EMPOWERING SMALL RICE FARMERS: *The MASIPAG Approach*

The Green Revolution caused the genetic erosion of traditional rice varieties, poisoned people and the environment, and inflicted economic difficulties on most small-scale farmers. It reduced farmers into no-choice passive recipients of technology and disempowered them. The newly unfolding Gene Revolution is expected to worsen the situation. The approach taken by Philippines-based MASIPAG provides hope in terms of building farmers' capacities and self-reliance through the organization of farmers and farmer-led development, seed breeding, innovation, and experimentation. The results and impacts of MASIPAG's work have been outstanding.

1.0 A BRIEF HISTORY OF RICE AGRICULTURE

Rice farming originated in the alluvial soils of Asia dating back some 6,000 years or so. It is the staple food of more than half of the world's 6.4 billion people, with 90 per cent of world rice production consumed in Asia.

Some 140,000 rice varieties have been developed during the course of history, living proof of the central role that this staple food plays in the civilizations dependent on it. It has shaped their lives and culture. Rice diversity has emerged from adaptations to a range of agro-environmental conditions, growth habits, uses, flavors, and colors. Thus the existence of the drought-tolerant, pest- and disease-resistant, and deep-water varieties as well as different characteristics such as aromatic, sticky, red or violet color, long and slender or short and round grains.

Rice farmers also developed local knowledge as coping mechanisms and adaptation to environmental challenges and problems. They matched specific varieties with specific agro-climatic requirements. Likewise, farmers were free to save, improve, exchange, or even to sell seeds. On top of everything, farmers continuously improved and developed varieties. They carried out breeding and selection. Farmers, seeds, and the environment were all intertwined and interdependent.

1.1 Farmers Pushed to the Periphery

The institutionalization of the science of breeding in universities and government research institutions paved the way for the development of 'modern' seeds and management technology. This shifted the fulcrum in agriculture from farmers to the formal sector, starting about 100 years ago. 'Modernization' of seeds and agricultural technology was brought in with the introduction of the Green Revolution (GR), which brought a package of technology containing 'modern' seeds that responded well to fossil energy-based inputs such as fertilizers, pesticides, machinery, irrigation, and production loans. The GR was introduced in the 1960s. More recently, rice seeds have become commodified and privatized via controls in the form of Plant Breeders Rights (PBR) and patenting, or genetic engineering (GE) technologies (of particular concern is the development of terminator technology[1]).

Because farmers were excluded in the development of seeds and technology, they were alienated to the extent of losing local knowledge in rice farming. Those who were not ready to convert to chemical farming were even ridiculed as being 'ignorant' and 'backward' farmers. All varieties, inputs and management

[1] Using genetic engineering to restrict the use of GE crops by modifying them to be sterile, the aim being to stop seed saving for the next generation; or controlling plant growth or traits by modifying them to be dependent on chemicals sold by the companies producing the GE seeds and agro-chemicals.

practices relied upon government extension workers, who in many instances had connections to agrochemical companies.

About 10 years into the GR, rice farmers started to experience negative effects of the technology. There was soil nutrient depletion and imbalance, leading to an ever increasing application of chemical fertilizers which were becoming more and more expensive.

Pesticide poisoning incidences were increasing and these chemicals even contaminated some tubewell waters (Bouman *et al*., 2002; Rola and Pingali, 1993). Pesticides also eliminated non-traditional sources of protein in the farm like frogs, fish, snails, birds or other edible plants such as water crest, taro, water cabbage, and others. When farmers wanted to plant traditional rice varieties, they were no longer available because they were already replaced by modern varieties. This phenomenon is called genetic erosion.

The increase in rice yield was offset by the greater cost of production leading to less net income. Thus, poverty and malnutrition worsened. Farm failure rates remained high and bankruptcy of farmers was prevalent. There was no hope of getting out of this 'quicksand' of poverty because the GR architects did not acknowledge the problems or the fact that it was precisely their technologies that created the problems. Thus, research priorities often turned out to be wrong, the packages were rejected, and the technologies did not fit, were non-sustainable or inequitable because of an emphasis on purchased inputs in resource-poor contexts (Pimbert, 1994).

Equally problematic was the erosion of farmers' knowledge in the new system; farmers were no longer part of the process of developing technology as well as saving, selecting and breeding the seeds. They also forgot associated local knowledge that was practical and cost-effective in rice farming.

2.0 REVERSING THE TREND: MASIPAG AS A RESPONSE

2.1 How MASIPAG was Formed

A confluence of two initiatives preceded the formation MASIPAG. A participatory research initiative to understand the impacts of the GR on small farmers was implemented by an NGO, the Agency for Community Education and Services (ACES). The approach taken was the organizing of farmers so that the organization would be a vehicle for promoting, facilitating and incorporating creative acts of farmers. Through the organizations formed, farmers had attitudinal and value changes that led to their becoming adept at problem-solving. This small farmers' organization (SFO) project may be said to be the origin of the Peoples' Organization (PO) approach in MASIPAG.

Another development that happened simultaneously was an initiative by national scientists and professors from the University of the Philippines Los Banos (UPLB), called the Multi-Sectoral Forum (MSF). It raised issues about high yielding varieties (HYVs) being in reality *'seeds of dependency',* the role of the International Rice Research Institute (IRRI) in *'genetic imperialism'*, social equity issues, and foreign intervention. The MSF was the catalyst in the formation of a farmer-scientist partnership.

In-country regional consultations regarding the effects of the GR were conducted in 1984, culminating in a National Rice Conference in July 1985. During the conference, the farmers complained that they could not rely on the government to address their problems and they suggested the initiation of farmer-led rice research. The farmers even offered to raise one Peso per farmer to start the project, dubbed the 'Piso-Piso Para sa Binhi' (a peso for seeds) project. The scientists and NGOs were challenged by the seriousness and determination of the farmers so they accepted, capitalizing on mere commitments and volunteerism. The farmer-scientist partnership (MASIPAG) was born.

2.2 How MASIPAG is Organized

There are three stakeholder sectors in the partnership: the **Farmers** who are the main active partners in the development work, the **Scientists** who provide technical support, and the non-governmental organizations **(NGOs)** which facilitate the organizing and coordination. The ultimate goal of MASIPAG is to improve the quality of life of resource poor farmers and empower them through:

- participatory planning and development,
- effective and efficient utilization of locally available resources and farmer-developed/adapted technologies, and
- access and control of production resources, namely, seeds, technology, and land.

The MASIPAG development approach has five strategies:

- *Farmer-scientist partnership* to combine the theories and technical knowledge of the scientists with the experience and practical knowledge of the farmers.
- *A bottom-up approach* to prioritize community needs, problems and aspirations.
- *Farmer-led research and training* through the farmer-managed trial farms cum training centers.
- *Farmer-to-farmer* mode of technology transfer.

- *Advocacy* for sustainable/organic agriculture, genuine agrarian reform, farmers' rights, and opposition to the patenting of life, genetically engineered organisms, GATT-WTO agreements on agriculture and other issues affecting farmers.

The farmers decided to start working with traditional rice varieties (TRVs) because these did not require much capital input and were ecologically adapted to diverse agro-ecological conditions. Rice breeding was identified as a priority area for research to make use of and further improve TRVs, accompanied by alternative pest management (APM) to do away with toxic and expensive pesticides, and soil fertility management (SFM) to make rice production more sustainable. The aim of all these was to reduce expenses incurred from purchasing expensive chemical inputs.

The farmers were willing to undergo the rigors of intensive skills training. This was the first time in the history of Philippine agriculture, perhaps in the world, that organized farmers participated meaningfully and extensively in rice breeding and technology generation. It was the first ever participatory rice breeding process.

2.3 Farmer-Scientist Partnership

The circumstances of planned partnership evolved with the farmers always at the center. Initially, the scientists outlined what should be done to initiate rice breeding work: the collection of traditional and improved rice varieties from which the farmers had to select the characteristics of parent materials to be used in breeding. On the social side, the NGO-PO leaders facilitated the learning of the technical processes which, by themselves, required organizational development. The latter required the social engineering expertise of NGOs that had been attuned to the people's local culture and capability. It was at this point that the farmers used the term 'scientist' to refer both to the UPLB group (natural scientists) and to their NGO development partners (social scientists). Hence, the working together among the farmers, NGO development workers, and UPLB professors took the form of a 'farmer-scientist partnership'.

As a farmer-scientist partnership, the participatory process is inherent in MASIPAG. The discussion sessions with the farmers are actually training sessions. On the other hand, the scientists find such interactions very educational in terms of the farmers' knowledge and capacity as well as the realities of life on the farm. No major activity is ever done without farmer participation. In the field of agricultural research, the farmer-scientist partnership in MASIPAG is a concrete example of a bottom-up model in which agricultural research directly addresses the actual needs of farmers to make their production systems more productive, ecological and profitable.

2.4 The Peoples' Organization (PO) Strategy

A fundamental element for the bottom-up approach and empowerment is a PO, because it is a vehicle for consolidating, coordinating and processing local knowledge of farmers. Through the PO, planning and decision-making can be done to reflect a common goal. Through their organizations, farmers can articulate, process and implement development approaches and solutions of their own choice to their own specific problems. The PO is an effective coordination mechanism. It has a multiplier effect because when someone talks to one member, he/she is effectively talking to all the members of the organization or even the community.

The PO is also important for mutual support among the farmers. Any member can easily be guided and supported by another member. The weak members are protected from any exploitation by influential elites or corporate salesmen because of the organizational framework. If there are benefits that can be derived, the PO assumes the role of equalizer for the diffusion of such benefits, so there is greater distributive justice. Moreover, POs can also ensure the sustainability of projects because when funding is delayed or cut, the organization usually takes over the project. At MASIPAG, one PO can have anything from 15-100 farmers.

2.5 Farmer-Managed Trial Farms

Every PO begins with a trial farm. The organization is expected to find a piece of land of about 600 square meters to work with. The trial farm is planted with at least 50 varieties of rice and is managed by the farmers themselves. The trial farm is a farmers' laboratory because it is where the farmers learn how to observe, measure and monitor agronomic characteristics like tillering capacity, days to maturity, height, length of panicle, number of grains per panicle, and yield, among others. After two cropping seasons, the farmers can already identify locally adapted varieties and selections (Medina, 2004).

Most often, resource poor farmers are not ready to experiment on their farms because any failure will mean empty stomachs for them. However, through the farmer-managed trial farm, site-specific technology can be developed without having to worry about potential danger of failure, loss of income and hunger. With many varieties available, breeding is often done at the trial farm.

As such, the trial farm is a very powerful tool for creative organizing. Farmers who are indifferent (inactive)

can easily be convinced to participate in trial farm activities because of the tangible benefits of access to improved or locally adapted rice varieties. Non-member farmers often volunteer to become members of the PO so that they can access the seeds and technology or else organize their own farmer organization.

The trial farm is strategic because it can also serve as an advocacy tool. Any farmer, NGO, or local government official who visits the trial farm is invariably interested in MASIPAG. Moreover, the trial farm also acts as the community seed bank.

2.6 Field Days

Field days are incorporated as a component process of farmers' trial farms. They are aimed at selecting the top ten locally adapted TRVs and MASIPAG selections. Just before harvesting, field days are organized where all PO members, non-member farmers, NGOs and local government officials are invited to evaluate the performance of the varieties. During the activity, all are given a list of the varieties, requested to inspect the labeled plots, and choose the ten best varieties. The top ten varieties selected by the participants are adjudged as the best locally adapted cultivars. The result is heightened interest in the varieties, especially when they are informed that the trial farm is free of chemical fertilizers and pesticides.

3.0 FARMER EMPOWERMENT: THE CORNERSTONE OF MASIPAG

The principle of farmer empowerment is laid out from the initial orientation of the farmers by MASIPAG, before they become members. What is clarified is that agricultural development had been biased in favor of high yields, without taking into consideration the socio-economic setting. It is also stressed that resource poor farmers should help themselves, because there is no one else to depend on. It is also highlighted that in order to address the issue of powerlessness, the PO is a useful tool for collective planning, strategy building, responsibility and action. From there, the farmers' competencies in technology development and their social and political capacities evolve.

3.1 A Central Role for Farmers

The bottom-up approach of MASIPAG gives farmers a central role in defining the priorities and direction of agricultural development. The Peoples' Organization (PO) strategy, likewise, is a strategy for consolidating and coordinating farmers' collective interest and knowledge, with the local leaders acting as facilitators of technological development. Through their organizations, they are able to articulate, process and implement development approaches and solutions appropriate to specific situations and conditions.

The most immediate form of empowerment of the farmers in MASIPAG is their control of seeds. Through their breeding activities, they are able to develop the kind of seeds they want to grow. Control of seeds by the farmers eliminates the cost of procuring expensive seeds and chemical inputs. Thus, farmers are now replacing the *'seeds of dependency'* from seed companies with the *'seeds of liberation'* that they have developed. MASIPAG farmers also develop the associated technology for sustainable, organic and diversified farming systems using locally available resources.

As a result of their competence in seed and technology development, MASIPAG farmers are now very confident. Farmer trainers are the main actors at the grassroots level, and many of them conduct orientation and training sessions for other farmers. In many instances, such training is even requested by the local government units in the Philippines. Farmer-trainers are a ready source of expertise at the PO level and enable a common language for capacity-building to exist.

Through their organizations, the farmers are able to articulate their needs and aspirations to local government units. Some have accessed funding from the government while others are able to help or influence the development of local legislation related to sustainable agriculture and other issues that are in the interests of small farmers.

The complex socio-political-technical dimensions of MASIPAG are a seamless fabric to empower farmers. Technologically, once the farmers have identified locally adapted varieties, each farmer is given only 100g per variety. Why not by the sacks, as long as they pay for it? Because MASIPAG rice seeds are common property and they are not meant to be objects of commerce. These are materials for the empowerment and liberation of farmers. Providing only 100g compels each farmer to re-learn and capacitate themselves on how to propagate seeds. More importantly, the farmers subsequently claim ownership and stewardship of the seeds because they also share in multiplying the seeds on their own farms.

As such, MASIPAG farmers have debunked the common image of farmers as backward traditionalists and developed an image of peasant scientists (Frossard, 1998; Frossard, 2002). Situated in a collective organization, the farmers' joint efforts have enhanced their capacity to make alternative agricultural development viable. Having developed technological capacities, the farmers are truly empowered by increasing their control over their economic circum-

stances, improved social and ecological sustainability, and greater autonomy (Ong'wen and Wright, 2007). Beyond empowerment, the end result is enhanced food sovereignty.

Organizing farmers to be the foundation of agricultural development work sets MASIPAG apart from conventional agricultural approaches (Oram, 2003). This has proven to be a powerful strategy because it starts with the social dimension as the foundation of technological development.

What lies at the very center of MASIPAG is farmer empowerment. MASIPAG wanted to demystify science, which drove its determination to teach farmers how to breed rice, despite criticisms from many scientists that breeding should be done by scientists only. MASIPAG stressed that the thousands of traditional rice varieties that existed had been developed by farmers themselves, albeit mostly through selections.

Gender sensitivity is also important in MASIPAG and women's participation is encouraged, with trainings directed to women to further strengthen capacity and confidence. As a result, many women have become not only leaders but outstanding farmer trainers and breeders. When women are given responsibility, they are able to improve the way that they relate to other people. Organizations are stronger when women actively participate. Husbands and wives make farm decisions together. There is more openness to other opinions as well as in sharing work and responsibilities.

With a combination of strong PO and enlightened LGU (local government units) officials, some local government resolutions and ordinances have been enacted. Funds for local training were accessed by MASIPAG POs from the LGU for local trainings and the establishment of PO trial farms.

What has flourished is not only the

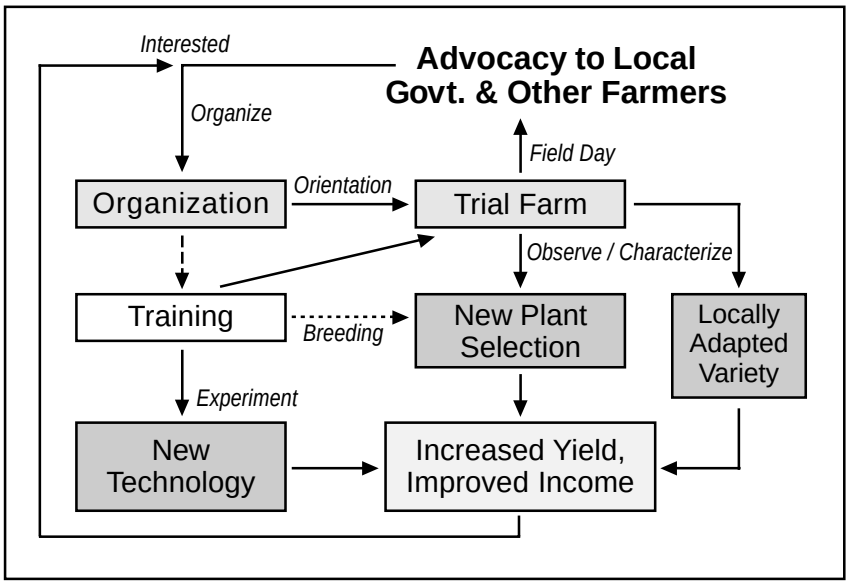

Figure 1. The MASIPAG Approach

active participation and cooperation of farmers, but also active participatory leadership among them. As a result, they have developed independence from outside technological influences that are most often hostile to the interests of small farmers. Small successes like the development of new varieties and new technologies have enhanced the farmers' confidence and given bone and flesh to the empowerment of MASIPAG farmers.

4.0 MASIPAG DIFFUSION: LIVING AND GROWING

4.1 The MASIPAG Approach

To join MASIPAG, farmers simply have to signify their intention. Farmers interested in joining MASIPAG will either have to set up their own PO with support from an NGO, a community organizer or MASIPAG farmer trainer nearest to them; or join an existing one. An orientation will then be held on the history and status of agriculture at the local, national and global levels, and the role of MASIPAG in providing an alternative to the Green Revolution mode of agriculture such as sustainable organic agriculture. Farmers 'converting' from conventional methods to MASIPAG's organic/ecological systems are informed of technical alternatives in making the transition, but each farmer makes his own decision on which alternative to choose.

If amenable to the MASIPAG philosophy, the farmers, through their PO, have to establish their own trial farm. MASIPAG farmer-trainers assist in the setting up of this trial farm but the farmers are responsible for maintaining it. With the trial farm as a learning facility, the farmers need to observe the agronomic characteristics of the different varieties to assess them for suitability to local environmental conditions and for pest resistance. The top ten performing locally adapted varieties are then selected. Some farmers also do further verification trials on their farms by planting the top 10 to 15 varieties before they finally select two to five (Medina, 2002).

In terms of seeds, MASIPAG uses the term 'selection' for seed that cannot technically be called a variety because it does not meet the criteria of purity and uniformity. The use of such seeds is intentional to maintain more genetic variability, giving wider possibilities to match selections to environmental conditions.

Unlike many development initiatives which have a definite number of clients or partners, MASIPAG is open to all genuinely interested farmers groups. It is not upscaled; rather it spreads through diffusion from farmer to farmer. A cycle of organizing, training, trial farms and technology generation with advocacy (Fig. 1) has made MASIPAG membership snowball in the past two decades.

4.2 The Growth of MASIPAG

In its 22 years of existence, MASIPAG has grown to involve 635 farmers' organizations in 47 provinces in the Philippines with a membership of more than 35,000 farmers. There are 64 farmer rice breeders and at least 200 volunteer farmer trainers. MASIPAG farmers are supported technically by 15 scientists, and organizationally by some 60 NGOs.

A total of 1,090 TRVs have already been recovered by MASIPAG farmers and there are 1,069 MASIPAG bred rice selections. MASIPAG farmer-breeders have also developed 273 farmer-bred lines and these are steadily increasing.

MASIPAG currently has 226 PO-managed trial farms. In addition, there are 10 back-up farms, each maintaining at least 300 rice varieties, with the national back-up farm maintaining more than 2,000 TRVs and MASIPAG rice varieties.

MASIPAG has already gone through a continuing evolution of methodologies in participatory research, diffusion of knowledge, organizational growth, ecological farm systems management, and local market development. It has already expanded beyond the rice crop; it is now into corn breeding, livestock breeding and production, diversified integrated farm systems, and local organic market development. MASIPAG has developed several organic standards and it has its own participatory guarantee system. It is now a nationwide leader in sustainable and organic agriculture, especially in rice production. More than anything, the farmer-scientist partnership and bottom-up participatory agricultural development nature of MASIPAG make it unique when compared to other developmental approaches.

4.3 MASIPAG in the Face of Global Challenges

MASIPAG continues to be relevant amidst global environmental challenges. For example, its use of different traditional varieties and MASIPAG rice selections, crop and farm diversification, on-farm research and other sustainable uses of locally available resources are all coping mechanisms to deal with climate change. Even its POs are social networks of support as sources of seed and manpower to farms that are prone to calamities.

MASIPAG rice seeds are concrete alternatives for farmers amidst the proliferation of hybrid and genetically engineered seeds. The fact that seeds are in the hands of farmers—and they have the knowledge to breed and improve varieties—is the farmers' antidote to the patenting of life forms.

The International Assessment of Agricultural Science and Technology for Development (IAASTD) 2008 [2] has declared that high chemical input farming ("business as usual") is no longer an option. It also recommends that local knowledge should be tapped in partnership with formal science and technology, and this should be incorporated into agricultural development. MASIPAG has done this 22 years ahead of the assessment. Likewise, the assessment's recommendation of biodiversity-based sustainable agriculture has been a cornerstone activity of MASIPAG since its inception.

5.0 ANALYSIS OF THE MASIPAG APPROACH

Almost all development work is focused mainly on either technological or socio-political components. Often these are too structured and technology-centered, but worse, they have become too academic and detached from the sector that they are supposed to serve. Thus, there are programs focused mainly or solely on the development of technology, seed banks/genetic conservation, sustainable agriculture, organic agriculture, food security or advocacy.

In contrast, MASIPAG does all of the above with an underlying social context. The empowerment of farmers makes the technological dimension open and flexible to suit all types of socio-economic and agro-ecological conditions. MASIPAG's contribution is the partnership of scientists and farmers for the latter to help themselves. MASIPAG farmers see themselves as innovators, capable of generating change on the farm through their own experiments, and effecting broader change through their collective efforts (Oram, 2003). Thus, MASIPAG is a powerful movement providing rice farmers a way out of the treadmill of debt and chemical dependency which is the legacy of the GR. In this way, it is both more subtle and powerful than simply an alternative approach to agriculture. MASIPAG has provided a framework for small farmers to organize themselves. It is

[2] The International Assessment of Agricultural Science and Technology for Development (IAASTD), which began in 2004, is a product of a collaboration initiated by the World Bank in partnership and consultation with a multi-stakeholder group of organizations, including the United Nations Food and Agriculture Organization, United Nations Development Programme, United Nations Environmental Programme, the World Health Organization and representatives of governments, civil society, private sector and scientific institutions from around the world.

about escaping the mindset of dependency (Oram, 2003) and restoring farmers' confidence and innovativeness, making them politically informed and attuned to their role in the country's economy.

The replication of the MASIPAG model/approach in small farming communities in other countries is highly viable because the approaches and principles applied are malleable enough to fit different local socio-cultural background and unique agro-ecological settings.

5.1 Some Lessons Learned

In the 22 years of MASIPAG's existence, and in understanding the components and processes of the development program described previously, lessons have been learned—some directly and others indirectly.

- *Agricultural problems have technological as well as non-technological solutions*. Many development research projects focus only on technology development. These are often deeply preoccupied with technological efficiency, sustainability, etc., to the exclusion of social context and processes. At the other extreme, some projects are preoccupied with participatory methodologies without concrete technological or material support to the community. A balance is therefore needed.
- *Research and development should be farmer-centered*. Project-centered, or discipline-, scientist-, agency- or even NGO-centered programs, wittingly or unwittingly, are self-serving. Genuine rural development should focus on the farmers' identified priorities and approaches.
- *Need-driven, not funds-driven*. There are many instances where a project is conducted because the researcher has been awarded a research grant. In most cases, such research projects may not be a necessity or a priority in the community concerned.
- *A certain degree of trust and confidence building as well as leveling-off is needed.* Stakeholders who cannot trust one another or who have different perspectives and priorities create nothing but more problems.
- *Farmers' counterparting and 'no dole-outs' policy should be observed*. Farmers' counterparting enhances their sense of ownership. Dole-outs create another layer of dependency wherein farmers become reluctant to work without financial gain.
- *Sense of ownership by the farmers.* For a rural development activity to succeed, the activities must be aligned with the farmers' needs and circumstances and be led by them.
- *Change and development should only be as fast as the farmers can assimilate*. Very often, development is forced on to the farmers at a speed set by a particular project or plan. This usually happens when the project-holder simply wants to produce reports of successful projects.
- *Farmers' organizations have multiplier and sustainability effects*. When a development worker talks to one member of an organization, in effect he/she talks to all members because of the ensuing communication in the organization. POs can ensure sustainability because when project funding is delayed or cut, the organization, through its leaders, usually takes over the project.

5.2 Farmer Empowerment Everywhere

To enable farmers to regain their lost role of being the center of seed conservation, breeding, and agricultural technology development, they should be consulted and involved in such processes. The major steps to empowerment of farmers everywhere should begin from recognizing the farmers themselves as the experts and specialists. A catalyst of NGOs and scientists is very important in initiating this momentum of change.

Based on the MASIPAG approach, there is no single blueprint for agricultural development and farmers' empowerment. Rather, it should operate on key principles/components. This would allow this model to be adapted to different local socio-cultural, economic and agro-ecological conditions. The key principles/components are as follows:

- ***Organizing and Orientation.*** The first step is organizing the farmers and beginning with an orientation on the global, national and local agriculture and food systems. As much as possible, the farmers' resolve to address their needs should surface along the lines of sustainable agriculture. The farmers should be at the center of the initiative. A farmer-managed trial farm is often essential.
- ***Training, Experimentation and Conversion.*** From the trial farm, farmers can have seeds selected to be adapted to their specific localities. Farmers should be encouraged and guided on how to do experimentation and observation. Technical support from scientists and NGOs is important here, especially in farmer training. In this way, local knowledge is cultivated.
- ***Strategic Development.*** This involves organizational strengthening with regular meetings of POs, training of trainers, and collective action by farmers as well as advocacy and campaigning for farmers' rights, land reform, and other issues besetting small farmers.

Beyond these basic components, different tactical and strategic activities could be undertaken based on specific conditions in the local community.■

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Pesticide Action Network Asia and the Pacific (PAN AP) is one of five regional centres of PAN, a global network which aims to eliminate the harm caused by pesticides and promote biodiversity-based ecological agriculture. It is committed to the empowerment of people especially women, agricultural workers, peasants and indigenous farmers. PAN AP launched its Save Our Rice Campaign in 2003 in response to the powerful threats arising against rice, the staple food of half the world's population. The foundation of the Campaign is the "Five Pillars of Rice Wisdom": (1) Rice Culture, (2) Community Wisdom, (3) Biodiversity-based Ecological Agriculture, (4) Safe Food and (5) Food Sovereignty. The Campaign is dedicated to saving traditional local rice, small rice farmers, rice lands and the rice heritage of Asia. PAN AP Rice Sheets provide relevant information on the threats to rice and are written from the people's perspective. Enquiries may be sent to: panap@panap.net.

MASIPAG is a national network of small farmers in the Philippines widely known for its successful work on farmer-led research and crop improvement initiatives involving conservation and management of the country's rice biodiversity. For more than 20 years, MASIPAG has established itself as an "alternative to IRRI" but with a much broader vision of putting the seeds back in the hands of farmers, and of using their knowledge as starting point in agricultural development.

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