



Participatory Technology Development Working Paper 7

**PTD FOR SUSTAINABLE DRYLAND AGRICULTURE
IN SOUTH INDIA:**

BALANCING OUR WAY TO SCALE

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ABSTRACT

Naidu Y.D. and Edith van Walsum (both from AME, India) prepared this paper for the International Workshop on Advancing PTD organised by IIRR and ETC Ecoculture in The Philippines, 17 – 21 September 2001. The paper is about collaborative action between institutions and individuals in South India, seeking to develop people-centred approaches to promote sustainable dryland agriculture and sustainable livelihoods of the rural poor. Participatory Technology Development (PTD) is an important component of this approach. The South Indian context is characterised by a marginal and degrading resource base, high population pressure and a high density of institutions that play a role in promoting sustainable land use. This creates a peculiar context for PTD as an approach: the institutional climate is favourable, but small and marginal farmers have to survive on the edge: their physical and economic margins for experimentation are narrow and decreasing.

AME is an independent support organisation, which has been a prime mover of sustainable and ecologically sound agriculture in South India since the mid 1980s. AME developed an approach to concerted stakeholder action, with PTD as 'entry strategy'. The initial focus is on field-level guidance to farmers and NGO field staff. We then start working 'upwards' by feeding the lessons learnt in PTD processes into the formal information systems of research institutions and the Ministry of Agriculture. We work 'sideways' by facilitating the formation of stakeholder platforms of farmers, NGOs, researchers and Departments of Agriculture; and 'forwards and backwards' by involving banking institutions, input suppliers, and processing and storage experts in these platforms.

A PTD process begins with the identification of entry-point problems, crops and institutions. We start experiments with a few groups, on single crops. Over a period of 3–4 years, the approach broadens and deepens, from single crops to integrated farming systems, and from single groups to farmers' federations. Village-level institutions, mainly Farmers Help Groups, form the main launching pad for PTD experimentation and for scaling up PTD-proven technologies.

Women increasingly manage agriculture in dry-land areas. In 1996 about 30% of farmers involved in PTD processes were women, in 2000 65% were women. But is that the same as gender mainstreaming? *No*. Women still face important constraints when it comes to control over resources and institutional gender bias. On the other hand, once women are involved in PTD processes, their Self-Help Groups and Federations become very powerful instruments for scaling up sustainable and women-friendly technologies.

Comprehensive training support has been given to the organisations implementing PTD with farmers. In principle, AME engages in medium- to long-term associations with organisations, with a time perspective of at least three years. Support is specific to each organisation, depending on background and experience. AME works primarily with NGOs that are active members of larger networks, because this enhances the potential for scaling up. Training addresses social, technical, methodological and process aspects. NGOs are often more concerned with social than with technical issues. Therefore, importance is given to technical knowledge building in the PTD training curriculum.

Results and impact of PTD processes are multi-dimensional. Impact means spread of technologies and approaches, within one farm from one crop to another, from entry point to system level, then from farmer to farmer, from village to village, within and between organisations, and so on. In 1997 we started experimentation involving 270 farmers in two districts, in collaboration with 12 NGOs. By 2001 we were involved in PTD processes with 1900 farmers in 25 districts, with an estimated outreach to another 10,300 extension farmers who are exposed to the technologies tested through PTD and are encouraged to also try them. Eight NGO networks are involved, with in total about 180 member NGOs. An impact study gave insights into the way in which PTD-tested innovations spread. It was found that the spread was

quicker when the crop was more profitable, the technology was simple, and crop-specific risks were low. Social cohesiveness of the group and the village also contributes positively to the extent of spread.

AME's approach to institutionalisation walks on four legs:

1. Building an *integrated area approach* with the focus on strengthening the village-level institutions and their federations, ongoing capacity building of NGO networks, and the strategic functioning of the District-Level Working Committees, which consist of a cross-section of important stakeholders;
2. Establishing and consolidating *Crop-based Working Groups* which operate on the regional and, to some extent, the national level;
3. Strengthening the links with the *state and national policy levels*, through AME's Steering Committee and also through policy advocacy;
4. *Institutionalising AME* itself.

We remain with a few questions. *What are we scaling up?* – The PTD process or the technologies that have been tested and proven in a PTD process? How far can PTD be scaled up without losing its essential characteristics? It would be realistic to aim at scaling up a more standardised, structured approach, which can be *linked to* PTD processes, but which *builds on* rather than institutionalises PTD itself. *How far should we go in scaling up?* When we go into the mode of stakeholder concerted action, lobbying and policy advocacy, we risk losing touch with field-level realities – and exactly being connected with them has been our strength. We need to evolve models of institutionalisation that can be replicated and taken further to scale by others. *Can PTD become part of an alternative route to globalisation?* The dryland farmers in South India are facing crashing farm-gate prices for almost every crop. Are there new niches for dryland farmers? These challenges we have begun to confront by looking, together with the farmers, for alternative cropping and marketing systems.

Acknowledgements

We thank the farmers involved in our programmes for sharing their common sense, their wisdom and their sharp observations, and for making constant reality checks. We thank NGOs for their partnership and commitment and for their zeal to scale up – driving the message home to us that it is a moral obligation. We thank our researcher friends for their willingness to share, for being patient and in a constant learning mode, and all those others with whom we have been collaborating in one way or the other. Thanks go also to our own colleagues in AME who, all in their own way, have been involved in PTD implementation. We found our drivers to be keen observers, seeing often much faster than we which farmer is a serious PTD farmer and who is not.

In AME, there are those who work in the field and those who write. Through working on papers like this one, we learn to work together and to respect and appreciate each other. This paper was prepared by a two-person team – one of us with a deep involvement in and understanding of institutional processes in the field, the other a 'participant observer' with a policy focus. We thank IIRR and ETC Ecoculture for giving us this challenging opportunity to sit down together and write – and for the patience with which they have been waiting for this paper!

1 INTRODUCTION

This paper is about collaborative action between institutions and individuals. It is about the development of people-centred approaches to promote sustainable dryland agriculture and sustainable livelihoods of the rural poor. We (Naidi Y.D. and Edith van Walsum, both from AME, India) discuss and review joint programmes of AME, a support organisation, and partner organisations (NGOs, NGO networks, Departments of Agriculture, research institutions) implemented in the States of Andhra Pradesh, Tamil Nadu and Karnataka in South India. We describe the role that PTD and complementary approaches have played in these programmes and the extent to which PTD processes and/or their outcomes have been scaled up and institutionalised over the past five years (1996-2001). During this period, concerted efforts were made to develop and strengthen PTD as an integral part of our approach. AME, however, has been a support programme in South India since 1986 and has been one of the pioneers in the field of promoting low-external-input and sustainable agriculture (LEISA). This history has helped AME to acquire the leverage required to be an effective intermediary organisation in this field.

We will address the process approach followed in training, field-level experimentation and stakeholder concerted action. We raise a number of strategic issues which we have come across in our work, but which – in our view – have a larger significance. In the final section, we synthesise our learning points regarding key components of institutionalisation.

This is an *overview paper*. It aims to give an overall picture of AME's approach. As we are working in 25 districts in three states, within the rather vast mandate area of the Deccan Plateau, it is impossible to give all details. We could have chosen to present one case (which would have made life easier for us and perhaps for the reader), but we refrained from that temptation. As we are discussing scaling up and institutionalisation processes, we felt we should make an effort to show the whole, with glimpses (presented in boxes) into specific areas and processes. The 'price' we pay for presenting a broad overview is that we have to leave out many interesting details.

2 THE CONTEXT

2.1 “This fissured land”

India occupies 2% of the earth’s surface but must feed 18% of the world’s human population.

Indians are confined to a land suffering from many kinds of resource depletion. Existing levels of disruption of energy and material cycles, which ultimately must be closed, cannot be sustained indefinitely. They are leading to a continuous depression of the productive potential of cultivated and non-cultivated land. The situation has been [temporarily] saved from serious disaster by the Green Revolution. However this has been restricted to only 20% of the land under cultivation. Serious disparities remain. There has been a significant expansion in the niche space for intensive agriculture as well as for resource processing and transport, information processing and resource usurpation. However this has been seriously offset by continuing contraction of niche space for subsistence [dryland] agriculture and for those depending on foraging for resources. These difficulties have been compounded by an over-all growth in numbers of people. The consequence has been a scrambling for resources and intense conflict, in the countryside and in the cities where people who have been driven out from elsewhere are flocking. [...] No longer functional entities in the present scenario of shrinking niche space, castes and communities are set up against each-other, with frighteningly high levels of communal and caste violence being the result. In India the ongoing struggle between the peasant and industrial modes of resource use has left in its wake a fissured land, ecologically and socially fragmented beyond belief and, to some observers, beyond repair. *Where do we go from here?*¹ (Gadgil & Guha 1993)

AME’s area of operation – the Deccan Plateau – is a chronically drought-prone region where overexploitation of the natural resource base is pervasive. The Deccan Plateau lies in the rain-shadow of the Western Ghats in Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu States. Annual rainfall ranges from 500 to 900 mm. Rainfed farming is practised in 81% of this region, which was largely bypassed by the Green Revolution. New technologies have helped better-endowed pockets but this is offset by declining productivity in vast marginal areas (Jodha 1996). The area has a population of about 200 million people, and the livelihoods of more than half of them are (still) partly or totally dependent on dryland farming.

During the past 50 years, there has been a steady decrease in soil fertility in this region, water tables have fallen rapidly especially during the past 20 years and draught power has almost disappeared. There are increasing energy shortages, increasing stretches of fallow land and increased mechanisation, which has reduced opportunities for agricultural wage labour. An under-acknowledged but pervasive phenomenon is the increasing number of marginalised female-managed farm households as a consequence of (predominantly) male migration. Last but not least, traditional institutions, including the indigenous knowledge that forms part of them, are eroding quickly. Most recently, farmers in several areas are facing serious problems with crashing prices of agricultural products. This is partly attributable to the opening up of markets as a result of globalisation policies.

2.2 Going to scale in the Indian context

First, we bring a few observations on the *meaning of scaling up* in the Indian context. The scale itself should be understood: the sheer size of the Indian subcontinent, the magnitude of its population, the pressing environmental issues, the complex institutional scenario with a Federal Government with layers and layers of bureaucracy and a comprehensive agricultural research set-up with over 200 agricultural research institutions and some 60 agricultural universities. The NGO sector is quite small compared to the government sector. Yet there are an estimated

¹ Italics and remarks between square brackets are ours.

60,000 NGOs in India and together they form a complex, colourful and diverse whole. And then the farmers: who are the Indian farmers? There are more than half a billion small-scale and marginal farmers and about a quarter of them are on the Deccan Plateau. They live under very diverse conditions, speak many different languages, raise different crops and animals, and yet they are all subjected to the same government policies, extension messages and marketing regimes. Obviously, their needs are diverse and call for open-minded and flexible support systems that, unfortunately, do not exist at present.

However, there are encouraging developments that need to be acknowledged – within the Government, in research institutions and in civil society. These give hope that there is scope for effective people- and ecology-oriented approaches to agricultural development. There is also a huge potential for scaling up innovative approaches. Participatory and people-centred approaches have been well established in India over the past 10–15 years. PRA has been institutionalised as a participatory planning tool. People’s organisations (mostly initiated by NGOs), notably women’s Self-Help Groups (SHGs), have mushroomed. SHGs and other village-level institutions have started organising themselves into large federations.

Within this context, the challenge for AME and its partners has been to get PTD rooted and institutionalised. The institutional environment and the available human resource potential, especially in the form of village-level institutions, are conducive. On the other hand, the overall ecological context is all but rosy. The economic context is one of globalisation taking shape, with prices for agricultural products going down, farmers getting more and more indebted and reports of farmers suicides ‘not being able to bear the debt burden’ in the newspapers every day. Within this larger geopolitical scenario, the niche spaces for the rural poor are ever decreasing.

Figure 1: Map of Deccan Plateau with AME's areas of operation



South India



Are the emerging opportunities for alternative and people-centred approaches giving enough space for an alternative growth path, a viable alternative to a globalisation that is totally dictated by market forces? And are we, the 'change agents', ready to face the challenges, to use the space that is emerging?

2.3 AME: an independent support and linkage organisation

This paper is written from the perspective of AME, an organisation that was one of the prime movers in South India promoting sustainable and ecologically sound agriculture. It started in 1986 as a training programme and gradually broadened its approach, becoming a full-fledged resource organisation that plays an increasingly important role in initiating and advancing PTD and in forging collaboration between stakeholders in sustainable agriculture.

AME has the *long-term objective* of promoting sustainable land use through concerted stakeholder action. AME's *practical aims* are to assist NGOs in strengthening their capacities to implement sustainable agriculture programmes and to facilitate collaborative action between NGOs, research institutions and the Government of India's Departments of Agriculture (DoA). AME's approach leans on a mix of participatory methodologies such as PTD, Participatory Rural Appraisal (PRA), Farmer Field Schools (FFS) in Integrated Pest Management (IPM) and Rapid Assessment of Agricultural Knowledge Systems (RAAKS).²

AME neither implements PTD processes on its own, nor is it in the position to instruct others to do PTD. We are *in between*. AME does not form part of any other larger institution but occupies its own unique niche. We work 'downwards' by giving guidance and field-level facilitation to farmers and NGO field staff. We work 'upwards' by feeding the lessons learnt in PTD processes into the formal information systems of research institutions and the Ministry of Agriculture. We work 'sideways' by facilitating exchange between farmers, NGOs, researchers and DoAs in the three regions where we operate. We work 'forwards' and 'backwards' by involving banking institutions, input suppliers, and processing and storage experts in the strategic deliberations in the context of the PTD processes.

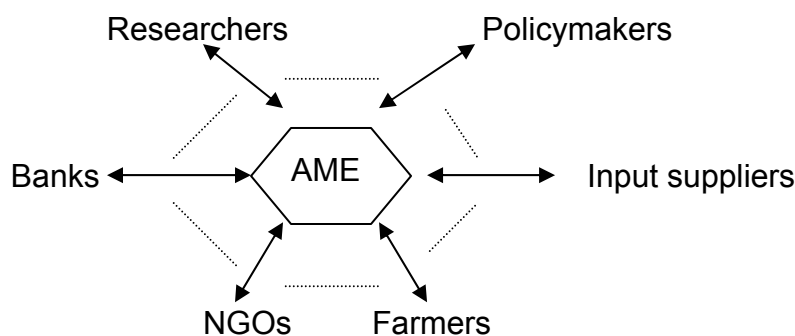


Figure 2: AME as a linkage agent

Since 1996, AME has been given the explicit mandate by its donor, the Netherlands Government, to be a catalysing agency, with the aim to *enhance the linkages between the biomass actors on the Deccan Plateau of South India*. It was made a bilateral project in 1997

² AME has evolved an approach to field-level training and farmer experimentation that combines elements of the Farmer Field School approach, developed by the FAO in the context of IPM, and PTD.

and has since been formally implemented under the auspices of the Ministry of Agriculture, which endorsed the mandate given to AME. In practice, it has been operating in a way very different from most bilateral projects, in the sense that it has acquired many characteristics of an independent NGO.

After having been given the mandate to be a linkage institution, a key question for AME has been: how do we give practical meaning to it? We may be formally mandated, but do our partner institutions and other stakeholders acknowledge this role? In this paper, we discuss what went into the process of 'grounding' AME as a linkage institution in the Indian institutional landscape and how this grounding has been essential for the very institutionalisation of our approach. The outcome of five years of intensive collaboration has been that AME has been entrusted by stakeholders in sustainable agriculture with the mandate of a linkage institution.

A natural development, in institutional terms, has been that AME is now shedding off its project status and becoming formally an Indian organisation. We see this as an essential step in the process of institutionalising PTD.

3 MAIN ACTORS AND THEIR MOTIVATION FOR PTD

In this section, we explore the institutional landscape within which PTD as an approach has taken shape, looking at NGOs, research institutions and DoAs. Other categories of actors, such as the banks and input suppliers are – for reasons of space – discussed only briefly here, but we wish to acknowledge their actual and potential role. We end this section with a most crucial and challenging part of the institutional landscape: the village-level institutions. We also discuss some agro-ecological and socio-economic characteristics of the farming ‘community’, which will explain that it is indeed impossible to talk about a single community. This has important implications for our approach to PTD.

3.1 NGOs

South India has a high density of NGOs. The number of registered NGOs in the Deccan Plateau region is estimated at 10,000. During the past ten years, many NGOs that were earlier involved in social action and/or community development have taken up the challenge of land-based programmes. They saw this as a logical next step in supporting the rural poor in their struggle for survival and sustenance. Some of them saw also opportunities here because the Government made large sums available for NGOs to take up watershed programmes. So far, in most cases, the focus has been on people’s mobilisation and organisation for participatory watershed management and on the formation of SHGs (most of them women’s groups), which are primarily concerned with savings and credit management. A smaller number of NGOs became interested in taking these processes a step further and started using the existing social infrastructure in the communities, water-users associations and women’s SHGs, as a basis for agriculture-related initiatives.

It was here that AME as a support organisation came in. NGOs had realised the need to assist farmers in addressing their problems in agriculture, but were looking for professional support, as the majority of them lacked agricultural expertise. Most were familiar with PRA as a tool, but that in itself was not a sufficient methodological basis to develop a participatory approach to developing dryland agriculture.

3.2 Research institutions

Policymakers and the prevailing system of research and development of agricultural technologies have, so far, paid far less attention to dryland agriculture than to irrigated agriculture in high-potential areas. Moreover, approaches followed often do not address the problems in an adequate manner.

R and D approaches, methods and designs have largely copied the experience of research strategies in well-watered or irrigated areas. This is reflected through focus on limited crops and their selected attributes (e.g. grain yield) rather than emphasising integrated mixed farming systems. Consequently, Rain-fed Farming Research could neither properly identify and fully harness the niche of these areas, nor could it understand and incorporate the rationale of traditional farming systems in these generally fragile, diverse, high-risk, low-productivity environments (Jodha 1996).

International research centres

Research institutions are gradually becoming more open to participatory approaches to technology development in dryland agriculture. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), one of the centres of the CGIAR (Consultative Group on International Agricultural Research), has made a shift since the early 1990s. It evolved collaboration with NGOs, began to accept PRA as a valid participatory research methodology

and included participatory elements in its breeding programmes. A push factor has been the fact that, in recent years, research funding has declined. Innovative researchers entered into cost-effective collaborative arrangements with NGOs, to which they outsourced part of their research work. A concrete example is the case of ICRISAT's collaboration with Myrada (a large NGO in South India) and AME in the development of a leaf-wetness counter, a tool for forecasting outbreak of a fungal disease that affects groundnut.³

National and regional research institutions

The national and regional research institutions picked up this trend somewhat later. Though exposure to the new approaches evolved by trend-setting institutions like ICRISAT, they realised that participatory research has a larger significance.

Passionate researchers

In the process of sensitising the institutions, the *role of individual enlightened researchers* cannot be underestimated. During the past years, AME has built up very encouraging experience with individual researchers who became involved, during their weekends, in PTD processes with AME, NGOs and farmer groups. We have seen these researchers going through radical shifts in their thinking about agriculture. They started publishing their experiences in the *LEISA Newsletter* of the Netherlands-based Centre for Information on Low-External Input and Sustainable Agriculture (ILEIA), but also in local daily newspapers and scientific journals. What started for them as a hobby became a passion. In some cases, this led to formal recognition of their PTD work by their institution. But there was also the case of the researcher who shared the learning from a PTD process with the local press and received a letter from his Head of Department who threatened him with disciplinary action if he would continue to deviate from his formal research mandate.

The latest development in this process of building researchers' awareness and empowering them is the formation of an 'AME consultants group'. Individual consultants realised the need for a professional informal forum for sharing their experiences. This group is yet in its formative stage; it consists of all twenty-odd consultants working with AME. Most but not all of them are researchers. There is also an ex-pesticides dealer, a farmer, a head of a women's NGO, two retired government officials and a commercial tax officer! They have agreed to meet on a monthly basis to discuss technical, social and strategic issues in relation to their passion – promoting sustainable agriculture.

3.3 Government departments

During recent years, two of the Government of India (GoI) Ministries – Agriculture and Rural Development – have started giving more importance to dryland areas. Whereas the focus in earlier years was on technical land-restoration interventions, often through food-for-work programmes, the approach has become more comprehensive and people-oriented. The magnitude of environmental degradation is becoming clear, and it is also realised that dryland regions do have an inherent productive potential. Most remarkable is the increased attention by the GoI to watershed management. Innovative policy guidelines were prepared which spelled out an active role for NGOs and other potential actors. PRA became a widely accepted tool for initiating participatory watershed management programmes.

³ An account of this process is given in Kolli *et al* (1998); a summary of the paper can be found in IIRR (1999).

Box 1: The Government's Perspective Plan on Watershed Management

In its 4th Five-Year Plan, the GoI presented a 25-year Perspective Plan on Watershed Management. The total area to be covered is 65 million hectares and the overall investment will be equivalent to about 19 billion Euros. A common approach has been designed, key features of which are participatory approach, implementation through village-level institutions and an envisaged high extent of linkages with *panchayats* (local councils), credit institutions, research institutions, NGOs and the private sector. GoI recognises that extensive training and capacity building of various stakeholders would be needed but that, as of now, the capacity to guide such processes is inadequate. According to Rita Sharma, Joint Director of Agriculture (and Chair of AME's Steering Committee): "Capacity building of all actors in the drama must move simultaneously if the watershed development is to be effectively conducted. Indeed, watershed development in rain-fed areas must become a true people's movement for sustainable food production and livelihood support to rural community" (pers. comm. 2001).

Within this context, enormous opportunities are emerging for organisations like AME to promote sustainable dryland farming through a participatory approach. Development of suitable technologies which redress the degraded ecosystem and which are economically feasible for small-scale and marginal dryland farmers will, in most situations, be a gradual process of small steps, as the margins are narrow. Not only the technologies must be developed but also the necessary forward and backward linkages, such as supply systems for eco-friendly inputs, credit facilities for these, market niches and adequate forms of social organisation to enable farmers to use the technologies effectively. PTD can play a catalytic role. Being participatory, location-specific and oriented to systems rather than crops, it is an approach that addresses the gap left by formal research. Moreover, it is concerned not only with developing technologies but also with strengthening the capacities of people – men and women farmers – to analyse ongoing processes and develop useful innovations.

3.4 Banks

Over the past ten years, the rural banking system has opened up to collective initiatives of small-scale and marginal farmers, mainly through their positive experience with women's SHGs, which have proven to be very creditworthy. Individual bank managers, who noticed that the LEISA package of practices developed through PTD processes by farmer groups was economically viable, started adjusting their lending policies. These had earlier been completely based on standard packages with high dependence on chemical inputs and aimed at maximising yield rather than net profit.

These are, however, individual cases rather than being an institutionalised response, which is yet to come but it could be facilitated in several ways. AME has been using the following strategies of sensitising the rural banks: all our District Working Committees have a representative of NABARD (National Bank for Agriculture and Rural Development); we invite bank representatives to field days where farmers show the results of PTD processes; and occasionally AME is invited to give training to bank managers on sustainable agriculture.

Training of bank managers should be taken up pro-actively, if we are serious about bringing about a change in the mind-sets of banking institutions.

3.5 Input suppliers

Commercial suppliers of eco-friendly inputs such as bio-fertilisers see a natural ally in AME. From its side, AME encourages farmers to try out inputs produced by different suppliers and assess for themselves what works best. In some cases, NGOs have started taking up production of biological inputs themselves, with the aim to make them more accessible to farmers and to see whether this could earn income for their own organisation or for farmer groups. A 'second-generation' type of PTD experiments has emerged in which NGO staff members, together with enterprising farmers, have started experimenting with the production of bio-control agents and with alternative small-scale production processes of bio-fertilisers (in thermos flasks). These experiments have been initiated mainly by interested NGO staff and AME consultants but, in due course, they would have to be taken up by enterprising farmers in the rural communities.

3.6 Local actors: small-scale and marginal farmers and their institutions

Village-level institutions

The institutionalisation of any development intervention starts with some form of community organisation. However, small-scale and marginal farmers are not a coherent interest group that easily organises itself (unlike, for instance, fishing communities, which have organised themselves as a sector to defend their interests at high political levels). There are, of course, indigenous institutions such as traditional tank-management committees, or the remnants of these, and the decentralised political system with village-level *panchayats*. Whereas the former institutions are sometimes but not always suitable vehicles for taking up new initiatives to develop agriculture, the latter are often highly politicised.

A 'new' form of community organisation has taken shape during the past 15 years, mainly through the initiatives of NGOs. Village-level Self Help Groups were formed, first consisting primarily of men, but gradually the majority of SHGs became all female. The main reasons for this feminisation of SHGs are:

1. the fact that women, compared to men, were more serious about savings and credit, which was often the entry-point activity for these groups; and
2. in the dryland context, women play an increasingly central role as farm and household managers, because there is a significant migration, especially of men.

In addition to SHGs, other forms of village-level institutions were established, such as watershed management committees and other groups of natural resource users. These institutions, in contrast to the SHGs, still tend to be male-dominated. A development of the past five years is the formation of SHG Federations: the SHGs organise themselves into larger structures consisting of often several thousand women or men farmers. Working with and through NGOs, AME has always worked with the existing village-level institutions. As we shall see later, these groups are important entry points for PTD in the community and sometimes have become effective mechanisms for scaling up.

Differences between farmers

The farming community cannot be easily defined without making some gross generalisations. There are important differences between and within regions. Even within villages, there are the usual differences between caste groups and socio-economic categories, which partly overlap with differences in agro-ecological characteristics of farms. Last but not least, there are important differences between male and female members of one family, when we compare the relative access to and control over (natural) resources. There are also important differences between male and female mobility, which to some extent explain the trend of feminisation of dryland agriculture. All these differences play a role in the process of forming, developing and sustaining village-level institutions.

Box 2: Farm households in different parts of a watershed

In the *upper reaches* of the watershed, soil has eroded away and the water-holding capacity of the remaining soil has decreased because both organic matter and the better part of the topsoil have gradually disappeared. Drought stress is experienced with increasing severity and frequency, leading to very low yields that not even enough to cover the cost of seeds planted. One often finds lower-caste people or *Dalits*⁴ in these areas. There is a pronounced tendency of migration.

In the *lower reaches*, farmers rely on wage labour for agriculture, which is becoming a costly proposition because opportunities for rural industrial employment are on the rise and affect the wages demanded by agricultural labourers. Farmers' profits decline because farm-gate prices of agricultural products do not rise at the same rate as labour costs. Profits become thinner as chemical pest control requires more money than ever before. Furthermore, newer and more expensive chemicals have to be used since pests display increased resistance to the ones already in use. Farmers in this area traditionally belong to the landed castes. In these families, women's role in agriculture is mostly limited to supervising labourers. A relatively recent tendency among this category is to move to urban areas in search of better education etc for the children and to lease out the land.

The farmers in the *transition area or middle reaches* have more land of better quality than the farmers in the higher parts of the watersheds and rely less on external labour than the farmers in the valley bottom. Hence they have better yields and lower production costs, and can make profits. In this area are small-scale farming families with everyone involved in the farm work.

AME works, as a strategy, with all categories of farmers. All of them are stakeholders in the context of the watershed where their farm is situated. Interventions made at one level have consequences somewhere else, physically and/or socially. However, the farmers in the middle reaches are the ones with more potential and interest to take up experiments. They concentrate more on farming and most of them own enough land (at least 2-3 acres) to allow for some experimentation.

Therefore, from AME's strategic point of view, this is an important category of farmers. On the other hand, the partner NGOs do not always work with these farmers, e.g. in the case of organisations who have made the ideological choice of working only with *Dalits*. In many situations, the most marginal land in the upper reaches of the watershed is given to *Dalits*.

How do we balance between considerations such as potential to take up experiments and making farms sustainable, and social considerations – working with the most marginalised – which are the primary driving forces for many NGOs?

⁴ *Dalits* are the lowest social category, traditionally considered outcasts.

4 SOURCES OF INSPIRATION FOR PTD

Several actors and factors triggered the initial interest in taking up experiments on a small scale, and then later there were (f)actors that created a conducive climate for taking these further. We look first at the initial “pieces of coal which lit the fire”.

4.1 Connected farmers

Farmers’ interest in PTD must be understood in the context of degrading resources, decreased risk-taking capacity, declining yields and neglect on the part of several institutions supposed to cater to the needs of these farmers. Many small-scale and marginal dryland farmers feel they have few options left in both socio-economic and agricultural terms. Their dependency on moneylenders is high, not just for money, also for agricultural advice and inputs although less so in the areas where SHGs have come in a big way. They all depend partly or totally on agriculture for their livelihoods and are interdependent in many respects. They are largely or totally dependent on unpredictable rainfall, face a declining resource base for which there is a stiff competition (notably for water) and have limited capacity to take risks. Depending on their resource base (all have little, but some have more than others), family (labour) situation and ultimately on their own *mind-set*, farmers have an interest or have lost interest in finding solutions for the difficult situation they are in. *It is this interest, and a deeper motivation for farming that lies behind it, that forms the basis for PTD experimentation processes.*

“Land is the farmers’ research station, it is giving food, it is their place of worship. Land is the Mother. We depend on the land and therefore must respect her. This respect is the basis for meaningful experiments. If there is respect, farmers learn many things. If the respect is not there, but only the desire to see immediate results, there won’t be any learning.” - An AME team member –

Not all farmers have this motivation. Because of the complex pressures on them and pulls away from agriculture, many small-scale and marginal farmers have lost their motivation to innovate and improve agriculture. Nevertheless, in each PTD process, we have been able to find some farmers who do have this ‘fire’ in them. It is perhaps one farmer out on ten or twenty who has this deeper motivation and can serve as a source of inspiration to many others. We have seen that a deep respect for and connectedness with nature is a key condition for being a motivated PTD farmer. That is why we call them “*connected farmers*”. Through PTD processes, this respect can – to some extent – be re-gained. However, the issue remains that this can only be done around an existing core of inspiration, which can be one or two farmers.

In a PTD process, it is extremely important to create a learning environment in which farmers are encouraged to re-connect with nature. This can be done by giving much importance to observing agro-ecosystems and natural processes. This requires facilitators who are sensitive, knowledgeable and connected themselves!

When AME and its partner NGOs initiated discussions with farmers about their problems in agriculture and possible solutions, they quickly became interested: “Finally somebody who shows an interest, who comes to visit our farms!” Women farmers were even more excited than their male colleagues because of higher levels of deprivation – less access to external knowledge and resources than men. At the same time, they were experts in their own right when it comes to local knowledge, but they also realised that this did not provide them with a real way out of the situation they were trapped in. The village-level institutions, which were taken as entry points for the initial discussions on PTD, acted as catalysts in this motivation

process. As we were working with already existing groups, it was the social interaction in the group that ensured that once one or two men or women were interested in taking up experiments, others also joined.

It is important to identify a critical mass of farmers who have not lost interest in farming and who belong to an existing village-level institution. In such an initial group, there should be one or two farmers who are the driving forces behind the joint innovation process.

From the beginning, it was clear that there was little scope for “open-ended” experimentation. Farmers were not prepared to lose precious time (which has a definite shadow price: going to work as a labourer, they have a comparatively secure daily wage ranging from 30 to 100 rupees or ca. 0.70 to 2.30 Euros). On the other hand, just about everyone who has not yet given up farming is interested in trying out alternatives, hoping to get something better than the meagre yields they were used to.

What critical support should be given to farmers who have a very low capacity to take risks and are deprived of credit facilities and government subsidies, to enable them to go into experimentation?

4.2 AME and NGOs coming together

In its early years, AME had mainly concentrated on training NGOs and some articulate farmers in the principles of ecological agriculture. This training had a significant impact in terms of increased eco-awareness within the NGO sector and some enlightened farmers and researchers. It actively contributed to an emerging sustainable agriculture movement. However, after eight years of working on these issues, it became clear that a greater respect for nature does not automatically lead to practical alternatives. Ecological awareness has to be complemented with a practical approach to encourage farmers to try out eco-friendly alternatives in a participatory and systematic way.

Around the mid-1990s, there were several NGOs ready to take up PTD. Their sources of inspiration varied. Some were clearly seeking practical approaches to developing eco-friendly alternatives and were primarily driven by environmental motives. Others had much more a social activist background; after years of supporting the marginalised in their struggle for land, the issue became: how to make this marginal land productive?

4.3 Evolving an approach

In 1994 AME started a collaborative pilot project in two villages in partnership with one NGO. We evolved an approach, learned from it and adjusted it. Based on two years of learning, we started comprehensive area programmes in three districts in 1996. In each of these areas, PTD was taken up as an approach from the beginning. We chose to work through fairly simple entry-point activities and crops, with a limited number of farmers and organisations. We opted to work with organisations having different ideologies, thereby aiming to break barriers and encourage cross-institutional learning. The intention was to work primarily on technologies that were – weather permitting – almost sure to give the farmers an increase in their net profits and, if possible, their yields. In this way, they would gain confidence to try more. Once positive results were booked with these farmers, we built further on these results. From a fairly early stage, we began linking up the PTD processes to research institutions and the DoA. After about three years, we saw that NGOs and farmers had gained sufficient confidence to take PTD processes

further. They started doing PTD work in other villages, and NGO networks took the activities to other districts. Technologies began to spread autonomously.

Box 3: Qualitative and quantitative scaling up: two interconnected processes

Qualitative scaling up: Involving researchers and policymakers in discussions about PTD, mainly through fora such as the Groundnut Working Group, the AME Steering Committee and District Working Committees.

Quantitative scaling up: Ensuring that larger numbers of farmers become involved, mainly through conducting training of trainers (ToT) for NGO networks.

These processes together laid the basis for a further autonomous spread of technologies.

Figure 3 visualises the process dimension of AME’s approach. Annex 1 gives a schematic overview of the different stages in the development of the approach, from PTD with single entry-point crops to comprehensive stakeholder concerted action. It is difficult to present schematically what is basically a process approach, as there are many iterative elements and processes within processes, but the table shows how the approach evolved over time.

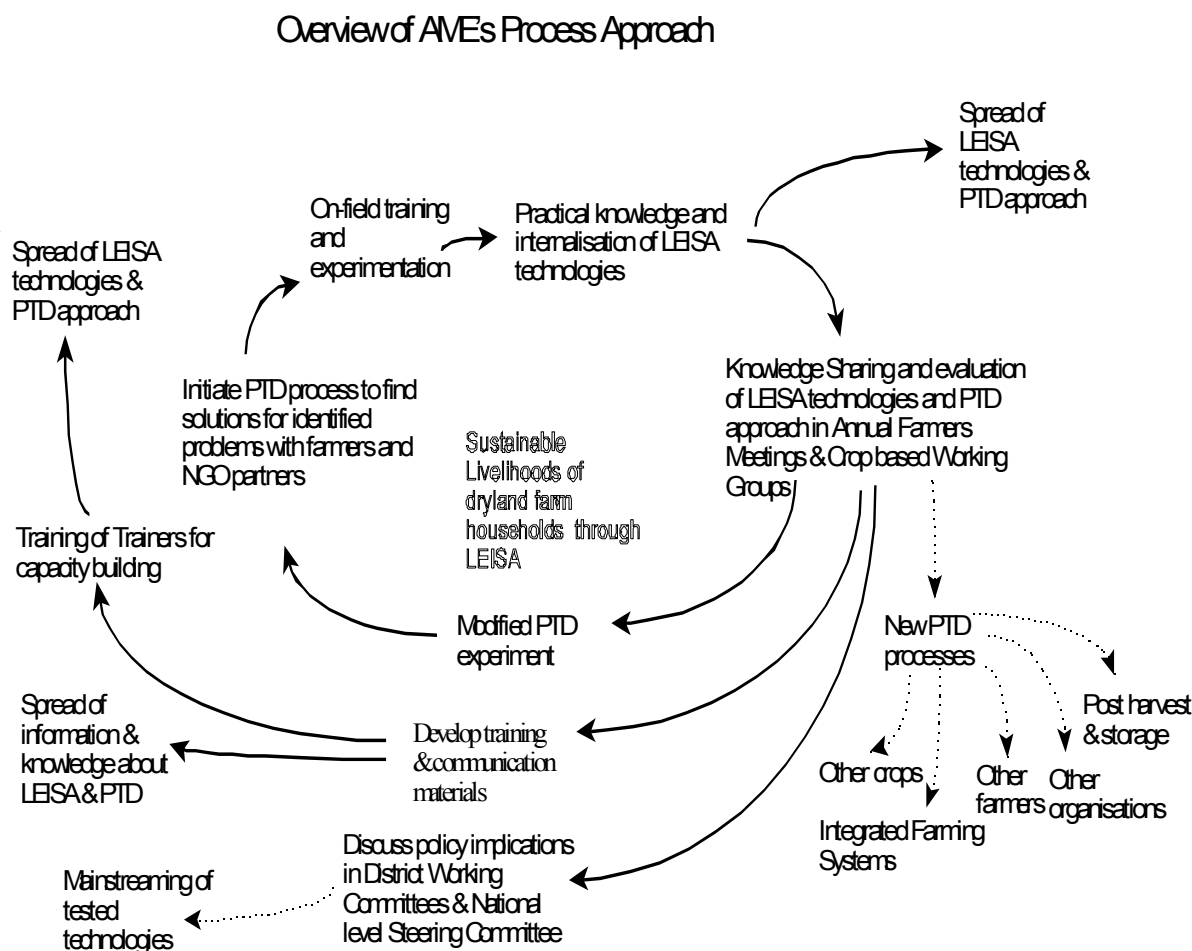


Figure 3: AME’s process approach – Krishi Expo

5 PTD: A CENTRAL PILLAR IN AME'S APPROACH

AME's approach goes 'beyond PTD', but PTD is a critical pillar, the catalytic activity in a change process that brings actors together. We briefly explain how we begin our work in an area with a problem assessment and institutional scanning. We then discuss training: in-house training of our own team, field level training as an input into the PTD process, and strategic training and ToTs. Then we explain how PTD processes are implemented and discuss the gradually shifting roles in these processes. We end this section with some remarks about monitoring and documentation.

All these activities are very much interconnected and, to some extent, cyclical: teams have to be trained to do a good problem assessment; the problem assessment gives initial ideas about training requirements; training again is an input into field experiments, which provide inputs for ToT. Annex 1 and the figures on AME's process approach in this and the previous section visualise these interlocking processes of training, field-level experimentation and concerted stakeholder action.

5.1 Problem identification and institutional scanning

Initial assessment of problems in agriculture and their connection with other livelihood issues is done through a combination of PRA and RAAKS methods. PRA lends itself well to problem assessment at the village level. An initial scanning of key actors in relation to these problems is done with the help of RAAKS, which aims at mapping agricultural knowledge systems and their interconnections, the key institutional actors and their perceptions of problems in agriculture. Important in the mapping process is to find out what binds and what separates the actors, and then try to identify what could be a strategy to overcome these blocks in communication and collaboration. The insights gained through RAAKS exercises thus give an initial direction for a strategy for collaborative action.

Box 4: With the help of PRA and RAAKS methods we identify:

- Which agricultural problems are we going to address?
- Who are the key actors in relation to these problems?
- What are their perceptions of the problems and their possible solutions?
- Which actors should be brought on board in a concerted stakeholder process, and when?
- How can we bring them on board?
- What are possible areas for collaboration?
- Would PTD be one of these; if so, who should be involved and how?

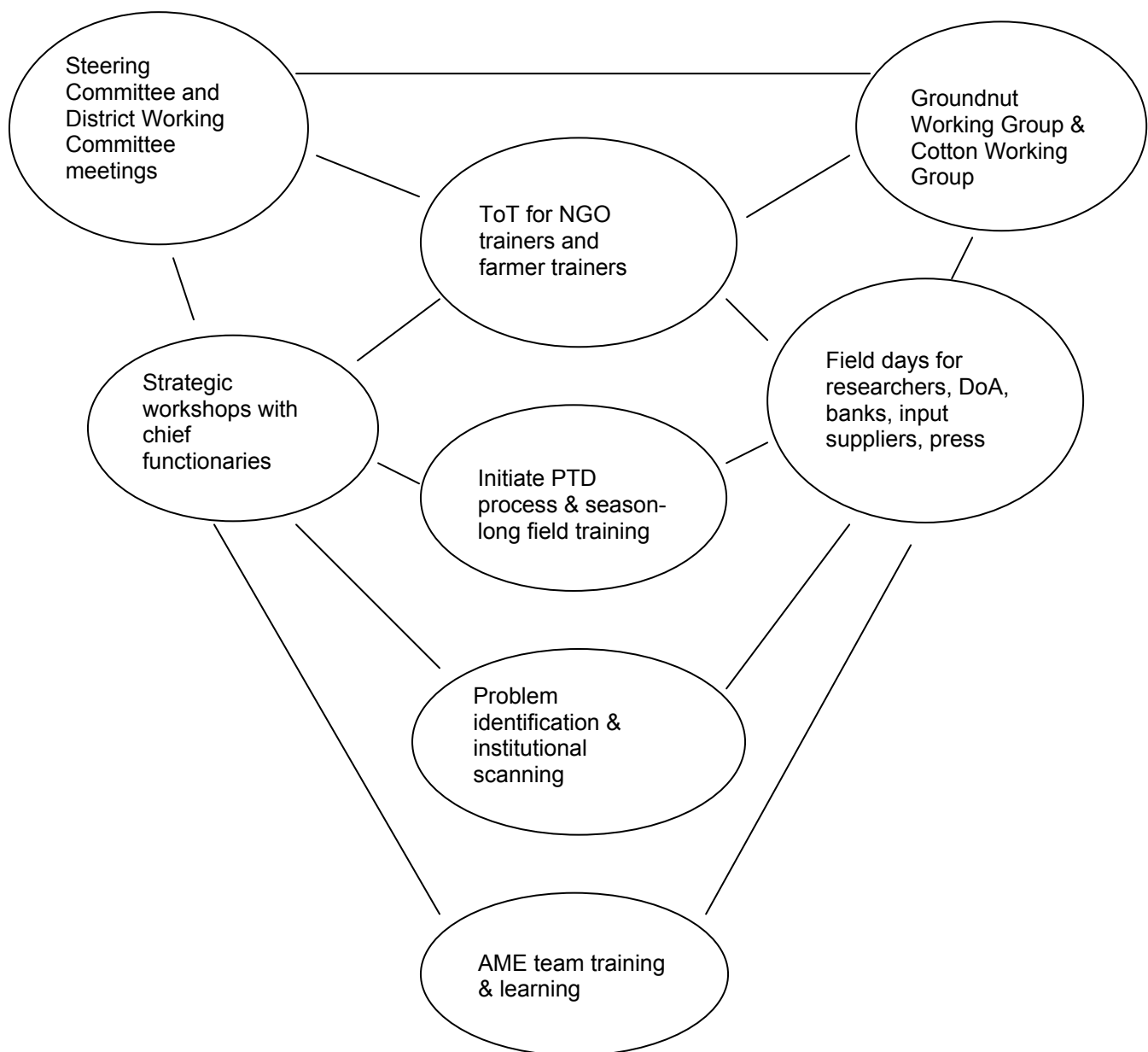


Figure 4: From PTD to stakeholder concerted action – training and learning cycles

5.2 Training

Training is a very essential part of our work. AME’s training approach has various components. We distinguish a first and a second phase in the comprehensive training process of NGOs – each covering a period of about three years. This sounds like a time-consuming process – it is! But it should be borne in mind that this is a training trajectory beyond PTD: the NGOs engaging in this process with AME are trained to handle PTD processes independently. Beyond that, we engage in strategic discussions on scaling up, resource mobilisation for scaling up and other issues that are part of the scaling-up process. Our training journey starts, however, with comprehensive training for our own team.

Training of the AME team

Our PTD work started with intensive internal training for our own team. There were no ready-made PTD specialists on the Indian job market, so they had to be trained on the job. Basically, this has been a process of joint learning by all, rather than PTD experts training others to become experts. PTD experiences and resource materials developed elsewhere served as a source of inspiration but, for the practical design and implementation of PTD processes, we had to rely on our own creativity and experience.

In an ongoing in-house/on-field training programme, we trained ourselves (helped by external resource persons and resource materials) in participatory training approaches, PTD, LEISA, IPM, Integrated Nutrient Management, Gender and Sustainable Agriculture, Social Organisation, RAAKS and institutional change. Parallel to this, a team building and organisational development process was initiated. The underlying idea was that all of us had some relevant knowledge and experience which, if put together, would help us in developing an approach to PTD that would be suitable for the South Indian context.

Training for NGOs and farmers: some important characteristics

In principle, AME engages in medium- to long-term associations with organisations, with a time perspective of at least three years. Therefore, a careful selection of organisations is important⁵. After the selection has been made, AME and the partner NGO enter into a contract where both partners are free to terminate the relationship if the other does not stick to its commitments.

Box 5: Commitments between NGOs and AME

- AME commits itself to a comprehensive training/support role, whereby the focus can be on technical, social and/or overall process – depending on the needs of the organisation. Smaller organisations often require more comprehensive support, whereas large professional NGOs have a focused need for technical support and, to a limited extent, process support.
- AME provides limited financial support for a certain period (mostly three years) to enable the NGO to establish the PTD process and to enable farmers to try out technologies. The financial support is intended as seed money; it is not full-fledged funding.
- The NGO makes staff available for implementing PTD activities with farmers. The staff members are trained as trainers and, in due course, take over guidance and support of the PTD process.
- The NGO makes sure that, after three years, alternative funding arrangements have been made, if needed, to implement PTD processes and to scale up.
- The NGO commits itself to spreading the PTD approach to other villages and to networking with other NGOs.

The support given to each organisation is specific, depending on background and experience – a different starting point and mix of social and technical development and a varying degree of complexity. AME prefers to work with NGOs that are active members of larger networks, because this enhances the potential for scaling up. We aim at building up network teams that can handle the training needs of member organisations in the long term. This will ensure sustained capacity building and a lateral spread of efforts within the district.

Training is participative and experiential: the experience of the participants is the starting point for both practical and theoretical learning. The training addresses social, technical, method and process aspects. These are all interconnected.

⁵ Some of the criteria used are: institutional strength and leadership within the organisation, commitment to sustainable agriculture and participatory approaches, perspective on social and gender issues, potential for learning, no involvement with party politics, secular outlook.

The NGOs are often more concerned with social than with technical issues. However, without an adequate understanding of the technical aspects of dryland agriculture, it would be difficult to go into meaningful PTD processes. Technical knowledge is therefore brought into the PTD curriculum for the NGOs. Many of our partner organisations, especially the larger NGOs, appreciate in particular this technical input, as it is not accessible to them through any other source. The problem for AME is finding agronomists with a process sensitivity and systems perspective.

First phase of training for NGOs and farmers (1997–99)

Initially, the emphasis is on conducting training in the field around the PTD processes that have been initiated. From the second year onwards, we start training-of-trainers (ToT) programmes for NGO field staff and for farmers with proven training capacity.

Training consists of:

- A season-long PTD training process, starting in Year 1 and continuing in Years 2 and 3;
- Strategic workshops for chief functionaries of the NGOs, from Year 1;
- A season-long ToT process for NGO trainers and farmer trainers who, after three years, take over the management and implementation of the PTD process; from Year 2.

We aim at an equal men-women ratio in training programmes but the minimum should be 30% women. To enable women to participate, flexibility regarding training timing and venue is a MUST. Women MUST be consulted about these aspects. Participation of men and women participants is closely monitored during the season. Reasons for dropout are recorded and, if possible, attended to.

Box 6: A season-long training for NGO field staff and farmers

This is a comprehensive field-based training that covers practices and concepts, technical, social and organisational aspects of a PTD process. The training is conducted with a group of about 20 men and women farmers and 5–10 NGO field staff and consists of a series of modules that are conducted at appropriate times before, during and after the farming season. The set-up of a season-long PTD training is somewhat similar to that of a FFS in IPM, but the focus is more on experimentation.

Modules in a season-long training are:

- PTD concepts and approach
- Identifying problems and possible solutions
- Gender mainstreaming in the PTD process
- Step-wise field-based training with focus on the technical aspects of the problems identified and the technologies being tested
- Monitoring the PTD process
- Evaluating the results of the experiments and the process of experimentation

Second phase: scaling up, with emphasis on strategic linkages, ToT and monitoring

After three years, the trained NGO and a core group of farmer trainers are expected to be able to carry on by themselves. AME continues to support, but at a different level:

- AME monitors field-level training and PTD activities implemented by the NGOs and farmer trainers,
- AME shifts the emphasis of its work to creating a conducive environment for farmer groups and NGOs to take LEISA technologies and PTD processes further.

There is a tendency to under-report the autonomous spread of eco-friendly technologies. Field-based organisations often lack the skills and tools to assess such processes. It is important to evolve adequate monitoring systems to measure the technology spread. This is strategically important, as it helps to communicate better what is happening – to policymakers, to donors and to civil society.

During the second phase of a training process, the focus of attention shifts to: strengthening stakeholder fora (e.g. District Working Committees and Crop-based Working Groups); strengthening the forward-backward linkages, e.g. helping NGOs set up bio-control laboratories, doing a joint study on marketing models, establishing seed banks with SHGs, facilitating the establishment of village shops for eco-friendly inputs run by women's SHGs.

At the moment, in 2001, the second phase is beginning to build up momentum. Many second-generation PTD processes have been initiated but it is too early to draw conclusions.

5.3 Joint implementation of PTD processes

In our concentration areas, we developed a fairly structured approach to PTD because most farmers have little time and interest if they do not see scope for some immediate results. We chose specific entry points and identified a 'potential' package of practices in consultation with farmers, NGOs and researchers, which the farmers then tried out and modified.

Entry-point activities

In 1996 we started our comprehensive area programmes with a process of mutual rapport building. As part of the problem identification and institutional scanning process, we identified NGOs and NGO networks in each area that were interested in collaboration and had potential to take up PTD processes. We then jointly selected entry-point activities: we focused our attention initially on specific problems experienced by farmers in one or a few annual crops which were central in the farmers' livelihoods system. The choice was made after careful study of the prevailing farming systems and meetings with farmers and other stakeholders. We used elements of the RAAKS methodology to arrive at a shared decision. Thus, different strategies and entry points emerged for our three concentration areas.

Box 7: Entry points for PTD in Andhra Pradesh, Tamil Nadu and Karnataka

In Andhra Pradesh the focus was on groundnut, this being the main sustenance factor for a large population of farmers. In the southern part of this State and in neighbouring districts of Karnataka and Tamil Nadu, groundnut is cultivated extensively.⁶ The focus on groundnut helped in establishing a working group of institutional actors involved in groundnut production, right from the second year of PTD experimentation. This group has evolved into a strong platform for joint action. The partners have begun to address issues such as village-level seed production and storage and the aflatoxin problem in groundnut. There is also a move toward intercropping in groundnut.

In Tamil Nadu the thrust was toward integrated management of pests and diseases in paddy and cotton. This was the outcome of a consultative process with stakeholders, using RAAKS methods. The FFS approach was adopted because, especially for paddy, the technologies that form part of the IPM 'package' have mostly proven to be effective and hence there did not seem to be a pressing need for further experimentation. In FFS, the focus is more on training, following an experiential learning approach, and less on experimentation than in the case of PTD. Another reason for adopting FFS as a strategy in Tiruchi was the fact that the DoA was already following this approach; adopting it gave scope for collaboration and helped to gain official recognition for our work.

Our team in Raichur took an approach that was a 'mix' of the approaches taken in the other two areas. Raichur District faces a peculiar situation: half of the district has a typical dryland scenario, but the other half is in the command area of the Tungabhadra River Irrigation Project. This area has its own, quite different, share of ecological and social problems. Dependency on chemical inputs is high, and the whole system of agricultural production is strongly dominated by a nexus of commercial and political interests. Few NGOs work in this area, as it is considered less poor. However, it includes about 40,000 farm households that have little or no access to the Tungabhadra irrigation water. This was a more difficult environment for starting a programme. However, after a slow start, AME's Raichur team built up momentum. One of Raichur's success stories is about a village in Gangawathi that collectively shifted from very high-external-input paddy cultivation to completely organic cultivation within only three years. Farmers, once they see that alternatives are possible, quickly adopted effective ecological practices.

We made sure that, before going into detailed discussions with the farmers about possible experiments, we could suggest to them technologies that had been tested elsewhere and had proven to be reasonably successful. The ethical 'bottom line' was that we did not want to encourage farmers to experiment with technologies that had no reasonable chance of success. Of course, there are always the unpredictable weather conditions; here, the bottom line was that the crop yield from experimental plots should not be worse than that from the control plot.

In all areas, we encouraged farmers to share their knowledge about indigenous technologies. In the process, it became clear that they did not have their own answers for many of the problems they are facing. If they had had them, they would have solved their problems long ago. The focus of the PTD processes was primarily on testing and adapting eco-friendly technologies that had been developed elsewhere. This was especially the case for groundnut, which grows under most marginal and degraded conditions. For paddy and cotton, farmers suggested several indigenous technologies for further testing.

We introduced a system of revolving funds. These were given via the NGO to the farmers' SHG; it was the SHG's responsibility to manage the funds. The purpose was to enable farmers to procure the macro inputs required for the experiment (seeds, organic fertilisers) in time. A more strategic long-term objective was to enable farmers to prove to the regular banks that the LEISA package tested by them is economically viable and thus worth considering for a regular loan. As the rural banks are already very familiar with the concept of lending to SHGs, the logical next step would be to lend money to SHGs for eco-friendly agricultural inputs.

⁶ A more detailed account of the groundnut programme is given in Prasad *et al* (1999).

Box 8: Revolving funds

The experience with revolving funds has been interesting but mixed. In one of AME's concentration areas, much importance was given to training the SHGs and NGOs in management of revolving funds. In this area, there was a high level of discipline and the funds revolved in a period of three years from one group to the next. In another area, less importance was given initially to training and there was less discipline at NGO level in monitoring the fund management. Drought conditions added to the problem of repayment, as there were several successive years with very low yields.

The demonstration effect to banks has worked: several banks are now positively inclined to lend to farmer groups that apply LEISA technologies. However, these policies need to be institutionalised.

Revolving funds are an effective instrument in two ways: they help farmers decrease their dependency on moneylenders, and they can be used to show the formal banking system that low-input agriculture is viable. Adequate management of the revolving funds is essential. This means solid training of NGOs and SHGs on the principles and procedures of managing revolving funds.

5.4 Joint experimentation as a platform for learning

Experimentation is a collective process. AME works with groups, never with individual farmers. We work with partner NGOs that are closely involved in field-level implementation of the PTD process, the social organisation around it and process monitoring. At appropriate moments, we bring in researchers, or they step in out of their own interest. Wherever possible, we involve DoA field staff in the experimentation process.

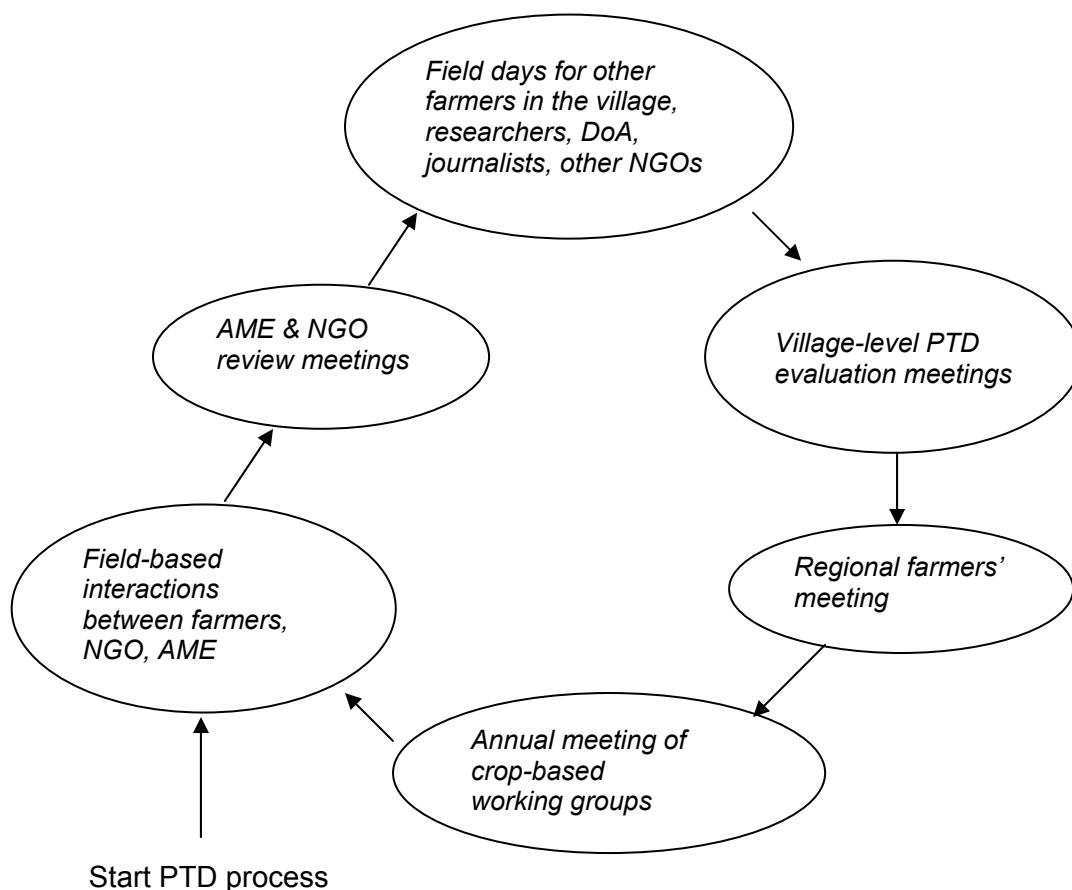


Figure 5: Learning shared – from farmer interactions to institutional working groups and back to farmers

Farmer groups

At the village level, the entry point for PTD experiments is an existing group that has been established mostly with support of the partner NGO involved in the PTD process. This is most often a SHG, sometimes a Watershed Development Association. There are very few situations where there were no existing social organisations when AME entered the scene; in these situations, we initiated the formation of SHGs.

It is extremely worthwhile to graft PTD processes on existing farmer institutions. They share their insights with many others. The tendency is to share the result of their learning (which technology has worked) rather than the process.

The existing SHGs were formed with a different purpose than PTD. They were primarily intended as collectives for credit and savings management, but gradually became platforms for several other community activities. When the idea of joint experimentation was introduced to these groups, many were interested. In the past five years, SHGs have proven to be not only suitable institutional ‘entry points’ but have become platforms for village-level sharing and springboards for scaling up.

Box 9: Kadiri Women's Federation fuels PTD in groundnut production

Kadiri is situated in drought-prone Anantapur District (Andhra Pradesh), the largest groundnut-producing district in India. Since the late 1960s groundnut has gradually monopolised the farming system. From the 1980s monocropping of groundnut became common practice. Now, 85% of the drylands (about 850,000 ha) is under groundnut. Myrada, a large NGO, started working in Kadiri in 1982 with a focus on wasteland development, resettlement of the landless poor and participatory watershed development. Women's SHGs were established. Because of continuous monocropping, groundnut had become vulnerable to attacks of pests and diseases. Yields were declining. Farmers had become indebted to local moneylenders. The SHGs, being involved in credit and savings, became instrumental in decreasing the farmers' dependence on moneylenders.

In 1997 the women's SHGs formed a Federation (Pragati Mahila Samakya) with the support of UNDP (United Nations Development Programme) and Myrada. Total membership was 2250 women. In the same year, erratic rainfall led to a shortage of seed. Mahila Samakya contacted the District Collector, who promised to help them but asked: "What will you contribute?" Within five days, the women remitted the equivalent of 16,000 Euro into their collective account as assurance for seed repayment. This showed the emerging power of the Federation. District Authorities arranged for release of 3600 bags of groundnuts from the Andhra Pradesh State Seed Development Corporation (APSSDC). UNDP supported the effort by providing over 21,000 Euro worth of seed capital for Mahila Samakya. At the end of the season, the Federation – thanks to their discipline and unity – was able to repay the groundnut seed to the APSSDC.

Also in 1997, AME initiated PTD with one women's SHG, Venkateshwara Raita Sangha. The members tried out technologies for improving groundnut production. They identified three effective technologies: gypsum application, rhizobium and application of farmyard manure (FYM). They were so convinced about the usefulness of these technologies that they decided to share them with other members of the Federation. Thus, Mahila Samakya became a platform for sharing information and knowledge on LEISA. On request, AME conducted training on LEISA technologies for groundnut for the functionaries of the Federation. They had formed their own training team that trained, in turn, the members of 45 SHGs and their families in PTD and LEISA technologies.

Women prove that, if given the space, they can move the earth!

Sharing between farmers, NGOs and AME

Sharing between the 'primary' stakeholders in this process takes place in several ways: during the weekly field visits of the NGO, during training conducted by AME, at the monthly review meetings between AME and the NGO, and at a meeting with farmers and NGOs to evaluate PTD results. These meetings are followed by a regional meeting of representatives of all PTD farmer groups across the three states. This regional meeting feeds again into the annual meeting of the Crop-based Working Groups for Groundnut and Cotton.

Involvement of researchers and DoA staff in field-level experiments

We invite researchers and government extension staff to join at important stages in a PTD process. In the preparatory stage, we ask researchers to share their knowledge about suitable technologies. Once the experiments have started, we invite them to visit at regular intervals and to give inputs into the season-long training. Again at the end of the season, we invite them to join in the evaluation of experiments. Sometimes, we organise specific field days: researchers, DoA staff, farmer groups from neighbouring villages and the local press are invited to visit the farmers' fields and have discussion with the experimenting farmers.

5.5 Shifting roles in implementation

Initially, AME was the prime mover in PTD processes in all the areas of operation. Much effort went into training NGO field staff and chief functionaries in the PTD approach. Gradually, the NGOs assumed greater responsibilities, taking over some of AME's roles. From 1999 onwards, the NGOs that were involved since 1996 started facilitating PTD processes on their own. By

and large, this transfer of responsibilities has been successful, but there have been a few hurdles:

- There is a fairly high turnover of staff in many NGOs because of low salaries, insecure funding etc. This ‘fact of NGO life’ slowed down the transfer of responsibilities. In some cases, we had to start all over again after three years, as most experienced staff had left.
- Independently facilitating a PTD process requires considerable experience and sensitivity to participatory processes. It did not always work. There is often a tendency to ‘fall back’ into a prescriptive mode, rather than keeping up the spirit of experimentation.

This led us to a reflection on the role of NGOs in PTD processes. Not in all cases are NGOs strong enough to anchor such processes. In addition to this, NGOs expressed a few reservations when it came to the question as to who should take the PTD process further. Several NGOs felt that the process was time-consuming; they had also other things to do. For them, PTD is only one of their several projects and programmes. Once a number of technologies had been tested (during the period 1996–99), they saw little reason for continuing in the experimental mode; they felt that the time had been reached to spread the ‘proven’ technologies to other farmers, villages and NGOs in their networks. As one NGO leader put it: ‘You give us the technology; we will do our bit of lobbying to ensure that as many people as possible get to know about it’.

It is important to acknowledge and respect the partner NGO’s position vis-à-vis PTD and institutionalisation.

There is a need to make donors aware about LEISA and PTD within the context of sustainable rural livelihood issues.

Much importance has to be given to working directly with farmer trainers who ultimately carry the process.

This made us to realise that, for many NGOs, ultimately the outcome of the PTD process – a farmer-proven technology – is more important than the process itself. This attitude is logical in the context of:

- *Survival strategies of the NGO itself:* In most cases, there is still a heavy dependence on donors. PTD does not yet enjoy much recognition from donors, as it is knowledge-intensive, deals with small numbers and is not easily replicable and, hence, no ‘impressive’ results can be shown;
- *Farmers’ survival strategies:* Farmers have little ‘space’ for experimentation; hence the ethical question arises: How much more can we ‘burden’ them?
- *The NGO’s mission:* Most NGOs we work with are not primarily driven by the mission to strengthen the farmers’ capacity for agricultural change (though this is a primary concern of AME). Their priorities are more in the sphere of social and political justice, which includes making information about working technologies accessible to underprivileged groups. There is a subtle but important difference in emphasis here.

5.6 Shifting responsibilities at farmer level: the need for gender mainstreaming

Agriculture in dryland areas is increasingly a women-managed affair. Women’s SHGs are now completely institutionalised and have become officially accepted as very important mechanisms for people-centred development. By 2001 there is hardly any institution that does not claim to be gender-aware. Women’s involvement has become a matter of fact in most areas where we work. We see a trend of women taking over PTD processes: in 1996 about 30% of farmers

involved in PTD processes were women; in 2000 65% were women. But is that the same as gender mainstreaming? *No*. There are plenty of problems when one looks at the institutional and field-level realities of gender mainstreaming.

First of all, even though women play an increasingly important role in the field, this fact is yet to be reflected in a more gender-aware approach in the major agricultural institutions, which remain very much male-dominated. Secondly, the success of the women's SHGs has resulted in a certain complacency on the part of the men in the village: women's status has increased but also their responsibilities and worries. Thirdly, many organisations *work with women*, but they are *not gender-aware* and hence they contribute, knowingly or unknowingly, to increased physical and mental burdens for women.

Box 10: Why involve both women and men?

Women participated in a season-long training on IPM in cotton. In the course of the training, they became confident that they could manage growing cotton without having to use pesticides. However, at a critical stage, their husbands who had not participated in the training because they had left the management of the cotton crop to their wives, decided to intervene. They instructed their wives to apply pesticides, which – because it was done at the wrong time – led to a reduction rather than an increase in yield.

There is no easy way out. The first step is to bring about greater institutional gender awareness in the organisations. In the context of PTD, this means that there is a need to analyse critically women's and men's actual and potential roles and responsibilities *vis-à-vis* the activities and crops that form part of the PTD process. Organisations should neither blindly work with men, nor blindly work with women. AME promotes a household approach, whereby a conscious effort is made to involve both women and men in the PTD process, along functional lines. This approach has been partly successful. The tendency of many organisations is to fall back into familiar patterns, i.e. to work either with men or with women. We have learnt that, whenever women and men are jointly involved in a PTD process, the quality of learning is greatly enhanced and so is the overall outcome of the PTD process. As the Kadiri Women's Federation case illustrates, once women are involved, they have great energy to take the process further, in not only qualitative but also quantitative terms.

Box 11: Stumbling blocks to gender mainstreaming⁷

In our effort to mainstream gender in the context of PTD, we have come across a number of stumbling blocks in the form of biased perceptions about women and men:

1. "Women do not have a say in agricultural decision making."

In spite of changing realities in agriculture, many people – NGO workers, researchers and others – find it difficult to acknowledge the reality and to plan the PTD process accordingly.

2. "Participatory approaches are 'naturally' gender sensitive."

PTD, like any other participatory approach, provides no guarantee that women are also participants in the process being initiated. Women's participation will not happen automatically, it needs to be facilitated.

3. "Trickle across: from men to women, from women to men"

Many extension programmes were based on the classical incorrect assumption that information which had reached men would automatically trickle across to women. During the past decade or so, we see instances of 'reversed' trickle-across assumptions. Organisations have started to interact directly with women, but here the same problem of non-trickling or partial trickling across of information can be seen. There is an additional problem, too: men are still the final decision-makers. This has led to frustrating experiences of women.

4. "Gender specialists take care of 'the gender aspect.'"

It is often taken for granted that, within development organisations, women will take care of 'the gender aspect' (whatever it is). The only way to overcome this obstacle is real teamwork and intensive gender sensitisation within organisations.

5.7 Monitoring and evaluation of experiments

Monitoring takes place at four levels: individual farmer, SHG, NGO and AME. Farmers' monitoring and evaluation focus on crop performance, labour requirements and cost-benefit analysis. At the time of training, farmers received notebooks from the NGO and are trained to record every relevant observation regarding crop growth and conditions, especially rainfall. The literate write down their observations; the illiterate use signs to note weather conditions and some other parameters. Farmers discuss their observations in their group every week or fortnight. PTD is part of the SHG agenda. A copy of the SHG meeting minutes is sent to the NGO. The NGO in turn submits monthly and quarterly reports to AME and an annual audited statement of their account as well as the SHG's revolving fund account.

NGOs address crop performance, the extent of farmers' involvement as experimenters and the interactions between farmers, including gender dynamics. This monitoring is done on a weekly basis. AME monitoring integrates the other two levels and is done on a fortnightly to monthly basis. It addresses the technical, socio-economic, gender and process aspects of the PTD process.

At the end of the farming season, farmers' meetings are held, where farmers share their learning. First they discuss among themselves in their own village and then they share their experiences with other farmers. At a later stage, district-level meetings are held where representatives of several farmer groups share their findings. In the case of groundnut, we also organised cross-regional meetings where farmers from three states met to review and share

⁷ A more elaborate analysis of gender issues in PTD can be found Walsum & Kolli (2001).

their learning.

In these meetings, farmers present the results of their experiments. The results are jointly analysed by farmers, NGO staff and AME facilitators. Farmers are asked to state their indicators for success of a certain experiment. There are several complexities here. For instance, when conducting an experiment on the same plot for the second year, there may be an accumulative effect of organic matter applied in Year 1 and Year 2. Or a farmer may hardly harvest any groundnut crop because of erratic rainfall, yet she still considers her experiment successful because the loss in terms of investment made is less than that on the control plot. The evaluative process and outcome of these meetings again becomes an input into the meetings of the Crop-based Working Groups (groundnut and cotton).

5.8 Documentation

Documentation has been done more or less systematically in all areas. The results of several years of experimentation now serve as a basis for the production of a PTD training manual and crop production manuals on various crops. We are in the process of preparing these documents, which will become important tools in our scaling up efforts.

Documentation is a difficult and tedious part of PTD. The effort required to set up and to maintain a good documentation system should not be underestimated. Most people involved in PTD are not writers but field workers. Therefore: the simpler the system, the better.

6 RESULTS AND IMPACT OF PTD PROCESSES

Results and impact of PTD processes are multi-dimensional. They vary between farmers, between crops, between villages and areas, and from year to year. Impact occurs not only at the farmer level, but also in the organisations that got involved in these collaborative efforts, and beyond. Impact means spread of technologies and approaches, within one farm - from one crop to another, from entry point to system level, then from farmer to farmer, from village to village. The impact also spreads within and between organisations, and so on.

Here we give a broad picture of visible results and impact of PTD processes in our three concentration areas. We highlight common elements rather than location-specific details and variations. That would distract the attention from the red line of this paper, which basically focuses on processes of institutionalisation and not on the specific results of different PTD processes⁸. However, we present some specific examples that give a 'feel' for the impact of PTD processes on people's lives. We look first at the concrete results of our PTD efforts in terms of number of farmers reached, then discuss the impact of PTD processes on those farm households which were directly involved in these processes and finally discuss how and to what extent technologies as well as the PTD process itself have spread within and beyond the areas where PTD processes were initiated.

When discussing impact, we must be aware of our own limited timeframe. In most areas where we work, PTD was initiated in 1997. We can make observations about the process, results and impact, but it is too early to make statements about the sustainability of the impact. Keeping this limitation in mind, we do feel confident to express what we expect could happen in the coming five years, and what would be the conditions to be met for a sustained impact and enhanced spread of technologies and process. This is important for our own understanding of 'where we are', and can also serve as a basis for decision-making by policymakers and donors regarding support mechanisms for these processes.

6.1 Number of farmers involved in PTD processes

In 1997 we started doing experiments with 270 farmers in two districts, in collaboration with 12 NGOs. As of now, in 2001, we are involved in PTD processes with 1900 farmers in 25 districts, with an estimated outreach to another 10,300 'extension farmers'. These farmers do not take part in PTD experiments but are exposed to the technologies tested through PTD and are encouraged also to try them. Only a small part of these farmers (about 300) are in direct contact with AME; the rest are guided by NGO staff trained by AME. Altogether, eight NGO networks are involved, with a total of about 180 member NGOs.

⁸ In AME's three concentration areas – Karnataka, Andhra Pradesh and Tamil Nadu – the impact of PTD processes is currently being assessed both qualitatively and quantitatively. Some results of these three studies are incorporated into this section. We referred in particular to the Raichur study conducted by Virendar Khatana.

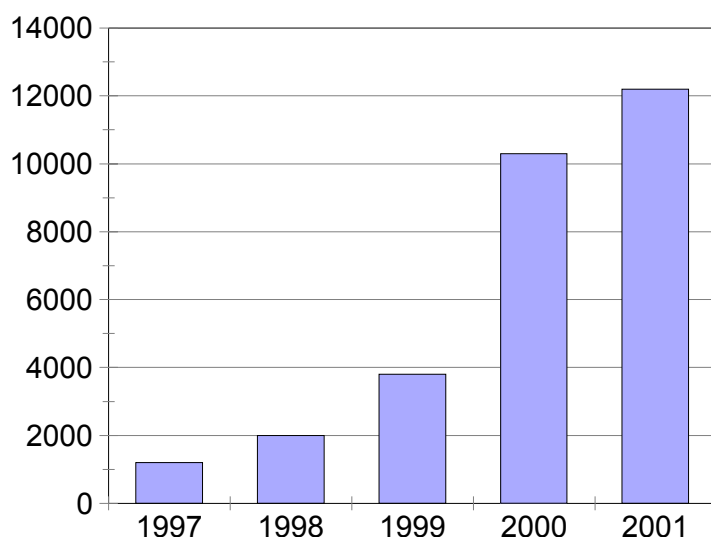


Figure 6: Diagram of number of farmers involved in PTD processes 1996-2001

The figure shows that there was a rather modest growth in the number of farmers involved in PTD process in the first three years. In 2000 there was a growth spurt, which can largely be attributed to the fact that, by that time, the NGO and farmer trainers started taking up PTD processes independently. In 2001 we decided in consultation with the NGOs to consolidate training efforts before embarking on further expansion.

In the first three years, all PTD farmers were monitored on a weekly to fortnightly basis by AME and the NGO. Since 1999 the NGOs have taken more responsibility for monitoring. With the growing numbers it was decided to do intensive monitoring with only part of the PTD farmers (30–50%, varying between groups). Other farmers do take part in experimentation but their farm data are not collected and processed by the NGO and/or AME.

6.2 Number of NGO staff and farmers trained in LEISA technologies and PTD

Table 1 shows how many NGO staff and farmers went through season-long training and ToT processes between 1996 and 2001. Shorter courses organised by AME are not included. The table also shows the shift in training focus, which was initially on season-long training directly supporting PTD processes in the field. From 1999 onwards, there was greater emphasis on ToT for NGOs staff and farmers. This led to a significant increase in the number of farmers trained, both those directly involved in PTD and ‘extension farmers’; most of them were trained by NGO staff, not by AME. After 1999, AME continued intensive direct interaction with about 300 farmers through PTD and season-long training, with a focus on second-generation PTD experiments: Integrated Farming Systems, Seed Village concept, storage and marketing experiments. Furthermore, AME continues to guide the NGOs and farmer trainers and monitors their training activities.

With growing numbers, much attention must be paid to the design of monitoring systems that not only monitor the number of farmers trained by NGOs and farmer trainers but also give feedback on the quality of the training.

Not all ‘PTD processes’ implemented by NGO staff and farmers are PTD in essence. Only a minority of those trained, about 10–20%, develop a real feeling for PTD. The rest are good communicators, who can explain to farmers about LEISA technologies, but more in an

extension mode. In our view, this kind of dilution has to be accepted as a fact of life. It is difficult and perhaps not even relevant to draw a line between PTD and 'non' PTD. What is important, however, is the fact that – within each group of trained people – whether NGO staff, farmers or government people, there is a minority who can inspire the rest.

Table 1: Number of NGO staff and farmers trained in PTD and LEISA technologies

Year	NGO staff newly trained		Farmers trained (cumulative)		
	Season-long training / PTD	ToT	Season-long training / PTD	'Extension farmers'	ToT
1996	10	----	30	----	----
1997	64	----	135	135	----
1998	63	18	350	410	10
1999	70	36	763	1205	22
2000	61	48	1600	6900	28
2001	80	35	1900	10300	35
Total	348	137	1900	10300	95

6.3 Impact of PTD processes

Table 2 gives an overview of the immediate impact of PTD on the participating farmers and on their farms. It shows the dimensions of impact and the indicators that were used to assess impact. Sometimes, indicators 'emerged' out of the PTD process.

Table 2: Impact of PTD processes on participating farmers and on their farms

Impact on	Indicators	Remarks
Knowledge about LEISA	Farmers know about LEISA practices: - importance of FYM application - rationale for reducing fertilisers - rationale for reducing pesticides - knowledge about alternatives ⁹ and able to explain how they work	Their knowledge has been checked through small individual tests and observation of group discussions.
Application of knowledge	FYM application up > increase organic matter content in soil; farmers stopped selling FYM Fertiliser use down ¹⁰ Pesticides use down > less business for pesticide dealer Farmers stopped selling neem seeds because they are now used in botanical pesticides Extensive use of cow urine; has become a commodity which is also sold Increased use of green manure Planting trees on bunds, etc.....	NOT all knowledge is applied by all. Some major reasons: - Sometimes inputs are not available (e.g. bio-control agents, bio-fertilisers, organic fertilisers). These issues are discussed by SHG, NGO and AME; steps are taken to resolve them where possible ¹¹ . - There may be labour constraints for women or men. Especially marginal groundnut farmers may decide not to apply a LEISA practice when rains are poor. Alternative use of their labour (e.g. as farm labourer) gives safer returns.
Farm performance	Increased yields: paddy 20–40% on average, cotton 10–20%, groundnut 20–30% Increased quality of produce ¹² Decreased risk; yield stability Increased on-farm biodiversity: inter-/mixed cropping, trees, green manure Reduced pest and disease incidence Higher net profits because lower cultivation costs: paddy 30–40%, cotton 20–30%, groundnut 10–20% Better soil health and moisture retention capacity Higher crop productivity in following years due to residual effect of manure	Paddy shows steady increase. Yield increase in groundnut and cotton varies from year to year, depending mainly on rainfall pattern. Cotton yield increase sometimes insignificant due to pests, yet net profit higher because important savings on less pesticides, from 16–24 sprayings to 6–8 sprayings. Gradual build-up of soil fertility leads to more stable yields.
Social organisation and joint	PTD as an activity has been integrated in SHG agenda Collective decision-making on input	Observation of group meetings and analysis of minutes quickly reveal the extent of social coherence.

⁹ A large number of LEISA technologies has been tested and developed.

¹⁰ Our data for Raichur District show PTD farmers have reduced their use of fertilisers on paddy by about 40%. The number of pesticides sprays has dropped from 5–8 to 0–3 and PTD farmers have completely stopped using thimmet granules for basal application in paddy fields.

¹¹ E.g. an NGO in Tiruchi set up a bio-control lab to meet the increasing demand for bio-control agents. Generally, efforts are made to strengthen linkages with input suppliers, with SHGs playing an active role. In Tiruchi, women SHGs set up eco-friendly village-level input shops. We recently recruited a marketing specialist who assists SHGs and NGOs in strengthening forward-backward linkages.

¹² E.g. groundnut in experimental plots, where more FYM and other natural fertilisers were applied, had better germination, more haulms, higher yield and higher pod-filling percentage. Organically grown paddy stores and tastes better and the seeds germinate better. Pesticide-free paddy is easier to shell; less rice is broken.

learning	purchase, pest and disease management, marketing Improved access to knowledge centres: farmers visit as group Farmers visit each other's farms more frequently and learn from each other	
Gender balance	Some technologies are labour intensive especially for women, e.g. bio-fertiliser and <i>mussoorie</i> phosphate application. Some technologies are big labour savers, e.g. in cotton IPM women are spared the work of fetching water for pesticide application (= 800 km walking with water per acre per cropping season). Knowledge empowerment of women through PTD is important aspect of a larger empowerment process. Women's mobility increased; they visit agricultural-knowledge and training centres and regional farmer meetings. Women mention less reproductive problems, which they attribute to being less in contact with pesticides.	Women take labour increase positively, as long as it is offset by benefits in terms of improved status and/or more say in decisions about farm and money. Knowledge = power. Especially for women, more knowledge leads to more self-respect and respect by others. From PTD, they move on to other issues, such as meetings with the District Collector to negotiate seed purchase. These are big leaps forward! In several cases, women resisted pressures of husbands to go back to chemical farming.
Health and nutrition	Reduction in pesticide use > less health problems, lower health bills, food tastes better and can be kept overnight (rice), better storage capacity	Skin rashes, loss of appetite, respiratory tract problems and reproductive health problems are frequently mentioned in connection with pesticides. Many farmers claim that their health bills have reduced after cutting down on pesticides.
Innovation capacity	Application of concepts learned through PTD on other crops Independent experimentation with technologies e.g. bio-pesticides, staggered intercropping in cotton	During farmer meetings observations were made on: farmers' interest in testing new ideas; degree of enthusiasm with which experiments are discussed and shared with others, including non-PTD farmers; frequency of meeting, attendance; growth in experimentation skills; information asked for; ability to identify problems and think of possible solutions independently
Over-all awareness > empowerment	Confidence in own capacity to improve agriculture has increased Farmer groups resist pressures of pesticides dealers, money lenders Ability to see larger connections in agro-ecosystems, regaining connectedness with natural processes	Visible from independent initiatives of farmers to carry on experiments, share learning with others, establish and maintain contacts with eco-friendly input suppliers. Some pesticides dealers had to change to other business. Farmers decided to grow trees on field bunds, as they provide living space for predator insects. General attitude to pesticide use has changed; farmers are aware of natural balance between pests and predators. Respect for soil has increased.

6.4 Spread of technologies and processes

The impact study in Raichur gave some useful insights into the spread of technologies tested through PTD processes, and of innovation processes themselves. A number of important factors were identified which influenced the extent to which technologies spread.

The crop: The extent of technology spread differs between in groundnut, cotton and paddy. This is related to the overall profitability of the crop, the risk involved in growing it and the socio-economic background of the farmer:

- Groundnut is grown mostly by resource-poor farmers, who have a strong tendency to avert risks. Hence, it is quite understandable that the spread of LEISA technologies for groundnut, even if proven successful by PTD farmers, is comparatively slow. We observed a spread of about 1:3, i.e. from one farmer to three farmers, but also noticed that the ratio is growing year by year;
- In the case of cotton, there is a strong perceived need for change. Because farmers are completely fed up with applying larger and larger doses of less and less effective pesticides, they are highly motivated to try out alternatives. Autonomous spread is up to 1:7 inside PTD villages and 1:3 outside.
- In the case of paddy, the expected results from alternative technologies are very good. Most paddy farmers are in the small-scale farmer category. Hence, the rate of autonomous spread in paddy can be as high as 1:10.

Socio-economic conditions of farmers play an important role: people with slightly larger farms are better able to take risks and therefore have a different attitude toward trying alternatives. A practice is easily adopted when old farmers were already doing it and with good results. Once someone takes it up again with success, it tends to spread fast. Social cohesiveness of the group and/or the village also contributes positively to the extent of spread.

Furthermore, the *user friendliness of a technology* is important: Is it easy to adopt? Are the inputs available? Technologies of which farmers have seen very positive results in other people's farms are obviously adopted easily. It also helps if the technology is also advocated by other institutions.

Mechanisms of spread have been found to be:

- From farmer to farmer (friends/relatives):
 - by working together with relatives or neighbours; others see the technologies being applied, learn from it and start to apply in their own field
 - informal discussions in the evenings
 - sharing insights in the market place (information can spread as far as 60 km)
 - small-scale farmers cum labourers learn to use technologies on their bosses' fields; they try them out gradually on their own farms
- Exposure trips to other farmers/groups organised by the NGO
- From SHG to SHG, often through the SHG Federation (see next section)
- From SHG to Federation
- Via the NGO field staff to other operational areas of the NGO
- From NGO field staff to other NGO staff
- From NGO to NGO
- From AME to other NGOs.

7 FROM JOINT EXPERIMENTATION TO STAKEHOLDER CONCERTED ACTION

After taking specific crops as entry points into PTD, the next step was to form crop-based working groups. We started involving institutional stakeholders, first of all researchers and policymakers. We also realised the need to involve suppliers of eco-friendly inputs: easy access to these was a condition for the success of the PTD experiments, but even more for the sustainability and replicability of the technologies tested. Likewise, we involved bank managers to sensitise them to the potential of alternative eco-friendly technologies and to encourage them to change their lending policies to small-scale farmers (crop loans were biased towards chemical inputs). The objective of forming these groups was to create a mechanism for joint learning and information exchange with a focus on 'bottom-up' flows of information, and also to strengthen important forward-backward linkages.

Simultaneously, a different type of platform development took place. A national-level Steering Committee and three District Working Committees were formed, with representatives from the Ministry of Agriculture and State Departments of Agriculture, research institutions, partner NGOs, banks and farmers. These committees were clearly related to the AME project, as they were a formal part of the institutional agreement between the GoI and the Netherlands Government regarding implementation of AME as a bilateral project. These committees, however, were also taken up as functional mechanisms for promoting concerted stakeholder action rather than 'just' being formal structures. They have now become instrumental in the process of institutionalising AME as an organisation and in strengthening its position as a linkage institution for sustainable agriculture. They are likely to continue when AME becomes an organisation.

7.1 Groundnut Working Group

In 1997, AME made its first initiative to bring a larger group of stakeholders together on a common learning and action platform. The focus was on groundnut. Researchers who had been involved in PTD processes were invited to a meeting, along with suppliers of eco-friendly inputs, the NGOs involved in PTD processes, representatives of the DoA and bank officials. Since 1997, such meetings have been held annually. They have become an event where stakeholders meet, discuss and review the outcome of the past year's PTD processes in groundnut and other relevant developments in the larger 'groundnut scenario'. The implications in terms of action to be initiated by different stakeholders are then discussed.

After four years, this working group has built up a significant momentum. It has formed the basis for several joint research initiatives between researchers and NGOs. The GoI has acknowledged the importance of this 'model of collaborative action' and wants to use it as an example for other crops and also wants to pursue the official validation of farmer-tested technologies with the help of this working group. Intensive learning is happening and up-front feedback is being given during these meetings.

Box 12: Peer-group pressure

The fourth groundnut meeting was held in February 2001. AME and NGO partners presented the results of seed trials with ten new varieties released by ICRISAT and a few regional research stations. One presenter explained that, in their experiment, farmers harvested the crop after 116 days, instead of 90 days as recommended by scientists. He explained that this delay was because the women who were to harvest the groundnut were busy transplanting paddy at that point in time. A scientist from one of the institutions that had made seed available reacted very critically, saying that the experiment was totally unscientific. The fieldworker replied that this was a real-life constraint; whether scientific or not, it was an important lesson from the PTD process. Other scientists supported the fieldworker's view; they argued that the person who 'stuck' to his scientific principles had not yet understood what PTD was all about and needed some more exposure.

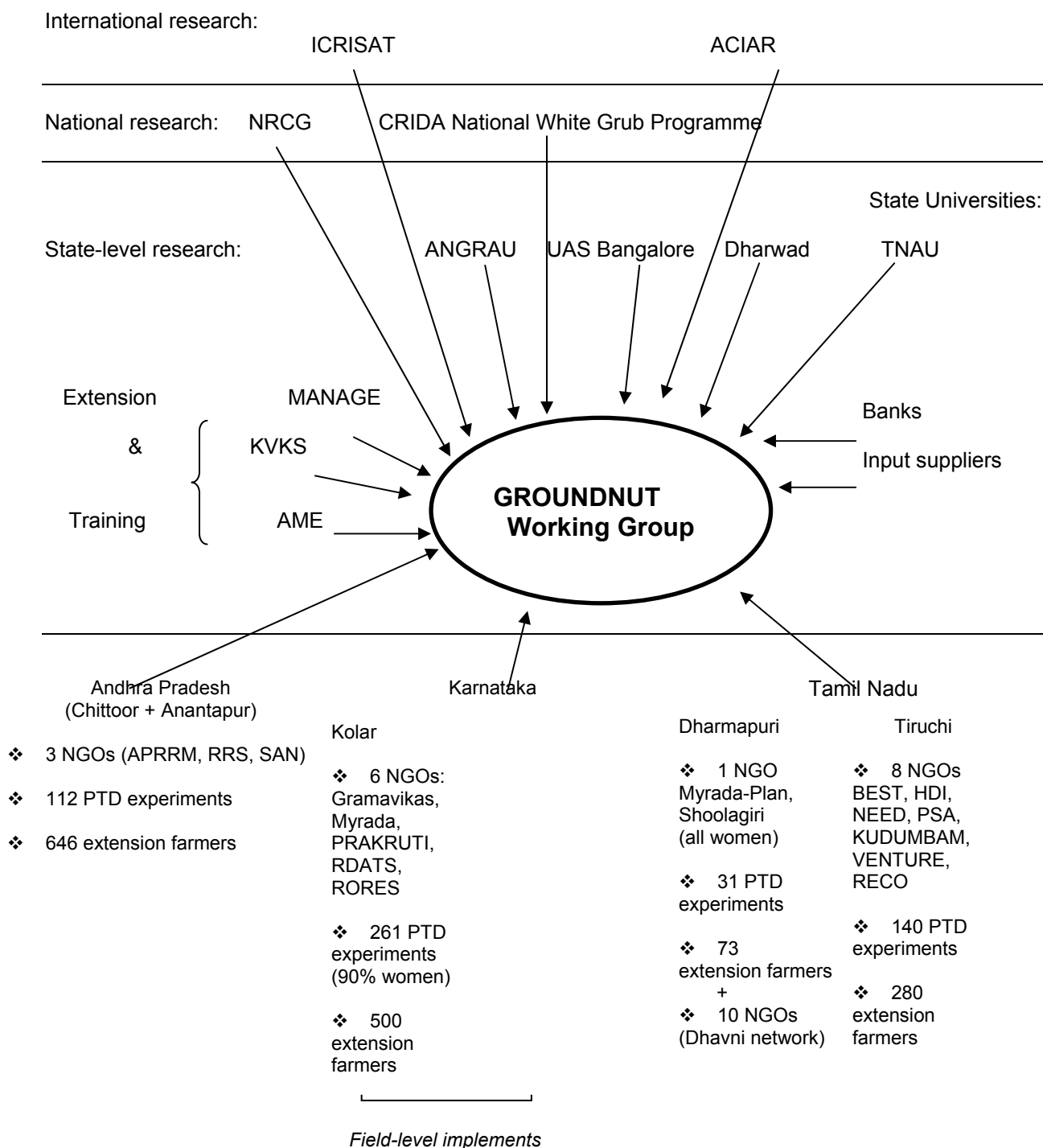


Figure 7: Groundnut Working Group (2000)

The Groundnut Working Group became a platform from which several collaborative activities were launched. AME's role has been to facilitate collaboration between research institutions and NGOs in very practical terms and to bring a PTD perspective into the research activities.

- In 1998, a collaborative project – All India White Control Programme – with ICRISAT and ACIAR (Australian Council for Agricultural Research) started to control white-grub damage in groundnuts. AME and its partners assisted in collection of adults, on-farm experiments, PTD experiments, and knowledge and skill dissemination. AME employs the field assistants and pays part of the scientist's salary.
- From 1999 onwards, varieties from four regional research centres and ICRISAT have been tested for performance under rainfed conditions on poor soils. Some better-performing varieties have been multiplied by farmers, with assistance from scientists for roguing, on a contract with the SHG guaranteed by an NGO.
- Since 2000, AME is involved in collecting samples under the World Bank-sponsored NATP (National Agricultural Technology Project) and the Aflatoxin Project sponsored by the UK Department for International Development (DFID) in collaboration with ICRISAT and the National Council for Research on Groundnut. The three-year study aims at identifying 'hot spot' areas in regard to aflatoxin in groundnut at various stages – harvest, wholesale storage etc – and arriving at solutions to reduce occurrence and spread of the toxin.
- In 2000, Anantapur and Kurnool Districts were plagued by stem necrosis caused by the tobacco streak virus. It is now clear that the virus is spread from sunflower and a vast number of weeds. In a collaborative effort with ICRISAT, experiments are carried out to reduce the incidence of the virus infection: border rows of *Bajra* (pearl millet). Suspected samples are collected by AME partners and sent for diagnosis. This should give a picture of the spread. Awareness campaigns with the DoA have been organised, and work will be done to start controlling parthenium and a number of other weeds.

7.2 The Cotton Working Group

A similar initiative towards formation of a learning and action platform was taken in 2000, when a Cotton Working Group was formed. This time, the prime mover was not AME but another support NGO that found the 'model' of crop-based working groups useful. The Andhra Pradesh Cotton Network was formed around a group of seven NGOs from seven districts in the State. AME provides technical and strategic support to this network, which also receives financial support from the Andhra Pradesh DoA. The network tries to address the problematic situation faced by cotton farmers. Many of them became heavily indebted as a result of over-dependence on pesticides, poor yields and inappropriate advice. In 1998, there was a wave of 'cotton suicides'. Though the State Government officially advocates an IPM approach in cotton, the actual field-level implementation of this policy is very limited. There are simply not enough trained extension workers. Therefore, the State Government has warmly welcomed the cotton network initiative. The Cotton Working Group supports this network, feeding it with information about promising cotton IPM technologies that may be considered for testing. At the end of the cropping season, the working group draws the lessons. A novelty in this network is the involvement of a representative of a multinational company specialised in pest control and interested in developing a new generation of eco-friendly products.

7.3 Institutionalisation of the Working Groups

Both groups were intended to become autonomous semi-formalised learning and joint action platforms. In the case of the Groundnut Working Group, AME has covered meeting-related expenditures thus far but is now working toward a system of cost sharing, in which several of the major actors involved each contribute to the expenditures. The Cotton Working Group has

been, from the beginning, a joint initiative that draws funds from several sources: the Andhra Pradesh DoA, a corporate donor and the Global Environment Facility. AME was temporarily financing some of the field activities implemented under the auspices of this group until structural arrangements could be worked out. Both groups operate under the guidance of a management committee with representatives from several organisations. In both groups, AME so far has played a key facilitating role, but structures have been evolved in such a way that there is shared ownership and decision-making. If AME would have to close down tomorrow, we expect that both Groups would continue in some way or another.

8 A SYNTHESIS: INSTITUTIONALISING PTD = WALKING ON FOUR LEGS

In this paper, we addressed different levels and aspects of institutionalising PTD processes and outcomes. AME's approach has been to work toward a favourable institutional climate that gives space for experimentation and development of LEISA technologies, for scaling up these technologies and for the evolution of suitable forward-backward linkage mechanisms to help sustain the approaches and technologies. Our work started at the village level, moved on to intermediate levels – district, state and region – and is 'ending' at the national level. In this final section, we try to synthesise how we see the different dimensions of institutionalisation and the challenges ahead. We discuss the institutionalisation of AME itself, which we have come to see as an element in the larger context of institutionalisation.

8.1 The components of institutionalisation

In our efforts related to institutionalisation, we have been 'walking on four legs':

Institutionalising our comprehensive area approach within concentration areas

Usually a concentration area covers one district and activities radiate from there into several surrounding districts. It is at this level that the PTD processes take place, from where the primary spread of technologies happens and the spirit of innovation is being carried forward. In Annex 2 we present as an illustration the case of one area, Chittoor District in Andhra Pradesh. Some important mechanisms in institutionalising area programmes are:

- strengthening District Working Committees (DWCs) by developing them into true stakeholder platforms at district level
- ongoing comprehensive capacity-building processes which AME conducts with NGO networks and farmers
- capitalising on the enormous potential of village-level and above-village-level people's institutions (Federations).

Strengthening and diversifying Crop-based Working Groups

Two strong working groups have been established that have become effective mechanisms for problem-focused stakeholder action. They need to be further strengthened in order to become fully autonomous, sustainable learning and action platforms. At the same time, other problem-focused stakeholder platforms need to be built up, e.g. for dryland coarse grains and pulses, and for biomass development. Links between these working groups and other fora, such as DWCs and Steering Committee, have to be developed.

Strengthening links with national policy

AME's institutional status of a bilateral project has provided a structural opportunity to enter into policy dialogues, through its Steering Committee, with policymakers at the national level. These policymakers are interested in the innovative approaches developed by AME and its partner institutions and want to take them further. It is therefore extremely important to capitalise on the opportunities given by the Steering Committee toward institutionalising the approaches. Besides using the Steering Committee as a tool, other tools have to be used, such as organising State-level workshops. An interesting development is that the Steering Committee has expressed its commitment to assist AME in its own institutionalisation process and in mobilising resources for the coming years.

Institutionalising AME

If AME wants to consolidate its approach and continue to anchor collaborative processes, it has to institutionalise its own organisation. In the long run, operating in a project mode is restrictive and makes it difficult to contribute effectively to larger processes of institutionalisation. Such processes, by definition, require a medium- to long-term time perspective. If the agent

facilitating such processes does not have that time frame her/himself, there is a problem. This is the main reason why AME has decided to transform itself from a foreign-funded project, with limited accountability to Indian society, into a full-fledged Indian organisation, duly accountable to its trustees and stakeholders.

This organisational change requires some important adjustments. The AME team as well as its partner institutions have to change their mind-set, especially with respect to sustainable mobilisation of funds. In a project mode, one remains assured (for the duration of the project) of funds that often come from a single donor. As an independent organisation, AME will enter into arrangements with a variety of donors, foreign as well as Indian – which in a way is part of the larger process of concerted action. AME will increasingly generate its own resources, which is a strategy toward increasing effectiveness, efficiency and accountability. These changes form part of an overall policy shift, from ‘free service provider’ to strategic partnership builder. In such a situation, it will become more clear to what extent the various processes initiated have lead to sustainable change.

What does this have to do with the subject of this paper: Institutionalising PTD? It may seem a different subject but, in our view, it is very much related. Sustainable development processes (of which PTD forms part) need healthy and accountable support organisations that can evolve long-term perspectives on the processes in which they are involved. And this is what we are trying to work on.

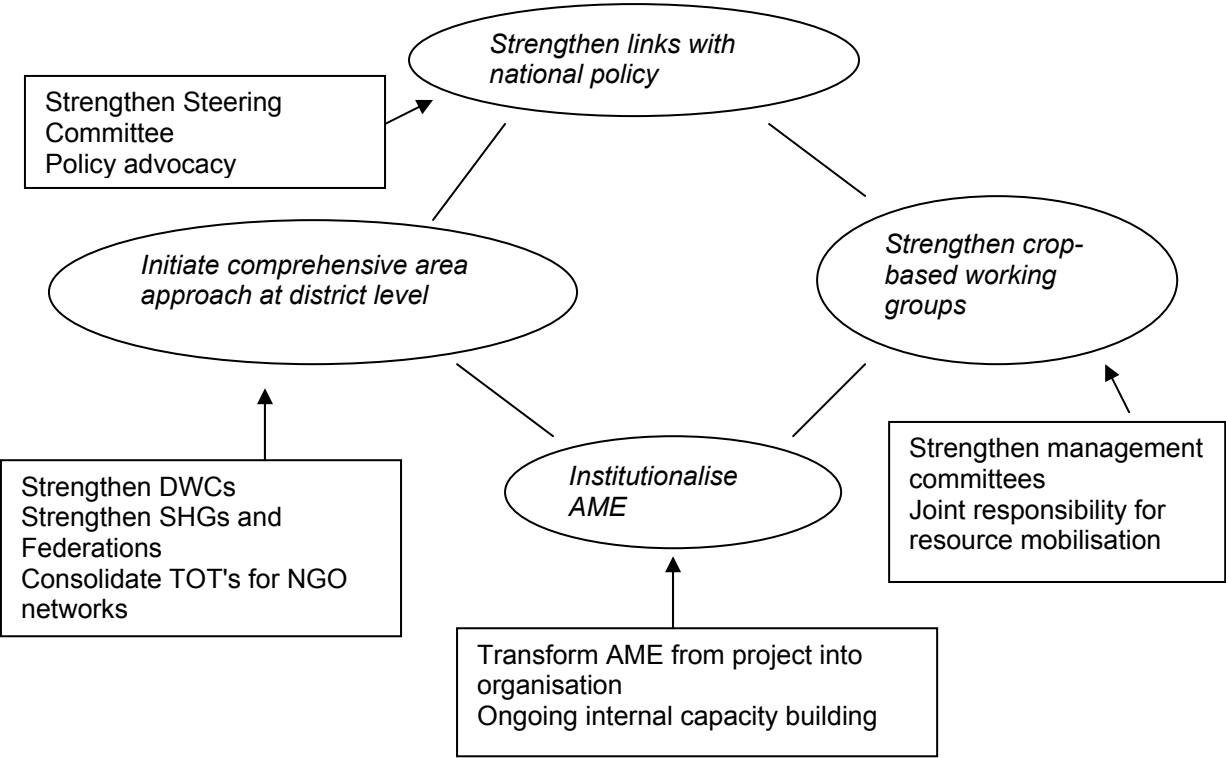


Figure 8: AME’s approach to institutionalisation – walking on four legs

8.2 Issues for further reflection and discussion

We remain with a few existential questions:

What are we scaling up?

Are we trying to scale up the PTD process or the technologies that have been tested and 'proven' in a PTD process? How far can PTD be scaled up without losing its essential characteristics? The inherent limitation of PTD is that it requires quality inputs (process-wise, technically, socially, strategically). Also its impact should be measured in qualitative rather than quantitative terms. However good our training programmes and strategic support are, we should be conscious of the fact that somewhere the process gets diluted and loses its focus. This happens rather sooner than later, as it happens with all participatory methodologies when one tries to bring them to scale.

This is not to say that we should not popularise or institutionalise *the PTD philosophy*. The issue is: when doing so, we should be clear about *what* should be institutionalised. Given the inherent qualities and limitations of PTD, it would be more realistic to aim at scaling up a more standardised, structured approach, which can be *linked to* PTD processes but which *builds on* rather than institutionalises PTD. This is what we have decided to do. When conducting our ToTs, we realise that not everyone will become a good PTD facilitator, but at least they should be able to communicate clearly with farmers about PTD-proven technologies. This 'shift' in strategy was a conscious choice that was inspired by farmers and NGOs, who expressed clearly that they were keen to take the technologies further, not PTD itself.

How far should we go in scaling up?

In the introduction, we wrote that – in the Indian context – scaling up is nothing less than a moral obligation. But the question has been raised: how far can we go without losing focus? Once going into the mode of stakeholder concerted action, lobbying and policy advocacy, one gets drawn into it and the risk is that we lose touch with the field-level realities – and exactly being connected with them has been our strength. We need to evolve models of institutionalisation that can be replicated and taken further to scale by others.

Can PTD become part of an alternative route to globalisation?

We are moving quickly toward higher levels of complexity and have to design our future strategies in the context of globalisation. The dryland farmers in South India are already facing crashing farm-gate prices for crops like groundnut, maize and paddy. Are we ready to deal with such issues? What are alternative routes and 'new niches' for dryland farmers? How can information and communication technology (ICT) be of help? These are some challenges beyond PTD that we must begin to confront.

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OTHER AME WORKING PAPERS

1. *Leaf Wetness counter - a case study of institutional partnership towards sustainable Groundnut production in South India by Rama Devi Kolli, H Lanting and YD Naidu.* (paper presented at the International workshop on NGO research Partnerships conducted by International Institute of Rural Construction, The Phillipines in October 198). 20p. Rs.30/-
2. *From Peanuts to Platforms: AME's approach to training NGOs in Integrated Watershed Management by Edith Van Walsum, H Lanting and J Jangal.* 20p. Rs.30/-
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AME's approach: 1994–2001

Year	Stage	Training	Partners involved	No. of PTD farmers trained (extn)	No. of NGO staff trained	Learning/reflection
1994–1995	Pilot PTD project 1 in two villages in Dharmapuri District (TN)	NGO/F: PRA, farmer organisation, technical aspects of growing groundnuts, operational aspects of PTD: data collection, sampling, yield measurement, result evaluation	2 farmer groups, ARCOD (medium-size NGO), AME	40	5	This first experience helped us evolve the concept and approach of season-long training.
1996	Identified 3 concentration areas for integrated area programmes; Started groundnut PTD in Chittoor (AP) with 1 NGO (=pilot 2)	– ditto –	Farmers, APRRM (medium-size NGO), AME	20	6	Learnt about importance of SHGs (as they were absent here), <i>Dalit</i> issues and sustainable land use
1996–1997	Identified initial partners and entry-point crops / problems in all areas	ToTs AME staff: training methodology, RAAKS methodology, PRA	Prospective partner NGOs / networks in 6 districts, DoA, regional research institutes			An important step: RAAKS methodology helped establish solid basis for collaboration, joint understanding of priority issues and strategy
1997	First year area-wide PTD processes	Bi-monthly ToTs for AME staff: principles of sustainable agriculture, PTD approach, gender analysis, IPM NGO/F: season-long training PTD, IPM FFS	3 NGOs (AP), 4 NGOs (TN), 1 network (Ka), DoA (co-facilitators), researchers (co-facilitators)	135 (135)	64	Training package developed in 94-96 applied on larger scale
1997	First meeting of Groundnut Working Group (GWG) in October		Partner NGOs involved in groundnut PTD, researchers, government officials, input suppliers, banks			Positive response: interest in collaborative action expressed
1998–1999	Consolidation area-wide PTD processes; Collaborative research initiated with ACIAR / ICRISAT on White Grub in groundnut; 2 nd and 3 rd GWG meeting	Emphasis on ToTs NGO staff: training methods and technical, social and process aspects of PTD; NGOs learn how to conduct season-long PTD training; on-the-job training of researchers in participatory methods	– ditto –	350 (410)	81	Researchers and NGO staff have to get used to each other, but gradually learn from each other's approach; important to build up mutual respect through meetings and collaboration in field.

2000	National-level Steering Committee and District Working Committees become active	On-the-job training AME staff on developing strategic linkages	MoA, State DoAs, nodal NGOs, regional research institutes, banks, farmers			Strategic reflection on meetings important: learn to use these fora as strategic tools
2000–2001	Scaling-up phase: Collaborative research with National Council for Research in Groundnut and ICRISAT on aflatoxin; varietal trials with regional research institutes and ICRISAT; collaborative cotton IPM programme initiated in 9 districts in AP and Cotton Working Group formed; collaborative research on cotton varieties	Consolidate ToTs NGO staff and farmer trainers; development of training materials; internal training AME staff on strategic repositioning	- do -, scaling up and out in existing districts through NGO networks, DoA; autonomous spread within and between villages; expansion to other areas and partners	1900 (10,300)	115	Shift in mind-set of AME team required from primary field orientation to strategic partnership orientation. Different funding arrangements and new institutional framework required.
2001	From entry-point activities to integrated farming systems, post-harvest technology and marketing issues; collaborative action research with NRI and NGOs on marketing models for LEISA/organic products	Internal training for expanded AME team: review concepts and approaches, place in larger strategic context NGO/F: training on principles of integrated farming systems, data collection methods for benchmark study	– ditto –			

Acronyms: AP = Andhra Pradesh, TN = Tamil Nadu, Ka = Karnataka; NRI = Natural Resources Institute.

Scaling-up strategies developed in Chittoor District, Andhra Pradesh

The diagram shows the shift in our strategies toward scaling up PTD and LEISA, as it happened in our area team in Andhra Pradesh. The essence of the shift is that, from an earlier strategy that focused more on capacity building at NGO level, we moved toward a strategy that views farmer institutions as the central pillars for scaling up. As the records of our partner NGO Myrada show, the shift in strategy was effective: whereas only 37 farmers adopted LEISA technologies through PTD in the period 1997–98, two farmer federations became involved in 2000 and were instrumental in involving almost 900 farmers.

1. Strategy followed from 1996 till 1999:

AME >> NGO >> farmers' SHG

2. Strategy followed since 1999.

Farmer to farmer

Farmer to farmer group

Farmer group to federation/network

FARMER TO FARMER:	FARMER TO FARMER GROUP:	FARMER GROUP TO FEDERATION:
<ul style="list-style-type: none"> • Select 10–15 innovative farmers from the village • Identify their problems • Identify possible solutions/recommendation by farmers as per their knowledge • Facilitate farmer visits to places where problems were sorted out by farmers/scientists • Conduct training to overcome the problem • Develop leadership among the farmers • Support them with minimum finance • Have them monitor the programme • Arrange for them to conduct field days by inviting neighbouring farmers • Encourage them in documenting the process • Encourage them to evaluate the exercise and enable them to implement the process in the following year • Each farmer to encourage another five farmers with concept of PTD in the following year • Encourage the interested farmers with scaling up of the programme strategy • No. of farmers involved should double every year • Invite subject matter specialists and scientists to give training to farmers • Farmers to become trainers in later years • Literature and reading materials to be prepared by farmers • Risk of loss of the farmer must be borne to some extent by implementing agency • Individual farmers to form farmer groups 	<ul style="list-style-type: none"> • Select proven technologies • Interact with farmer groups on the proven technology and its relevance in the field • Share AME experience with farmer groups/clubs • Prepare agriculture plans (dryland) with farmer groups • Programme implementation by farmers through farmer group • Minimum finance to extend to farmer group • Make farmer group accountable to its members/AME • Invest wherever innovative plan was implemented • Follow family approach • Make farmer groups responsible to record and spread the message among the people • Select interested youth, including women, for training in integrated groundnut production • Support them with kits (information and inputs) • Make them trainers • Reduce AME intervention • Reduce support to NGOs and increase to farmer groups • Encourage to implement dryland agriculture programme through women by following family approach • Finance support of AME to farmer group, farmer group to SHG, SHG to farmer, farmer to SHG/farmer group • Farmer group is accountable to AME for rotation of money at SHG • Experience sharing between SHG/farmer group should be on programme and financed • Seed multiplication has to become as village concept • Collaborative work with government and other institutions • Encourage farmers to give incentives to best-performing farmers 	<ul style="list-style-type: none"> • Work with NGO networks • Establish linkages between networks, research stations and DoA • Mobilise finance and programme support from other institutions • Develop literature with folk media • Encourage audio and video aid(s) • Use local resources such as TV, cable TV, dish TV etc to spread proven technologies (indigenous crafts) • Youth should have continuous employment (special focus on women) • Seek continuous income from different activities (horticulture, fodder, firewood, animal rearing, poultry, vermi-culture, honey etc) • Field days conducted by trained farmers • Farmer scientists invite DoA officials and formal researchers to their meetings • Sharing farmers' experiences on crops with scientists across scientist's tables • Initial support from the implementing agency for about 5–6 years with gradually decreasing aid to federation • Strengthen financial support of farmers over course of 10 years

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