Civil Society Views and Actions
on Biopesticides and Biofertilizers

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ANGOC

CSO Views and Actions on Biopesticides and Biofertilizers[1]

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During the past month, Asia and the Pacific fell victim to the worst natural catastrophes almost on a weekly basis. Typhoon Ketsana ravaged the Philippine capital, Vietnam, Cambodia and Taiwan while Typhoon Melor devastated Northern Philippines and Japan among others. An Intensity 8 earthquake rocked Sumatra, Indonesia and soon after, a tsunami submerged the Samoan islands. The region is no stranger to natural calamities but the intensity, frequency and speed by which all of these happened gave these disasters a more lethal character. So much damage on lives and property both in urban and rural areas of Southeast and East Asia had everyone pointing to climate change and global warming as the culprit. Most affected were agriculture and farming communities.

Why begin a talk on biopesticides and biofertilizers this way? Because these natural disasters only emphasize how we must further espouse what communities and some civil society groups have long been advocating --- sustainable agriculture, environment-friendly agriculture, biodiverse farming --- all for the earth's and humankind's survival.

Let me just point out that the term "biopesticides" to a layman, or ordinary farmer seems to be an oxymoron. "Bio" means life and "pesticides" alludes to a chemical intended to "kill pests". Combining the two words, biopesticides appears to be a "life-killer"! Organic or synthetic, toxic chemicals kill. More often natural chemicals from natural sources (plants) can be more toxic than synthetics.

The term "biofertilizer" seems more appropriate, a term which sounds more life-giving and nurturing. Biofertilizers are considered to be an important alternative to life nutrition. These are biologically-active products, which includes bacteria, algae or fungi, with the ability to provide plants with nutrients. According to sources, there are two types of biofertilizers: nitrogen-fixing and phosphate solubilizing.

Agriculture is in crisis putting food security in jeopardy. Small farmers belong to the endangered species. The debate posed by civil society groups lies in whether these bio-agents for agriculture truly sustain lives, livelihoods and the food security of small farming households, who comprise majority of the most vulnerable poor in rural Asia. Aren't biopesticides more toxic to humans and the farming system? Aren't biofertilizers too expensive and unsustainable for small and poor farmers to use in the long term, especially if and when they have to use them as external inputs purchased from somewhere?

[1] By Fr. Francis Lucas, Faina Lucero-Diola, and Maricel Almojuela-Tolentino, ANGOC, in consultation with ANGOC network members and partners, prepared for the "Expert Consultation on Biopesticides and Biofertilizers for Sustainable Agriculture", Taichung, Taiwan, October 27-29, 2009

We cannot talk about and answer these questions regarding biopesticides and biofertilizers without a context. For many of us in the NGO Association for Agricultural Research for Asia and the Pacific or NAARAP, we emphasize the need for AGROECOLOGICAL balance as the core principle of sustainable agriculture and what should be the "new green revolution".

Agroecology

At the outset, let me first provide a frame of mind and a vision which we in the NGO sector espouse. The organizations which I represent champion the principles underlying ***agroecology.*** According to Professor Miguel Altieri of the Department of Agroecology at the University of California in Berkeley, *agroecology* is based on the science of ecology, in conjunction with the science of anthropology, sociology and the basic agronomic sciences. This combination allows us to study systems in a holistic way – that is, trying to understand agriculture as the result of the interaction between humans and nature and also to design systems that are going to be sustainable. Altieri says the interactions will be socially just, economically viable, environmentally safe, and culturally diverse.

What does a sustainable agricultural system basically bring? Essentially, it is a system that will provide **food security,** Altieri says**.** Second, the system emphasizes **biodiversity**. It will conserve the natural resource base made up of water and soils and biodiversity, and at the same time the agricultural system based on agro-ecology would entail economically viable activity because of the diversity of animals, plants and microorganisms and crops involved – much different from the conventional agricultural systems of today.

Third, in agroecology, we emphasize **small-scale and medium-sized farms** instead of large-scale farms. Community-based and family-based agricultural systems will be more prominent and a closer link between rural and urban populations is envisioned – that is, consumers and producers are much more linked. Again, this paradigm emphasizes a socially-just, economically-viable, and environmentally-safe agriculture.

Within this framework, and based on grassroots, small farm holders'experience sustainable agriculture avoids utilization of external inputs not produced locally or within the reach of the farming community in the long run. Self sufficiency within the existing community and biodiversity is a primary consideration.

The vision above fundamentally means that the mainstream globalized model of development has to be reversed into a more local system where the production and consumption cycles are local and closed, and where we emphasize much more an eco-regional approach of development, linking producers directly to consumers. Above all, people, especially people in the North, need to have a total shift in our way of living. For example, the United States of America has only 8% of the world's population and consumes 40% of the world's resources. Something is morally wrong about this equation, and this is absolutely unsustainable.

Sustainable Agriculture as basis for agricultural systems

Organic and agroecological agriculture is part of the larger approach of sustainable agriculture (SA), the more fundamental framework which is essentially principle- and value-laden. Today it is inaccurately branded as an alternative agricultural method perhaps only to differentiate it from

the "conventional", high-yielding agricultural practices propagated by the Green Revolution. Yet, it has been embedded in Asia's long tradition of food self-sufficiency and community survival. Sustainable Agriculture is one of the most effective programs for Food Security especially for the underdeveloped rural and agricultural countries.

Sustainable agriculture in Asia presupposes a holistic, systems-approach to agriculture and adopts indigenous knowledge systems (IKS) that store enormous information of biological cycles and demonstrate cultural sensitivity. Observation-analysis-decision-reflection-practice cycle is utilized by farmers to meet the ever changing conditionalities of the farm. It is not limited to alternative regenerative agricultural techniques, but is equally concerned with social justice, and recognizes the need for economic and political restructuring. It is not a "technology fix" mental frame but looks at an integrated mental frame of interrelationships. SA should form part of efforts to build a people-centered economy and recognizes the crucial role of women in agricultural production. SA relies greatly on local, site-specific research and trained farmers who are able to tailor the appropriate SA techniques to particular farm conditions and to propagate the practice to other farmers.

Because of the negative effects of the Green Revolution, despite the increase in food production in the 70's, a movement to revive the traditional methods and forms of agriculture to what is more rooted to its cultural and spiritual origin in the region has emerged. Sustainable agriculture practices of farmer technicians, methods on Integrated Pest Management (IPM) and Ecological Pest Management (EPM) and diversified and integrated farming systems have been documented. Tribal communities are promoting their Indigenous Knowledge Systems (IKS) as well.

In my more than 30 years as an advocate of sustainable agriculture, I have witnessed how farmers, who have embraced SA as a way of life, were able to bounce back faster than their peers who rely on conventional methods. Based on my personal experience I even say SA is one of, if not, the best response to Climate Change impact on agriculture. Why? Because SA utilizes natural methods of controlling and managing pests or uses organic, farm-produced fertilizers, it needs less money to revive farms due to long term and built in healthy condition of the soil.

Finding more proactive alternatives

Governments all over the world are now switching to a more proactive stance, i.e., from 'risk reduction' and 'safe use' procedures, to developing more environment-friendly alternatives of sustainable agricultural production such as the use of bio-fertilizers. One of the more pressing concerns of the environment all over the world is soil contamination and pollution due to excessive and injudicious use of agrochemicals. This has been detrimental to humans, and unfortunately, especially borne by agricultural workers and rural communities worldwide. World governments more so in the developing countries slowly but surely are supporting the initiatives of NGOs and people's organization toward sustainable farming using different techniques or multiple techniques as long as the philosophy and objectives of SA is achieved.

Bio-agents, such as bio-fertilizers and *even the oxymoron* bio-pesticides, have recently become the focus of research and resources in many countries due to the rise in pesticide residue contamination of food. This raised food safety concerns among domestic consumers. Massive use of synthetic chemical pesticides will cause lands to become unproductive in the long-run and crops to become unfit for human consumption. It is in this context that scientists worldwide are

now exploring suitable and effective bio-agents as among the strategies to achieve improved and sustainable crop production. In many Asian countries, bio-fertilizer and bio-pesticide technologies are now in various stages of development and utilization.

With an established system of registration and a more advanced R&D, countries like Japan, Korea and Taiwan are the more leading countries in terms of developing and commercializing bio-agents. Decision-making for some developing countries in the region as regards adoption of bio-agents by smallholder farmers largely depends on the level of education and training, given various farm production options. In addition, regulatory systems to ensure efficacy, safety, and cost effectiveness of bio-agents, have yet to be established in most Asian countries.

It is in the same context of this conference today that the Food and Fertilizer Technology Center (FFTC), in coordination with the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), in the Philippines, organized on 19-23 November 2007 the international workshop on appropriate use of bio-fertilizers and bio-pesticides for small-scale farmers in Los Baños, Laguna, Philippines. Its goal was also to bring together experts from all over the Asia and Pacific Region to share and exchange practical and technical information and enhance cooperation in this area among the countries in the region.

During the workshop, significant research findings and technologies on the enormous contribution of bio-fertilizers and bio-pesticides in improving crop production and agricultural ecosystems were presented. The workshop provided a better understanding of the general status and prospects of bio-agents as promising strategies for environment-friendly and sustainable crop production. Quickly, let me cite some of the specific bio-fertilizer and bio-pesticide products that farmers are using in the ASPAC region, their effects and economic benefits, and some strategies used by organizations to further promote their acceptance and utilization as discussed in the Workshop organized by the FFTC and PCARRD on Biofertilizers and Biopesticides held in Laguna, Philippines in 2007.

Farmers' use and acceptance of bio-fertilizers and biopesticides

The Tokachi Federation of Agricultural Cooperative (TFAC) in Hokkaido, Japan produces and distributes rhizobium bio-fertilizers namely: mamezo for soybean, azuki bean, and phaseolus beans; R-processing seeds, in which leguminous seeds are inoculated with *rhizobia*; and the hypercoating seeds wherein leguminous grass seeds are coated with *rhizobia* within the capsule of calcium carbonate. During that period, eighty percent of farmers in Hokkaido use these bio-fertilizers.

In Taiwan, use of biofertilizers resulted in savings on chemical fertilizer and reduction of groundwater pollution caused by Nitrogen leaching. Like in Japan, both central and local government agencies are supporting extensive production and application of biofertilizers such as rhizobial and P-solubilizing microbial inoculants for vegetable soybeans and other crops, and AM-inoculants for melons and other horticultural crops. From 1987 to 2006, it was recorded that enough inoculants were produced to inoculate approximately 65,091 ha of farmland. It was cited that over the year, farmer's economic gain also increased significantly (US$ 27 million) from using rhizobium inoculants.

Among the strategies used to increase farmers' acceptance of bio-fertilizers are: holding of awareness-raising meetings and visiting demonstration plots treated with bio-fertilizers.

In Vietnam, farmers in the Mekong River Delta have been reported during the Conference to use BioGro in rice and this resulted in fewer diseases, stronger stems, brighter and cleaner grains, better grain yields, less cost, and more benefits. Farmers' adoption of Biogro in Namdhin resulted in less chemical fertilizer costs, better growth, acceptable grain yield, better quality, and better profit.

In Thailand, farmer groups practicing organic farming in the U-Thong district of Suphan Buri Province in Bangkok demonstrated the application of indigenous knowledge in the development of biofertilizers. This utilization of indigenous knowledge was highly advocated by the country's agriculture department.

Moreover, in Thailand, the use of herbs and plants to repel insect pests was also widely practiced by small-scale farmers. Examples of multipurpose repellant is a preparation that consists of 1 kg each of neem leaves or seeds, galinga tuber, and lemon grass chopped into small pieces or finely pounded mixed with 20 liters of water and left to ferment for three days.

In the case of biopesticides, the Workshop in Laguna in 2007 showed that environmental concerns and insecticide resistance has recently led many farmers in Taiwan to consider use of microbial insecticides for the control of agricultural pests.

In Korea, bio-pesticides were reported to occupy only 2.8 % of the pesticide market valued at 35 million dollars. Egg yolk and cooking oil mixture (EYCO) was reported at the Workshop as adopted widely by Korean farmers for various pest controls and to increase plant health. EYCO has shown good results. Korean farmers adopt it because it can easily be prepared and is cheaper than the chemical pesticide. Also, they find it safe and environment-friendly. In many field trials, EYCO was found effective in controlling powdery mildew and small insects such as mites.

The Catholic Relief Services have a vibrant and systematic support to Sustainable, Organic Agriculture in the Southern Provinces in the Philippines as well as Plan International Philippines in Northern Philippines where they started in the Cordilleras with Bio Dynamic farming.

PRACTICES of NGO MEMBERS, PARTNERS and FRIENDS of ANGOC - Issues, constraints and recommendations

Bio-fertilizers and bio-pesticides are still underdeveloped and underutilized in most developing countries in Asia due to technical, social, and institutional constraints. However, for us in the SA movement, the larger framework and vision of embracing Sustainable Agriculture as a way of life in farming would be a more holistic and fundamental approach from which interventions in the different aspects would be put into context in the whole value chain in agriculture. The use of biofertilizers and biopesticides is looking only at the input aspect of the whole chain. NGOs and partner farmers as a principle prefer the natural methods of relationships of agroecology before producing organic pesticides which may be more toxically potent than the synthetic one. Biofertilizers are not as problematic.

Morarka Foundation, a partner of the Association of Voluntary Agencies for Rural Development (AVARD), ANGOC's member in India, leads several organizations from NGOs and farmers in producing about 4 million tonnes of biofertilizers per annum. They have been proactively promoting its use in several districts of Rajasthan state. Moreover, some farmers in the Green Revolution belt (Punjab, Haryana, Western Uttar Pradesh, etc), Andhra Pradesh and Bihar have been gradually switching over to biofertilizers and biopesticides.

Bio-pesticides in the Philippines are still unpopular to farmers. However, members of the Bantug Samahang Nayon MultiPurpose Cooperative (BSNMPC) in Barangay Bantug, Asingan, Pangasinan are now mass-producing and using NPV as biopesticide. With the high cost of synthetic pesticides nowadays, coupled with their negative effects, bio-pesticide can be a good alternative. Philippine NGOs prefer more the practical and natural means of pest management without the use of bio agents.

Again in the Philippines, 500 farmers from Infanta, Quezon province proved that their 25-year shift to sustainable agriculture helped them restore their farms faster than their conventional neighbors after a natural disaster. Seventy million tons of water, mud, logs and forest debris crashed into the town of Infanta bringing about massive destruction to property, lives, livestock and crops that tragic night of November 29, 2004. The SA farmers supported and trained by the Infanta Integrated Community Development Assistance, Inc. (ICDAI), a primary organization of ANGOC, reported the recovery of vegetable farms in 2-3 months after the disaster.

The agrocecological principles already practiced by the farmers, especially community-based and diversified farming approaches, helped them in quickly adapting to their vulnerable situation. The holistic approach to agriculture, which included deep analysis of every situation and the corresponding scientific methodologies, with the help of scientists and implemented by grassroots practice, empowered the farmers to look for fast solutions to their problems. The united action of NGOs, scientists and farmers gave the necessary boost to rise above the deadly impact of the floods.

Prior to the 2004 disaster, a study by the University of the Philippines Agronomy on three farming systems namely the conventional farmer, the LEISA farmer and the SA farmer came up with a result that the SA farmer already enjoyed an average net income of P21,800 per harvest compared with conventional farmers income of P13,000. Greenhouse gas emissions from SA farms were even 70% less from conventional farms at .30 kg of carbon per kilogram of milled rice.[2]

Interviews with World Concern Myanmar[3], an NGO working with poor farmers and indigenous peoples in Myanmar reports that around 98,825 farmers they support in the Shan, Kachin and Mon states practice sustainable agriculture. They employ Integrated Pest Management (IPM) where farmers themselves produce natural pesticides such as tobacco soap solution, neem oil solutions and ginger, chilli and garlic extracts. Take note that these solution are not in themselves potent as toxic substances. For soil management, farmers prepare and use in their fields fermented plant juice from suitable weeds in the area, fermented fruit juice, and fish amino acid

[2] Results from a Case Study on Infanta farmers practicing organic agriculture, low external input and conventional farming methods from 1998 to 2000.
[3] Interview of Fr. Francis Lucas with Heather Morris, Technical Consultant for Agriculture for World Concern Myanmar, October 20,2009.

for microbes enhancement for fetilizers. They also practice crop husbandry, which includes selection of cropping patterns and varieties suitable for each area.

Another NGO, the Cambodian Center for Study and Development in Agriculture (CEDAC)[4] with whom reports that more and more farmers are turning to the System of Rice Intensification (SRI), soil conservation, ecological pest management (EPM), natural fertilizers, aquaculture and biodiverse farming to help increase yields with less inputs, less costs and upholds the ecological balance of the natural farming system. CEDAC reports that they already have some 60,000 SRI practitioners.

Since 2003, CEDAC has supported Cambodian farmers in some 3,200 villages to apply these methods. On pest management, farmers are making organic pesticides from herbs. They prefer manual collection over spraying of insects, like the brown hopper, because it was more effective and is a practice that even the Khmer government promotes. Under SRI, farmers use as much 400 ducks during the wet season on a 2.5 hectare lot to help fertilize the area and for further insect control.

Many IPM programs on rice, vegetables, cotton, tea, soybean, and groundnuts were also reported to have been implemented in different areas in Vietnam. Farmers' acceptance of the technology was bolstered by a related campaign launched by the agriculture ministry in Long An province. It was reported that almost 550 farmers have applied the IPM approach on millions of hectares of rice. Moreover, it was reported that farmers with IPM training achieved higher net profit than those without IPM training. IPM programs have also helped significantly reduce farmers' medical costs due to pesticide poisoning.

The ANGOC-AJPN experience

From the points of view of the producers, the decision to adopt organic methods in farming is the first battleground in the whole production process. For example, in a Sustainable Agriculture project implemented by the Asia-Japan Partnership Network for Poverty Reduction (AJPN), through the Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC) in 2004-2006, farmers in India were documented to perceive less of bio-fertilizers and bio-pesticides as less effective than chemicals.

From the Indian producers' standpoint under the AJPN- ANGOC SA project, popularization of existing schemes to promote the use of bio-fertilizers as well as other bio-inputs will be a key strategy to campaign intensively for sustainable agriculture. Furthermore, the Indian producers are saying that down the line, assistance in the marketing of bio-inputs, specifically through the government network, as well as involvement of cooperatives at the village level will be a relevant scheme.

However, AVARD puts a high premium in the use of bioagents. AVARD's experience of judicious, scientific and sustainable use of biopesticides and biofertilizers is quite positive as they find it helpful in maintaining the health of the soil with proper humus content, carbon-nitrogen ratio, and presence of microbes and other organisms and is ecologically sound. Accordingly, their farmers use cowdung and urine, earthworms, bacteria, fungus and locally available biomass to produce biofertilizers and biopesticides as safe, low-cost viable alternatives

[4] Interview by ANGOC with Mr. Sim Sameoun of CEDAC at the CEDAC Office, Phnom Penh, Cambodia, October 21,2009.

to harmful, high-cost chemical fertilizers and pesticides to grow healthy, safe and nutritious food with high productivity economically. Use and adoption of these two bioagents are welcome since compared to chemical fertilizers and pesticides, use of these bioagents is highly economical, safe, healthy, profitable and hence, advisable.

In the same SA Project, the AJPN-ANGOC project reported that the outlook of sustainable agriculture in Indonesia is particularly optimistic since the country is now considering the reduction of the resistance and persistence of bacteria and the shift to biological control methods. As regards biological methods of pest control and fertilizers, there is still a low to nil level of adoption in the project sites in Indonesia although other organic methods are used. In particular, the AJPN-ANGOC project site in Kulon Progo, Jogjakarata uses a wide range of local materials such as bitter leaves, ginger, galangal and other medicinal crops to stabilize the agro-ecosystem, thus reducing pest infestation and diseases. Farmers in this farming site grow mostly rice and cassava, coconut, maize, cloves and tubers.

However, in the other project site in Propinsi Jateng, where major crops grown are zallaca palm, rice paddy and cassava, 25% of the farmers still use chemical fertilizers and lime to manage the soil, especially in paddy cultivation. Only one farmer was reported in this site to use the integrated pest management (IPM) method. The use of chemical pesticides is still most prevalent means in the Propinsi Jateng site to control pests especially nematodes.

Aside from some optimistic sustainable agricultural practices already mentioned above, agriculture in Indonesia as reported in the ANGOC-AJPN SA project, now seems to stress on reducing the peasants' dependency on inputs in the form of external production facilities as well as in giving peasants the right to make strategic plans and decisions.

Project beneficiaries in Indonesia perceive that there is generally growing consumer awareness on the dangers of consuming contaminated agricultural products, as shown in the Table below.

Table _____. Value of Organic Food Transactions

Year	Transaction Value for Organic Food (US$)
World	
1997	10 billion
1998	13 billion
2001	26 billion
2010 (projection)	100 billion
Indonesia	
2002	Rp 5 billion/month (US$ 5.8 million)

Source: AJPN 2006

The Indonesian NGOs ELSSPAT and BIOCERT estimate that organic agriculture in the country is growing at approximately 10 percent a year, and the growing number of supermarkets, outlets, and other alternative marketing models for selling organic produce in many cities can attest to this. The International Federation of Organic Agriculture Movements (IFOAM) has also reported that around 40,000 has. or 0.09 percent of the country's agricultural land, are currently being

farmed organically, and that Indonesia is ranked 37th worldwide in terms of organic land management.

One of the major factors that may help support the use of biofertilizers and organic agricultural products in Indonesia is the government's "Go Organic 2010" program, where the Ministry of Agriculture formulated the Indonesian National Standard for Organic Food (SNI Number 01-6729-2002) as well as the establishment of the Standardization and Accreditation Center (PSA) as the competent authority on organic food.

However, even as these policy infrastructures are in place in Indonesia, the project participants of the AJPN-ANGOC SA project think that, in general, consumers in the country are still skeptical whether the organic requirements have been actually met. For *one*, the project partners think that organic products grown by peasant groups have not been formally certified as organic. *Second*, crop and vegetable peasants are having a hard time because their land still contains chemical residues from the conventional agricultural practices. It would take three to five years to completely rid the land of such residues. Therefore several farmer groups and NGOs have suggested that in Indonesia, rather than certify the produce, why not certify the entire whole farming method as organic, which includes the certification of inputs such as biofertilizers.

In the Philippines, SA has gained some headway in propagating the good news. Moreover, the movement has reached the masses as People's Organizations are propagating SA farms. The concept of Sustainable Agriculture traces its roots to the 1980s with the publication of a report "Profits from Poison" published in 1980 prepared by the Farmers Assistance Board, an NGO working on rural development. This was also validated by the report published by another NGO, the Agency for Community Education and Service (ACES) which showed that rice farmers were better off before their adoption of the Green Revolution technologies.

Likewise, in May 1986, the Magsasaka at Siyentipiko para sa Ikauunlad ng Agham Pang-Agrikultura (MASIPAG)'s project focused on rice breeding, allowing farmers to select the parent materials, based on desired characteristics, and to perform rice breeding (after intensive training). In the process of selecting progenies from varietal crosses, the farmers made it a policy to use no synthetic fertilizers or pesticides in the trial farms. By 2006, MASIPAG has about 219 such farms all over the country, all being maintained by people's organizations. Towards the late 1980s, other initiatives sprung up, including the biodynamic farming of the Centre for Alternative Development Initiatives (CADI); the International Institute for Rural Reconstruction (IIRR's) bio-intensive gardening and organic farms by the Organic Farming Field Experimental and Research Station.

In 1990, 15 Philippine NGOs formed the Sustainable Agriculture Coalition. Initially, they held SA fairs in different parts of the country. Later, the Philippine Forum for Sustainable Agriculture was put together in 1991 by four NGOs primarily to exchange insights on experiences among themselves. Other organizations espousing SA in the country are the Xavier University in Cagayan de Oro which established their Sustainable Agriculture Center (SAC) in 1992. Also, at the forefront in SA is the NGO PAKISAMA, a national federation of peasant organizations and my organizations, ANGOC and ICDAI (Infanta Integrated CommunityDevelopment Assistance Inc.).

Last April 2009, nine leading groups in the Philippines launched the One Organic Movement to push government to support the further development of organic agriculture in the country. The group believes that promoting organic agriculture, or agriculture without the use of chemical fertilizers and pesticides, would save the government billions of pesos in fertilizer support and ensure the continued health of agriculture land and its workers.[5]

This October 2009 more than 500 participants came together in Naga City, Philippines to share their knowledge and practices on Organic and Sustainable Agriculture values and technologies inclusive of marketing and social benefits they bring. Due to the continuous promotion, lobbying and pressure of the NGOs and farmer organizations, and the viability of organic and sustainable agriculture, the Philippine president came out with Executive Order 481 on the Promotion and Development of Organic Agriculture in the Philippines as a government support to the organic movement. This year again the organic movement is lobbying for the passage of a national law passed by Congress on organic agriculture where NGOs were greatly involved in the hearing and formulation of the law. The organic movement is now waiting for its approval in the upper and lower house. ANGOC is part of this lobby as a board member of the Philippine Development Assistance Program (PDAP).

While NGOs in the Philippines draw their strength from each other and from the government which has strongly supported organic farming in the country, the following are the fundamental constraints to a full blast sustainable agriculture movement: (1) land tenure problems, which by far is the biggest constraint to the conversion to organic production; (2) unreliability of organic input supply, including the lack of certified organic fertilizers, and (3) inadequate training and education. Farmers especially in the marginal areas need to be assisted to help them appreciate the benefits of going into organic farming including the use of biofertilizers. Current education and training programs are limited to NGOs and church-based organizations that have already organic agriculture and sustainable agriculture programs.

As the examples here show, the effectiveness of bio-agents have yet to be established to show they are, over all, better than agrochemicals. As our farmers in Indonesia perceive, bio-fertilizers, may be seen by most farmers to have slow though positive effect in the long term and for soil stability compared to synthetic chemical fertilizers. Some other issues that need to be addressed include technological constraints and limitations, extensionists with the SA mental frame including farmers' overall acceptability of the SA system. As with the overall sustainable agriculture technologies, there is a basic need for promotion and raising of awareness on the benefits of bio-agents. The usual corollary constraints are financial limitations to pursue further research activities, inadequacy of modern research equipment and laboratory facilities. At the policy level, existing policies may still be lacking to support bio-agents.

ANGOC's work and Recommendations

In general, the production and use of bio-agents as pesticides and fertilizers are adapted and practiced under the framework of agroecological or sustainable agriculture. However, we must emphasize that these should not be synthetic and toxic bio-agents nor should they be chemical inputs hiding as "Technology fixes". These "life" agents should always sustain its ecosystems, and promote biodiversity and smallholder farms.

[5] http://www.malaya.com.ph/may05/agri3.htm

ANGOC has long pushed for the mainstream adoption of sustainable agriculture within global, regional and national policy environments and especially, with local practitioners. Since the early 1990s, it already carried the banner of SA at the Rio Earth Summit to achieve food security, help save the environment and protect the interests of small farmers. Sustainable Agriculture presupposes, self reliance and self sufficiency, a community based and value approach. It veers away from external dependence. The holistic approach pursues farmers self confidence and empowerment to respond to most crises.

In 1998, ANGOC embarked on the 200-Village Project, which conducted a baseline survey that assessed food security at the household and community level as the basis for community-level planning and action. Key indicators include land tenure and access to food, purchasing power, sustainability of agricultural practices and community participation. It was implemented in 10 countries covering 5,640 households in 188 Asian villages.

The results of the 200-Village baseline survey in 5 Asian countries showed that there is a positive correlation between food security and agricultural productivity. However, shifting to high input agriculture proved insufficient in ensuring food security, especially resource-poor farmers. The survey revealed that 37% of farming households that shifted to high input agriculture are food insecure.

These findings confirmed ANGOC's strategy in advocating for a more sustainable farming system that would ensure household food needs. ANGOC's premise is that sustainable food production is best achieved by promoting a form of agriculture that raises farm productivity and diversity while keeping external inputs to a minimum and if possible, sourcing them locally.

ANGOC is thus keen on pursuing the promotion of the SA agenda at all policy levels with institutions like the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), the International Fund for Agricultural Development (IFAD) and with international research institutions like the Global Forum on Agricultural Research (GFAR) and the Asia Pacific Association of Agriculture Research Institutions (APAARI), which organized this conference.

We have thus pushed for the formation of the NGO Association for Agricultural Research in Asia and the Pacific (NAARAP), a consortium of NGOs to engage agricultural research institutions in defining the platform for achieving sustainable food security and coping with shifts in agriculture from climate change and exponential demands for food.

In light of our discussion on bio-agents for agriculture, we believe that the national policy planners, research and development experts/institutions, professional extension agencies, civil society organizations, and other stakeholders should do the following:

Policy

- Promote judicious, scientific and sustainable use of natural and non-toxic PEST MANAGEMENT BIO AGENTS and biofertilisers on an adequate scale, BUT FIRST PROMOTE NATURAL BIO DYNAMIC METHODS;

Research

- Recognize and build on the efforts of small farming communities that are lighthouses of effective farming systems through documentation, improvement and even replication;

- Undertake and carry on continuous decentralized participatory research with the involvement of farmers and active two-way communication between labs and lands for optimization to fine-tune the technology within the wider agroecological balance framework and sustainable agriculture; and

- Conduct appropriate agricultural research as a response to the challenges of climate change re mitigating impact of climate changes, risk transfer and improved coping mechanisms and fast recovery through technologies based on the sustainable agriculture framework;
- Provide support to NGO and PO researches with scientists in the analysis and documentation of still unrecorded local initiaves.

Capacity Building

- Organize matching training, extension and facilitation with small farmers to make it happen with rational provision of incentives, relaying and networking to generate multiplier effect and enhance outreach with adequate speed; and
- Resource sharing and complementation among countries in the Asian region through information exchange and technical partnerships to give due importance to facilitate the development, use and adoption of bioagents.

We again emphasize that biopesticides and biofertilizers should not be technology fixes and can only be deemed successful with the right framework that truly sustains life by nurturing the agricultural ecosystem and smallholder farming. There are more initiatives that this paper has failed to cover. But the documentation and replication of successful SA practices can be the future agenda of both NAARAP and APAARI. NAARAP has good potential to systematically organize NGO initiatives as a platform for applied research, policy research and knowledge sharing. We hope our efforts, reflecting the experience and successes of small farmers, will be recognized by the academic and policy communities as legitimate sources of knowledge and expertise for sustainable food security and development.

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