them.

- Our present entrepreneurs are doing major work with Gujarat Green Revolution Company scheme (a company established in 2005, to promote MIS, with components of Government subsidy and loans); any change in policies of GGRC will affect the annual turn over of the enterprise. Diversification of products is reducing this risk, and is an ongoing strategy and process
- Change of National Policies on agriculture input can affect the programme, although this risk is low. AKRSP(I) is staying informed about the policy environment and will

continue to support entrepreneurs to be informed and respond accordingly. Diversification is also a mitigation strategy to reduce dependence of entrepreneurs on a single product.

With the promotion of the MIS entrepreneurs in the above mentioned blocks of Junagadh district, coverage and acceptance of MIS has increased. Now, every season, one can see loads of pipes and sprinklers sets moving towards the villages. This model could see the light of the day as there was a basic shift in the approach of the programme “*doing it to getting it done*”. Being a market driven programme, it has the potential of growing much beyond the present levels, and over a period of time, market driven changes will help in further improvement and development of this model.

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LEISA India in regional languages

With an increasing demand from our readers for local language editions, LEISA India is now being brought out in three language editions – Hindi, Tamil and Kannada. These regional editions include translations of selected articles and are published twice a year – June and December. The June 2010 issue will be released shortly.



LEISA India – now in Telugu and Oriya

The first issue of the Telugu and Oriya editions will be released shortly. These are being brought out in collaboration with CDAC, Hyderabad (Telugu) and ORRISSA, an NGO partner (Oriya)

The language editions are meant primarily for those groups of people and institutions who work at the grassroots level and are comfortable in their regional languages. Those interested to receive the language editions can contact Ms. Poornima at leisaindia@yahoo.co.in giving their full mailing address.

One step is not enough

Small-scale farmers are big news these days. “Melinda and I believe that helping the poorest small-holder farmers grow more crops and get them to market is the world’s single most powerful lever for reducing hunger and poverty,” said Bill Gates. It is good news indeed, that the FAO and World Bank are also re-discovering small-scale family farming as the most important source of development, and target for investments to fight hunger, which has reached unprecedented levels this year. The next peak in oil prices, or the aggregation of crop failures, will cause an acute crisis and a famine of global magnitude. Global austerity programmes, as a result of recent bailouts of banks and speculators will leave little room to manoeuvre. Increasing small-scale farmers’ yields worldwide through low input methods is simply the cheapest way to prevent the food crisis getting out of control.

The recent renaissance of small-scale farmers in global development rhetoric can be traced back to the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). This report was published early this year after being adopted in an inter-governmental and multistakeholder process by 58 nations in 2008. It was initiated by the World Bank and all relevant UN institutions. It comprises the global state of knowledge about the history and future of agricultural development, compiled by over 500 experts. This assessment has a profound and incisive message which affects the whole world: small-scale family farming is the best available option to change the perverted global system of commodity trade and production and to limit the use of fossil fuels and chemical inputs. It is the best hope we have of not exceeding the limits of this planet, while still feeding the population. By only using the



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resources which are available in abundance over the coming decades (such as solar energy, and human labour and ingenuity), investment in small-scale farmers is not merely a cheap charity add on, but a real alternative. It will also contribute to healing the damage done by centuries of industrial farming.

But for Bill Gates, praise for small-scale farmers seems rather a pretext to then demand another “green revolution”, fuelled by genetically engineered plants as well as by the increased use of fertilizers and pesticides. The FAO insists that world agricultural output must increase by an impossible 70 percent within the next few decades. The leaders of the world still preach unabated economic growth and trade liberalisation as the way forward. They cannot even agree to stop producing agro-fuels and export subsidies. How much will it take before they will swallow the full truth of the IAASTD: “Business as usual is not an option”?



South Asia Farmers Conference



This document is a synthesis of proceedings of the South Asia Farmers Conference. The Conference hosted by CARITAS India was organized during 9-13 February 2010.

South Asia Farmers Conference is one of the major components of Sustainable Agriculture and Farmers Rights (SAFaR) programme of Caritas Asia. The objective is to facilitate learning and sharing among farmers of the South Asian region.

This document highlights the learning and field application aspects of the intensive discussions and sharing of experiences among the participants. The document was brought out under the guidance of LEISA India team. For details, contact Dr. Haridas, Coordinator, South Asia SAFaR Programme at haridas@caritasindia.net. The document is available online at <http://caritasindia.org/Archive/Publications23SouthAsiSAFC.pdf>

Food Sovereignty: SRI sets the platform in irrigated rice systems of Tamil Nadu

V.K.Ravichandran, K.R.Jahanmohan and B.J. Pandian

Tamil Nadu Agricultural University, a pioneer public sector research institute has piloted the innovative method of rice cultivation called SRI. It has spread SRI over a large area in the irrigated rice systems of Tamil Nadu through well designed strategies for upscaling.

System of Rice Intensification (SRI) is a novel method of rice cultivation based on a set of simple synergistic practices. They aim to change the management of rice plants and soil, water and nutrients that supports them in simple but specific ways. Success of SRI depends on strict adherence of its five critical steps viz., young seedlings, single seedling, square planting, water management and mechanical weeder usage. Among the five critical steps, raising young seedling, planting single seedling and square planting paves the way for food sovereignty in irrigated rice systems of Tamil Nadu. Since SRI method of rice cultivation is an innovative concept in the production environment, it is being given support by various institutional agencies. Tamil Nadu Agricultural University, a pioneer public sector research institute has piloted this method of rice cultivation and designed strategies for upscaling SRI in the irrigated rice systems of Tamil Nadu through TN-IAMWARM (Tamil Nadu Irrigated Agriculture Modernization and Waterbodies Restoration and Management Project) – a world bank assisted project.

A case of Pillaekothur village

TNAU introduced SRI in Pillaekothur village in Krishnagiri district. Pillaekothur is a small village in Hosur-Krishnagiri highway and predominantly depends on agriculture for its livelihood. Krishnagiri is a newly formed district which was carved out from backward Dharmapuri district. The village falls in the ayacut area of Kelavarapalli reservoir (Pennaiyar River) and rice is the principal food crop. Besides rice, owing to its conducive environment, cole vegetables are also cultivated. The farmers are of linguistic minority and belong to one major community and thereby related to one another in one way or other.

The most difficult part of SRI is raising of young seedling and planting of 14-15 days young single seedling in squares, at a spacing of 25 x 25 cm. In the conventional method of rice cultivation, random planting was resorted to and 25 to 30 days old, eight to ten seedlings were planted per hill. This method required around 70 to 80 kg of

seed per ha, as compared to mere 8 kg per ha in case of SRI method of rice cultivation. The female labourers, mostly illiterate to primary educated, were accustomed to traditional planting methods and it was really a herculean task to shift these labourers to SRI method of rice cultivation with conviction.

Training was imparted to planting labourers who are mostly from relatively less resource endowed families. Then, during planting, initially well trained labourers were placed between two to three labourers for imparting and monitoring the work. The labourers picked up the methodology in a perfect manner and during the mid way these new labourers have invented a new idea – holding half a bundle of seedlings assisted in easy picking out of single seedling, instead of keeping in hand full. In the first instance itself, 20 labourers were able to plant 1.80 acres in less than 4 hours. The most striking part is that by following SRI method, the labour requirement dropped by 50%. While conventional method needed 40-45 labourers to plant one hectare, only 20-22 labourers could complete planting one ha by SRI method. In that season, SRI picked up well and for the subsequent season, the core group acted as a torch bearers for spread of SRI. By this, SRI has paved way to these people to define their own food and agricultural system in a sustained manner there by ensuring the food sovereignty.

Usage of cono weeder for 4 times viz., use at 10 days interval from 15 days after transplantation to 45 days should be done for controlling weeds. In the process, weeds are incorporated *insitu* thereby enriching the organic matter of the soil. By better management of weeds, the number of productive tillers per hill was also high. Frequent movement of weeders also results in production of robust white foraging roots which enhances the efficient use of nutrient uptake by the plants. The farm women got acquainted with the usage of weeders and could easily operate them. This led to a reduction in labour for weeding to the tune of 30 per cent.

Community nursery a potential tool

Only one cent of nursery area was sufficient for providing seedlings to plant an acre of land. But the development of mat nursery, promoted in the initial years was technology intensive. It required trained field personnel for layout and upkeep of nursery. Instead of training every farmer in a village, a novel concept of community nursery was practised in Bombur village in Villupuram district. Incidentally, Villupuram district is in high water stress area with larger percentage of resource poor farmers. In the community nursery, the resources of 15 to 20 farmers were pooled and SRI nursery was grown at one place. This also enabled closer supervision and good upkeep. On 14th day the seedlings were distributed to the participating farmers.

Performance of SRI

(Kg/Ha)*

SRI			Conventional			% increase over conventional
Min	Max	Mean	Min	Max	Mean	
8047	6477	7275	6048	4708	5375	35.3

* Yield observations in 16 localities across Tamil Nadu in 7037 ha
Source: TN-IAMWARM project, TNAU, Coimbatore

SRI method helped in increasing the rice yield by more than 33 per cent. Farmers received incremental income to the tune of 35 per cent. They could also save water by 33 per cent by following alternate wetting and drying method. Through community actions in following SRI method, the initiative also facilitated better social relations in the community.

Owing to its innate yield potentialities, SRI has been considered as a potential vehicle for food sovereignty as this method of rice cultivation entitles the farmers' their right to define their own food and agriculture systems. In the State, 43896 ha were covered by

this novel method of rice cultivation. Thus food is being produced through ecologically sound and sustainable methods, which is healthy and also culturally appropriate.

Acknowledgement

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Managing aquatic weed through eco friendly ways

S Lingappa and R K Patil

In the recent past many water bodies like tanks and lakes across the country are invaded by aquatic weeds. Obnoxious weeds like water fern, water hyacinth and water lettuce have created problems rendering the water unusable for irrigation, swimming, recreation, fishing and also consumption. Apart from fast depletion of water from water bodies through evapo transpiration, even the available water cannot be used owing to weeds. Also, weeds favour breeding mosquitoes and molluscs threatening human health. As fresh water is a precious commodity, it is our responsibility to protect water bodies, conserve water in water bodies and save our environment.

During 2006, water fern (*Salvinia molesta*), one of the worst aquatic weeds, invaded Kelageri tank in Dharwad city. It has been a major source of irrigation for the last 50 years. It is also a source for drinking water to livestock, fishing, and recreation to many people in and around Dharwad. In less than a year from its appearance, the weed spread to around three-fourths of the 52 ha water spread area.

During 2007 Department of Agricultural Entomology UAS, Dharwad, arranged to get a naturally established weed killer insect *Cyrtobagous salvinia*, from Kerala. The tiny black beetle is of the size of mustard seed with distinct snout. Both adults and grubs feed exclusively on water fern weed for their survival and perpetuation. Grubs (younger stage) feed on pseudo stem by tunnelling and pupate inside. While one cycle from egg to adult is completed in 6-8 weeks, adults survive for about 200 days by feeding on the weed.

The insect was released in Kelageri and adjoining Krishinagar tanks on June 6, 2007, marking the world environment day. AS

days progressed, the insect multiplied and started feeding on the weed. In a few days the entire weed mass become brown owing to loss of chlorophyll and started sinking into the water body. Within a year, the entire water body become free from the weed. Once again the water was put to multiple uses.

This success story appeared in leading daily new papers during 1st week of June 2007. This successful experience led to launching of "operation tank clearance" in 2008. The insect was released in Amminabhavi tank, 15 km away from Dharwad city. The water body was cleared of the weed by March 2009.

Enthused by the success, UAS, Dharwad embarked on Research and Extension programme for the management of weed through release of ecofriendly bioagent. The university is maintaining the culture of this beetle in the Biocontrol laboratory in Dept. of Entomology to supply them to any part of state. The university give hands on training in handling the insect, technical advise besides sparing insect culture. Dr. S. W. Menisinkai Research and Education Foundation, a voluntary organisation committed to cause of agriculture and rural development, has collaborated with the University to synergise the humble cause.

Both the University as well as the Foundation are aware of the necessity to spread awareness on the importance of weed management in water bodies. They plan to educate and help the district administrative authorities at the taluk and the village level in managing the weed in an eco-friendly way.

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Integrated agriculture for sustainable gains



Many farmers grow crops mostly for the market and ignore their own family needs. When there is a glut in the market, they cannot sell their produce for a good price. In any case they have to purchase their kitchen needs at higher prices from the merchants, many times on loans. Apart from incurring losses, they are helping traders to benefit more. Instead, if they can grow all possible family needs, they can save their hard earned money and have poison free food for the whole family. Basically, this is why agriculture came into practice from the beginning. Gradually, after the barter system was replaced with money economy, utmost importance was given to commercial crops and they got into the clutches of the traders. Even at the time of glut in agriculture products in the market, it would have been profitable for the farmers, if they had tried processing and adding value to their products and then marketed.

Agriculture is not just growing a crop and selling it away. It is an integrated system of tree cropping to obtain fodder, green manure, fruits and tubers, fuel and timber. Animal husbandry is the most important integral part of agriculture system as it is interrelated and inter dependent, to recycle the crop wastes and animal dung for better economic returns. But, unfortunately with change in our educational, social and cultural systems and false prestigious life styles, the farmers have become poorer and poorer. Adding to it, the country's administration has totally neglected the rural population and gave all the importance to urbanities in the name of industrialization and employment and various service systems.

A country's economy is based on its soil health, productivity, number of trees and animals and healthy working force. Even in case of an agriculture family, if it has to be sustainable, a similar infrastructure has to be developed. Even the administration system instead of employing agriculture graduates as police sub-inspectors, bank employees and entertaining them to become MBA graduates and go abroad to serve some multinational company as salesmen, it is good to assign them as practicing demonstrators developing 5 acres of community land as model farms at every taluk level. These model farms should be developed with minimum possible external inputs and serve as demonstration models of economic sustainability. If all the agricultural graduates after their graduation are employed in such activities, they cultivate a work culture and understand the problems and possibilities and become confident when they are given the responsibility as extension officers.

A farmer should plan to grow all possible home needs for the whole year, then he should plan to adapt animal husbandry and build up

a system of establishing regular supply of their own fodder, even some medicinal plants both for their family and animals. They should plan in such a way that they should get income by selling vegetables, milk and eggs everyday every week and every month so that they have money for their daily needs. Agriculture is not just growing hybrid tomato, cabbage, cauliflower, capsicum, potato, investing the borrowed money taking a big risk and getting into problems in the event of crop failure or market glut. With my 40 years of experience in a small scale farming, it is better to grow 5 crops in rainfed cultivation and 10 crops in irrigated cultivation, where we may lose in 30% crops, just grow sufficiently with the other 30% crops and make profit with the remaining 40% crops.

Also, very important is adapting a honourable and simple life style. Every able person should work on the farm to understand each other in the family to develop a happy and respectable work culture and to establish a regular income. This system needs constant thinking and planning farm activities to conserve water and soil, giving utmost importance to building up humus. This will improve the water holding capability to provide moisture at the root zone and encourage soil organisms to multiply helping in soil health improvement. Trees play an important role in protecting and improving soil carbon or humus and also conserve moisture and host birds which help in plant protection. So every farmer should understand the various inter relationships of land and its sustainable productivity and gains.

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

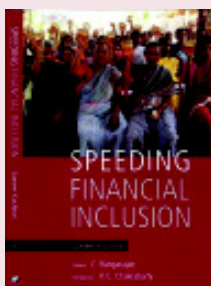
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Poverty Reduction that Works: Experience of Scaling Up Development Success Summary by Paul Steele, Neil Fernando, Maneka Weddikara. Publisher: Earthscan Publications Ltd. Publication Date: 2008-06; ISBN-10 / ASIN: 1844076016; ISBN-13 / EAN: 9781844076017

This groundbreaking book tackles one of the most important issues in successful poverty reduction: Why do some local poverty reduction initiatives work while others fail? And why can some be replicated and scaled up to the national or wider level to achieve a massive impact and help millions escape the “poverty trap”? This book looks at twenty of the most innovative case studies of poverty reduction and MDG localization from 15 countries—Afghanistan, Bangladesh, Cambodia, China, Egypt, India, Indonesia, Malaysia, Mexico, Nepal, Paraguay, Philippines, Sri Lanka, Thailand and Vietnam—covering diverse issues ranging from housing and tourism to socio-economic empowerment of women to health insurance to markets for livestock produce. Many of the cases started as small-scale interventions by NGOs, donors or government pilots but now they are being scaled up to form part of national policy or replicated across their respective countries. Yet, why do some work while others do not? What are the obstacles and how can they be overcome? And what lessons and principles are there for replicating and scaling up poverty reduction initiatives worldwide? This book tackles these questions and more and presents a wealth of knowledge, evidence and ideas for all practitioners and researchers working to reduce poverty at the local level but who want to have a global impact. The authors all work at the United Nations Development Programme Asia and Pacific Regional Centre in Colombo, Sri Lanka.

Speeding Financial Inclusion by Sameer Kochhar, Academic Foundation, New Delhi, 2009 Edition, pp. 168, ISBN - 978-81-7188-791-0

Scaling-up access to finance for India’s rural poor presents a formidable developmental challenge in a country as vast and varied as India. It was in this context that Skoch Development Foundation undertook the first-ever nationwide multi-stakeholder study entitled “National Study on Speeding Financial Inclusion”. This study sought to collate primary research based on our grassroots experiences from several project sites and field visits; and, views from all stakeholders so as to arrive at key interventions and intermediations to speed up the process of financial inclusion, and thereby poverty alleviation. Apart from providing key recommendations in the form of a roadmap to speed up the process of financial inclusion, the study also sought to determine the viability and cost-effectiveness of the Business Correspondent (BC) model and has identified several options to make the model viable.



Scaling Up Nutrition: What Will It Cost? (Directions In Development) by Susan Horton, meera Shekar, christine Mcdonald, ajay Mahal, jana Krystene Brooks. Published by World Bank. ISBN: 978-0821380772. Publishing Date: 2009-11-06 Number of Pages: 132.

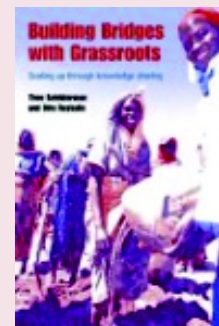
Action against malnutrition is needed more than ever. An additional US\$10.3 billion a year is required from public resources to mount a successful attack against undernutrition on a worldwide scale. This would benefit over 360 million children in the 36 countries with the highest burden of undernutrition home to 90 percent of the stunted

children worldwide and prevent 1.1 million child deaths. Since early childhood offers a special window of opportunity to improve nutrition, the bulk of the investment needs to be targeted between pre-pregnancy until two years of age. *Scaling Up Nutrition: What Will It Cost?* offers suggestions on how to raise these resources. This worthy investment will yield high returns in the form of thriving children, healthier families, and more productive workers. And it is essential to make progress on the nutrition and child mortality Millennium Development Goals and to protect critical human capital in developing economies. The human and financial costs of further neglect will be very high. This call for greater investment in nutrition is also opportune, at a time when global efforts to strengthen health systems provide a unique opportunity to scale up integrated packages of health and nutrition interventions, with common delivery platforms, and lower costs. *Scaling Up Nutrition: What Will It Cost?* has benefited from the expertise of many international agencies, nongovernmental organizations, and research institutions. The cooperation of so many practitioners is evidence of a growing recognition of the need to invest in nutrition interventions, and a growing consensus about how to deliver effective programs. This book will be of interest to policy makers, nutritionists, government officials, and all those interested in improving child nutrition and child health.



Building Bridges With The Grassroots: Scaling-Up Through Knowledge Sharing by Theo Schilderman, Otto Eriks ruskulis. Published by Practical Action. ISBN: 1853396168; ISBN-13: 9781853396168, 978-1853396168; Binding: Paperback; Publishing Date: May 2006 Number of Pages: 169; Language: English.

Shows how small decentralized initiatives can improve the lives of large numbers of slum dwellers. Explains how existing successful examples can be scaled up to help many more. Advocates a unique bottom-up approach to upgrading starting with grassroots groups and small entrepreneurs.



Dryland opportunities: A new paradigm for people, ecosystems and development by Michael Mortimore. Published by IUCN, IIED and UNDP. Website: www.iucn.org/publications. 2009, 86pp, ISBN 978 2 83171 183 6(Pb), US\$18 or free to download.

Covering 41 per cent of the earth's surface, drylands provide vital services that support agricultural and pastoral livelihoods. But in most countries dryland ecosystems have been neglected by investment and development interventions. In an attempt to tackle the misconception that drylands are "economic wastelands", *Dryland opportunities* emphasises the ways in which these ecosystems are economically and environmentally valuable and suggests practical options for development. "A new paradigm is required that meets the needs of dryland people," the authors explain. "It must address the full complexity and dynamics of dryland ecosystems, recognise their potential for development, take account of changing world conditions, and restore the initiative to dryland peoples themselves."

In order to enable dryland communities to sustain their ecosystems, diversify their livelihoods and strengthen their capacity to adapt to climate change the authors recommend: recognising local knowledge and strengthening research into climate change, adaptation and sustainable land management; re-evaluating and sustaining dryland ecosystem services, including soil, wetlands, natural pastures, and non-timber forest products; promoting public and private investment; improving access to profitable markets; and prioritising rights to land and managing risk through insurance and diversification.

Reaching the unreached: Community based village knowledge centres & village resource centres by Suchit Nanda and Subbiah Arunachalam. Published by Jamsetji Tata National Virtual Academy. Website: www.mssrf-nva.org. 2010, 106pp, ISBN 978 1 88355 15 0(pdf), free to download.

Since 1992, the M.S. Swaminathan Research Foundation (MSSRF) has been using both traditional and modern technologies to provide locally-specific information and knowledge to rural communities in India. Through community-owned Village Knowledge Centres (VKCs) and Village Resource Centres (VRCs), the MSSRF provides specially-designed websites, in the local language, that present the information requested by the community. Village volunteers are then trained to use and maintain the computers, as well as gather and input information. By providing a detailed account of how the knowledge centres work and the impact they have had, *Reaching the unreached* tells the stories of the people who work with and benefit from these centres.

Along the Coromandel Coast, VRCs in fishing villages began by providing forecasts of wave heights and current directions in the Bay of Bengal 36 hours in advance, according to one case study. Since then, a mobile application has been developed that provides real-time weather and safety information, locations of fishing areas, and market prices. This 'Fisher Friend' can also connect to the network up to 10km from the shore. In Puducherry, VRCs are also helping increase the incomes of small farmers by providing locally specific information on a vast range of topics including animal health and veterinary services, organic farming, crop insurance schemes, mushroom cultivation, soil testing, fodder management, artificial insemination and quality milk production.

Aimed at encouraging local government authorities across India to set up centres in rural communities, *Reaching the unreached* provides thorough analysis of how information and knowledge can empower the poor and create income generation and livelihood opportunities.

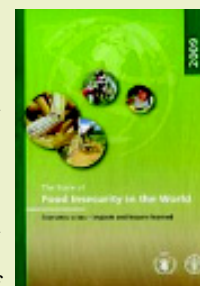
The environmental Food crisis, March 29, 2010, A rapid response assessment report released by the United Nations Environment Programme (UNEP) warns that up to 25% of the world's food production may become lost due to environmental breakdown by 2050 unless action is taken. Prepared by the Rapid Response Assessment Team at UNEP/GRID-Arendal and UNEP-WCMC, the report provides the first summary by the UN of how climate change, water stress, invasive pests and land degradation may impact world food security, food prices and life on the planet and how we may be able to feed the world in a more sustainable manner.



The report concludes that we need to get smart and more creative about recycling food wastes and fish discards into animal feed. While major efforts have gone into increasing efficiency in the traditional energy sector, food energy efficiency has received too little attention. *Dr. Toby Hodgkin, Coordinator of the Platform for Agrobiodiversity Research*, is a contributing author to this 2009 report. Read the full report. To order copies from UNEP, please click here to purchase this title from their online bookstore.

State of Food Insecurity in the World: 2009: Economic Crises - Impacts and Lessons Learned by Food and Agriculture Organization (FAO) ISBN: 9251062889 ISBN-13: 9789251062883; Binding: Paperback Publishing; Date: Jan 2010. Published by Food & Agriculture Organization of the UN (FAO). Number of Pages: 56 Language: English.

"The State of Food Insecurity in the World 2009" presents the latest statistics on global undernourishment and concludes that structural problems of underinvestment have impeded progress towards the World Food Summit goal and the first Millennium Development Goal hunger reduction target. This disappointing state of affairs has been exacerbated by first the food crisis and now the global economic crisis that, together, have increased the number of undernourished people in the world to more than one billion for the first time since 1970. This crisis is different from the crisis developing countries have experienced in the past, because it is affecting the entire world simultaneously and because developing countries today are more integrated into the global economy than in the past. In the context of the enormous financial pressures faced by governments, the twin-track approach remains an effective way to address growing levels of hunger in the world. Investments in the agriculture sector, especially for public goods, will be critical if hunger is to be eradicated.



Towards the celebration of an International Year of Family Farming

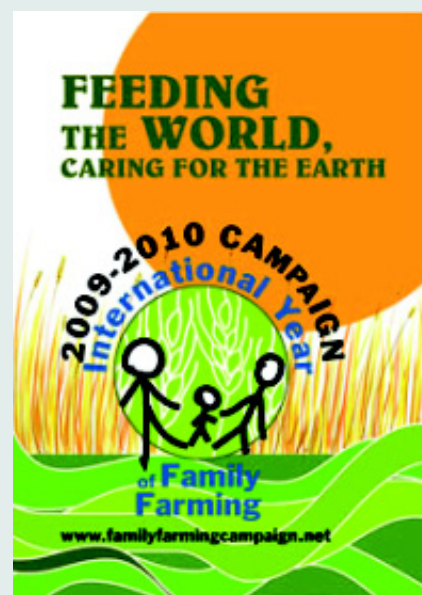
José María Zeberio

The preparations for the Campaign in favour of the declaration by the UN of an International Year of Family Farming began in February, 2008, in Rome (after the celebration of the Farming Forum, promoted by the IFAD) and now counts on the official support of more than 270 farmers and organisations from different continents - Africa, America, Asia and Europe. The celebration of an International Year dedicated to family farming would create a unique opportunity to develop means, which would assure in the medium and long term, a prosperous and sustainable family agriculture development and, as a result, in the rural areas on all the continents, especially, in the developing countries.

The Campaign is coordinated by the World Rural Forum, a worldwide network and a non-profit making entity whose main objective is the promotion of sustainable family agriculture and the rural environment in the context of globalization. WRF is trying to get the greatest number possible of organisations to give their official support to the IYFF Campaign. These organisations participate, according to their possibilities, in the different phases of coordination and execution of the tasks of the Campaign. They are also working to get their governments to enter into this initiative because it is the governments that have to propose it to the United Nations.

For the Organisations that support the campaign, the celebration of an International Year of Family Farming-IYFF would constitute a unique opportunity of developing measures that would assure, in the short and medium term, a prosperous and sustainable development of family farming and, as a result, in the rural environments on all continents and, especially, in the Developing Countries.

The first Asian meeting of the Campaign for the International Year of the Family Farming took place in New Delhi during 23rd-25th March 2010. There were participants, reports and contributions from India, Nepal, Pakistan, Thailand, Malaysia, Indonesia, Cambodia, Vietnam, the Philippines, Taiwan and South Korea. For two days, representatives from various organizations that supports the campaign, have met in Delhi to discuss the initiatives that will be launched in Asia. The participants have decided that Marlene Ramirez of AsiaDHRRA and Mr. Chengal Reddy of CIFA are going to be the representatives of the continent in the World Consultative Committee to support the Campaign.



Apart from getting many valuable insights about the situation of Family Farming in Asia through the different national and regional reports, the participants identified the main tasks to be accomplished at national level in order to push ahead our IYFF Campaign and they made commitments to implement them. Two main areas were underlined: to get government support at every national level, and to further mobilize civil societies into the Campaign.

Two other Continental Meetings in America and Europe will take place before the end of 2010. Once these have ended, the first World Consultative Committee of the IYFF Campaign will be organised with two representatives from each continent. An IYFF Scientific Committee is also set in motion which will be able to get diverse world experts together, women and men capable of laying the basis of all things relevant to Family Agriculture as the principal of food production and the preservation of environment-friendly conditions.

For latest updates on the campaign, visit the website www.familyfarmingcampaign.net

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