REPORT
OF WORKSHOP

Farmers' Experiences with Agricultural Research

14-20 December 2004
Thailand-Cambodia

Coordinating Organisations:
BIOTHAI (Biodiversity and Community Right Action Thailand)
AAN (Alternative Agriculture Network-Thailand) and
CEDAC (Cambodia Center for the Study and Development of Agriculture)

on behalf of
BASA Asia (Biodiversity in Action for Sustainable Agriculture Asia) and
SANFEC (South Asia Network for Food Ecology & Culture)

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INTRODUCTION

The workshop for Farmers' Experiences with Agricultural Research was held during 14-20 December 2004 in Thailand and Cambodia. This workshop organised by the collaboration amongst Alternative Agriculture Network(AAN) Bio Thai of Thailand and CEDAC of Cambodia. There were 60 participants who came from 10 countries of South Asia and Southeast Asia. They are the membership of SANFEC and BASA Asia network. (The list of participants is attached.)

The workshop started in Thailand with understanding on agricultural situation and the Sustainable Agriculture movement. The participants visited some farmers in the field and the community in Nakornrajasrima province. 3 areas of field visit focused on natural resource management and sustainable agriculture, transforming monoculture farm to agro-forestry and non-chemical farming.

Thereafter the workshop was conducted continuously in Siem Reap, Cambodia. The first session in Cambodia started with country reports. The main issues were farmers' research on multiple farming system, community seed bank and local varieties improvement, soil improvement, pest management, systems of rice intensification(SRI) etc. The participants went to the field to visit SRI farm in Kampongthom province. And they exchanged their own experience through the case studies' presentation.

Another main issue was policy discussion. The participants, essentially farmers with NGO participants as facilitatorsdiscussed on the role of farmers to develop their own knowledge, from growing diversity to growing knowledge, the problem of "modern technology" and the role of national and international research institute, farmer's right and also government policy on SA. These main issues and concerns are reflected in the Public Statement at the conclusion of the workshop (annexed to this report). The workshop closed with seed exchanges and the evaluation of the workshop by the farmers.

THE WORKSHOP PROCEEDINGS

1. Country reports

The representative of each country presented the baseline data, the agricultural situation and the role of farmers to develop their own farm and community.

The Philippines:

Philippines is mainly agrarian country. There are 2.5 million hectares of land is planted to rice. And 20.89% of country's gross domestic product is from the agricultural sector. 7 out of 10 farmers do not have their own land. Small farmer-owner till an average of 1.5 hectares of land. 3 out of 5 farmers rely on usury to get them through the high production costs of farming. 73% of 28.6 million agricultural labor force are farm-workers, unpaid family workers and tenants. They earn US$1 per day versus daily cost of living in rural areas of US$6..

The threats to Filipino farmers and Philippine small farm agriculture because of the WTO-Agreement on Agriculture were pointed out. This agreement consists of 3 main issues. Those are Liberalization, Deregulation and Privatization. These affect the agricultural sector. The Philippine rice sector is affected by these. Average Philippine growth rates of production of agricultural crops from 1993-1997 is 1.20%. Philippines produced 13.270 million MT of grain last 2002 with a growth rate of 2.47%. And Philippines is No.4 importer of rice in 2002, importing 1.1 million MT of rice that year. 540% increase in importation from 1995-1999.

The recent government policy prioritize bills that would remove the quantitative restrictions for rice, substituting it with tariffs, privatize the National Food Authority and hand over rice importation to private rice traders. Tying the major staple food of nearly 80 million Filipinos to the volatility of the world market and using it as bait for its free market thrust, are killing local rice farmers and Philippine agriculture and threatening the country's food security.

The need for the development of an appropriate agriculture technology for small – scale farmers arises from the prevalent conditions that have bound small-scale farmers to the chains of chemical-based farming systems. The farmers face the problem of decreasing yield and increasing soil fertility loss. And they have the problem of growing debt burden. Thus, the sustainable agriculture movement that swept the rural areas in mid 1980. And now because of biotech agriculture will displace small farmers in many ways. The most major issue of which is the seed. Farmers have to give up of

their remaining economic and food sovereignty through bio-patents. These are the contexts by which farmer research and the need for farmer-centered agricultural research arose. Several Ngos and individual scientists have built strong and lasting partnerships with farmers in the quest for a farmer-centered and farmer-based research, for example MASIPAG.

Pakistan

Agriculture is the backbone of Pakistan. It contributes 25% to GDP. Almost 70% population is engaged to it. The lands are fertile and there are gravitational flows of irrigation system. The seasons are feasible to grow almost all crops, vegetables, pulses and fruits. Green revolution was introduced to Pakistan since 1960. The government adopted HYV and was incentives for bumper crops by HYV. HYV. was included in the cropping pattern. This pattern required more water and fertilizers. It made excessively use of tube wells & fertilizers and less resisted against diseases & pests. The government policy also introduced the chemical pesticides. All of these considerable increase in the cost of production.

The affects of green revolution in Pakistan 's agriculture are followings:

- Local varieties vanished gradually.
- Gas in ecological system due to the loss of biodiversity.
- Created Mono-cropping culture.
- Farmers lost their seeds.
- High dosage of fertilizers & pesticides.
  - Health hazards.
  - Destruction of soil structure & texture.
- Changed agriculture from domestic oriented to commercial.

Lok Sanjh Foundation is an Ngo in Pakistan which works on organic agriculture. It works with farmers both men and women. Lok Sanjh' s activities are mobilization of farmers towards organic agriculture, rehabilitation of natural diversity of fields, bio-initiatives, farmer field schools, training of compost manure and neem medicines, seed banks and also farmer's research on organic agriculture. The activities also included Green houses and campaign against WTO.

Indonesia

The total population of Indonesia is 215.6 million. 40 million of them are above poverty line. There are 11 million hectors cropland. There are 18-21 million farmers are rice farmers and 30 million are consumers. Average 0.5 hectare per family. But IR64 is the only hyv grown in Indonesia. Most significant impacts

are the imported rice from Thailand and Vietnam. Corruption and smuggling of rice is significant, resulting to rice flooding. The agricultural sector in Indonesia was affected by green revolution and also WTO agreement. The law of patenting had been effected since December 2000. The Bb-Rice field trials are going on. And there was Strategic special products (SSP).

Organic farming movement in Indonesia was started during Soeharto regime. 3-4 Ngos used conservation on biodiversity and research as to cover their organic farming with underground practices. And during early reformation stage (1998-now), farmer have freedom to choose what crop variety they want to grow since 1992. Mushrooming the freedom of the farmers, back to organic agriculture. In early September 1998 several organic agriculture advocates with support from local Ngos organized themselves and form a network on organic farming. This network recently has 40 Ngos, including several farmers' group as members. Two years later organic farming advocates moved further. A number of farmers producing organic food have formed the Indonesian Organic Goods Producers Association (APOI) since August 2003.

India

Agriculture is the basis of the survival of over 550 million people in India. Spanning over 23 agroclimatic zones in the country. Indian agriculture provides employment for over 54% of the population in the country and contribute 25% of the GDP. The agricultural exports constitute 12.65% of the national exports. India produces a whopping 212 million tones of foodgrains every year. However in the year 2001, the country was rocked by the scandal of millions of its citizens starving even while 65 million tones of surplus food rotted in the government godowns. This fact sharply brought to focus, the argument that national food security cannot match community food sovereignty.

The Indian farmlands are the home for diversity of crops (food grains, fruits, spices, oil seeds, condiments, commercial crops). In per capita consumption : 225kg. in 50 years since the Indian Independence, the area under production has grown by just over 30% while area under irrigation has jumped over 250%. This has its own consequences to the biodiversity in Indian agriculture.

The Green Revolution aftermath: monocultures, displaced thousands of locally adaptable cultivars, gradual

decline in farm profitability, contamination of water, air and soil, overdependence on nonrenewable sources, increased costs of cultivation pushing small farmers out, destruction of seed saving and exchange mechanisms. The Indian Seed industry, one of the biggest seed markets in the world, trades about $920million every year. Of this industry, private seed sector accounts for over 70% of market share. However, still about 35% of the Indian farming is outside the formal seed sector and farmers use their own traditional cultivars for growing crops.

GM crops : The GE crops were permitted for commercial cultivation in March 2002. The first crop allowed for commercial cultivation was Bt Cotton by Monsanto whereas presently 4 Bt cotton hybrids are being grown over 600,000 hectares, nearly 8% of all the cotton growing area. Ten more Bt hybrids are under pipeline for release next year.

Government policy on research was declining public sector investment, privatizing the education, do the need for private investment, MNCs on the Board of Universities, focus on biotech. And farmer research is the new movements for farmer who lead research. SANFEC_Using Diversity research is done. It focused on biodiversity & community-led research, BASA-Asia and SANFEC alliance can do the research. We have the experience on the research on Bt cotton. For the example: Did Bt cotton help Warangal farmers? Farmer-women as filmmakers: why are Warrangal farmers angry with Bt cotton film is being translated to French-German-Spanish-Thai-English, West Africa, Europe, Latin America, SE Asia, three-year research: new alliances, South Against Genetic Engineering being put together in Southern India.

Farmer Research : there is research on economics of ecological agriculture. Farmer as data collector, data analyst and researcher. There is farmer-scientist alliances. Scientist as supporter, and farmer as the leader.

Women farmers lead the way. Biodiverse production, ecological production, traditional knowledge and in situ Resistance is lasting answer. This is note of hope.

Sri Lanka

Country report of Sri Lanka was presented by the experience of farmers' research. Starting from the problem of the agriculture sector and that is the rationale of the research.

In Sri Lanka, several years ago before the introduction of modern farming system, when rural people used to eat many wild food crops in different ways, it kept them healthy and economically sound as well. But gradually, the situation became opposite, many rural poors especially the children and pregnant mothers are malnutrited. Most of them neither can buy nutritive food and nor they have idea about nutritious wild food crops.

Because of those problem, Center for Human Development, Ngo in Sri Lanka tried to do the research with the farmers. The theme of the research is "Uncultivated food crops back to consumption". The objectives of the research are to raise the awareness in the community concerning the nutritive value, importance, various uses, ways of consumption of uncultivated food crops thereby encouraging the conservation of those food crops. To improve the economy of the rural poor farmers reducing market dependency. To expand the research findings beyond the research areas. And to influence the government policy through health, agriculture, and education sectors for the promotion of uncultivated food crop conservation.

The result and discussion are : Identified more than 75 different uncultivated food crops through the study. Among those 8% staple food crops, 91% vegetable crops and 1% fruit crops. And 22% are medicinal herbal plants. Among those crops, 28.4 % crops are available nearby the cultivated land, household fences and rest 71.6 % are found in nearby forest and riverside. Most of the uncultivated vegetables and food crops have high market value. More than 50 % uncultivated food crops are cultivated in other areas of Sri Lanka and 40 % uncultivated foods have good nutrient values, besides, 55 % of those crops have medicinal value.

Market dependency : In the study area, the farmers used to buy the food crops from the market. Now the numbers of families depending on the market for the food crops are gradually being reduced. For the nutrient food intake by the farmers. While doing the study of the nutrition situation of the study area, most of the families were not taking balanced food and were found suffering from fever and cough. And the children and the pregnant women were also malnourished because of the unavailability of the nutrient food and lack of awareness about the wild food crops. As the consequence of the study program, 45 % families are found to take normal food, 40 % families are having unbalanced food and 15 % are having balanced food.

But the people taking balanced food are depended on the market. In case of children, 20 % children are having unbalanced food, 60 % are found to take normal diet, and only 20 % are taking balanced food.

Bangladesh

Soil in Bangladesh is purest than gold. There are lots of livestocks, 15000 trv of rice and lots of biodiversity. But after Green Revolution, this has changed. Hyv are also high input, use a lot of water and chemicals. The cost is more than the yield. The poor farmers cannot subsist on rice production and has changed their livelihood. We lost our seeds, lost our diversity. Water contamination. No livestock.

New agriculture movement (Nayakrishi andolon): There are 12,000 families involved nayakrishi andolon and practicing biodiversity based ecological agriculture to conserve biodiversity and genetic resources and enhancement their wealth for healthy, happy and enriched life.

Nayakrishi have 10 rules. Those are:

- Absolutely no use of Pesticides.
- No use of chemical fertilizer and minimum external inputs.
- Copy the forest and produce diversity.
- Make house hold self reliant.
- Calculate total yield of the household community and ecosystems.
- All domesticated and semi domesticated animals and birds are member of the farming household.

For agriculture, agriculture is also aquaculture. Seed and genetic resources are the common resources of the community and must be conserved at the household and community levels. Water is health. So, stop the use of deep-tube wells and extraction of ground water

Nepal

80% of the population is in agriculture. Small scale farmers' are majority amongst them. They are rich in their own indigenous knowledge, skills & technology that they are practicing since very long time. They themselves are agricultural researcher. They do their research works in their farm based on their own climate, geographical location, beliefs & cultural value. It is helping them to develop more new appropriate farm technologies that can be used for improving their livelihood situation improving food security. However it is not recognized by the government & other formal authorities.

Small scale farmers had the experience on research. The process

of the farmers' research based on situation in the country. It started from problem analysis and assumption building. Local wisdom and modern knowledge in farmers' research were adopted. They identified the research area and inputs. Farmers are the main stakeholder of the research. The NGOs are also considered as stakeholder. Their role is facilitator for the research works. The research finding will be analyzed by the participation of the research farmers. The research works is helped in empowering the small scale farmers.

The suggestion for the government is that government should have appropriate policy to promote the technologies that have benefits to small scale farmers. It shold be incorporated in the government plan & budget. And should play the role to mobilize local NGOs & farmers organization towards the expanding appropriate agricultural technology.

Malaysia

Rice imports from Thailand, Vietnam, Cambodia. Our country is full of palm trees that is the main agricultural crop in Malaysia, also cash crops: flowers and vegetables for export.

Cambodia

The year of 1965-1968 was the time when diversity/forest were destroyed.

Forest cover now is 22%. Losing many species of fish and forest animals and plants.

And use of chemical fertilizer and pesticides. Agriculture in Cambodia is still nature-dependent (rainfed area). Lowest yield in rice production (national statistic is about 1.6t/ha on average and dependency of external input (chemical fertilizers and pesticide)

Debt spiral (micro finance institution and government: before 37% lived under poverty line and now 45-47%. Landless family (sickness debt and food). Access to food sovereignty is sitill limited (food security, safety food, local and national support). Policy of the government now is supporting local products and subsidy

Thailand

Thailand estimated population 64,865,523. It can still be considered as an agricultural country. More than 54% of the total land area is under agriculture, Production is both for domestic consumption as well as export. Thai population in agricultural sector is 54% or 35 million people. Statistics shows that population in

agricultural sector gradually declines because national development policy gives priority to industrial rather than agriculturaldevelopment. The number of poor people in agricultural sector is highest. The main reason is that these poor farmers lacked farm inputs or means of production, especially lack of farmland, access to production resources and unstable farm prices. Most of them carry debt at the average of 37,321 Baht per household.

The agricultural sector was developed by the green revolution. Farming systems aiming for maximum production have created numerous problems. Heavy use of chemicals has been detrimental to the environment, the consumers and the farmers themselves. Farmers have become dependent on external inputs (pesticides, chemical, fertilizer and seeds). Resulting the farmers in mounting debts and financial loss. Most important, farmers have been deprived of their capacity and confidence to develop knowledge by themselves and been at the receiving end of modern farming technology while traditional knowledge and practices once essential to their food security and crop production, has been alarmingly eroding.

Sustainable agriculture and self-sufficiency economy. The movement on Sustainable Agriculture in Thailand began in 1982 as a few thoughtful farmers disillusioned with chemical agriculture took initiatives to develop sustainable farming practices. Currently, the number of farming households practicing various systems of sustainable agriculture is estimated at 50,000-100,000 nationwide. And there are many groups in Thailand which are doing SA.

Challenges for SA development in Thailand are Free trade and the signing of Free Trade agreements, GMOs, TNC and big agro-business in agricultural policy. The government has been pushing for free trade under the framework of WTO and trough negotiations on FTA. These policy affect the farmers. And also the policy on field trials of GMOs. The role of agro-business group on seed and agricultural development is open widely. The policy will provide business opportunities for import and export of agricultural goods in their interests.

2. Farmer's Research Experiences Presentations

The workshop exchanged the experience of farmers' research through the case studies of each country in several issues. And open to the others opportunity for exchange of their farming experience and their knowledge. The issues were presented are following:

2.1 Multi purpose cropping

The case studies were presented by the farmer participants from India, Indonesia and Cambodia.

The experience from India

The participants from India presented their own experience on multi purpose cropping. 2 Case studies were presented. One is the Biodiverse Agriculture. And another one is Ensuring community food sovereignty. The cropping system in both case studies was multi purpose cropping that brought biodiversity to the farm and food sovereignty to the farmer's family.

The first case study was on Biodiverse Agriculture. Poor farmers own extremely poor lands in rainfed Deccan in South India. For them to survive, agriculture has to be ecological and biodiverse. Women has the role in ecological agriculture. They ensure this diversity even while mixing seeds for planting. The multi purpose cropping is in these system. The resultant highly diverse farms sport a variety of crops that are a basket of millets legumes and oilseeds. These crops offer diverse fodder to their cattle and abundant Uncultivated Foods for human consumption. The produce from their lands is the basis of the diverse foods eaten by the Deccan community.

There are 3 to 5 varieties of grains, pulses and other crops from our own gardens. This cropping system is also known for its capacity to generate in situ soil fertility through nitrogen fixing and leaf fall. We also grow soil in agriculture.

Monocrops are incapable of offering all these benefits. The ecological farming system of the Deccan is also known for the medicinal property of the foods that it produces. We have one hectare land but it has different kind of soil so we maximize the different food (eg little millet and foxtail millet, cool and warm food).

Most people in the Zaheerabad region of the Deccan eat sorghum bread as their daily meal. They also grow many varieties of sorghum on their farms. Red sorghum good for diabetes and blood pressure, yellow sorghum (pacha jonna) used with pigeonpea is good for jaundice. Horsegram is good for kidney stones, it dissolves them. Such properties make Deccan people revere their biodiverse ecological farming. When the crops are in full bloom, the farmers of Deccan feel that mother earth is pregnant and offer various foods in a special festival called soonem panduga.

Endlagatte punnam is an annual festival that celebrates agrobiodiversity. Public distribution

system that resulted to large tracts of land that became fallow.

Another experience from India was the issue of ensuring community food sovereignty. Multi purpose cropping brought community food sovereignty.

Objectives of this project were:

- To revitalize traditional diversity based cropping system for food sovereignty.
- To bring back the fallow lands of marginalized house holds.
- To encourage locally viable organic methods of cultivation.
- Avoiding chemical inputs in agriculture through community action.
- To integrate local seed autonomy with traditional cropping systems through local production, local storage and local distribution.
- To promote rural livelihoods at community level.
- To empower village level marginalized sectors especially women.

The implementation process consisted of the participant villages were 80 villages. There were 2000 hectares of degraded resource poor lands. And financial support were $250 per hectare. The activities in farming were ploughing, sowing, soil and moisture conservation works. And capacity sharing workshops and mutual learning sessions are conducted.

The autonomy achieved, it could be said that 2000 hectares of fallow lands for cultivation were reclaimed. Additional production of grain made village food basket self sufficient. And they could produce 12.5 million kgs/year; 35,000 persons/year; 300 poor/village. For rural livelihoods, they could create about 120 person per days of employment per hectare/year. Employment generated: 240,000 days/year. And they could earn money in cash terms: Rs. 75,000,000 (US$175,000) every year.

Food for all: This cropping system could provide food for all. 8,000 ration cards were issued. And there was enough fodder for 5,000 cattle. Sale proceeds in a community fund in their own village bank.

Generation of hope: These are the new options for farmers. Women have the role on management and control. Every village is sufficient in terms of food production and sustainable all the time.

The experience from Indonesia (BITRA INDONESIA)

The Polyculture technique or multi purpose farming is practiced in the farm in Indonesia. There are farm field school in where the learning

activities are done. The polyculture focused on the diversity of plant and animal. There are the technique of soil improvement such as fertilizer from cacao. It makes soil soft, organic cacao used in polyculture technique (banana, cacao etc).

And also there are organic vegetable such as peanut, eggplant, tomato and green beans. The organic products are sold to organic market and partly exported to European market.

Cambodia: experiences in multi-purpose farm (MPF)

The case studies of multi purpose farming in Cambodia is the case of farmer who is small farmer. His family participated in the research on multi purpose farm. And he works with CEDAC.

The rationale of the project is :

- Most of farmer is small land farmers (about 1.3 has). And members of family are growth.
- They faced the problem 0f insecurity of food.
- All of them depends on external input
- There are the problems of contamination of environment and also the low income.

The objectives are

- To find out the effectiveness of land use and good land management.
- Access to food sovereignty.
- Access to market and income generation.
- To Promote the internal input use.
- To Improve the local environment.

The process are followings:

- Facilitation of farmer group mtg.
- Selection of interested farmers.
- Facilitation of an exchange visit.
- Designation of multi purpose farm by farmers and project staff.
- Preparation of multi purpose farm.
- Follow-up and advise.
- Conduct the workshop.

The activities :

- There are vegetable garden and livestock in the farm.
- Improvement of cooking stove.
- Access to local market and competition with external products.
- Linking consumers and producers

This is the farmer's report. After practicing, the result was following: The name of farmer is Hong Sein. He did many kind of activity in agriculture. He did agriculture because I live in the countryside. His parents/ ancestors were also farmers. Then he learned about ecological agriculture through CEDAC. He attended the trainings in ecological farming and

multi purpose farming. He have been done Multi purpose farm because his family is growing but the land do not grow. In conventional practice he harvests less than 1ton per hectare (rice). But if he combines the conventional + techniques introduced by CEDAC the yield has increased.

He plants many multi-purpose trees in my farm (Neem, Acacia). Inside the Multi Purpose Farm, he has a canal system and pond for fish raising. Ricefield in Multi Purpose Farm he practices SRI. Using 15-day old seedling. To get high yield, he improves land through organic fertilizer and manure. Grow vegetable after rice. Wet season: grow cassava and vegetable. Comparing to conventional method (<1 ton/ha), multi purpose farm has increased to 2.5 ton/ha.

How to grow vegetable after harvesting rice: Choose what vegetable to plant and seeds should be 2-2.5 month. Selection is very important to ensure that good yield comes from good seed. Soaking it in water then let it germinate through putting warm water. And select the best seedling.

2.2 Community seedbanking

The experience on community seed bank were presented by Deccan Development Society from India and Ubinig from Bangladesh.

India – Seeds: A Farmer's Story

The name of the farmer who presented this case is Laxmi. She lives in Humnapur. She is a single woman. She has 2.5 acres of the land which is poor soil. Her family was the only seed-keeping family in the village. They used to supply seeds for everyone. Seed keeping is their tradition. Her grandparents taught her the relationship between seeds and life. It is a part of her spiritual being.

In her experience taught her that Government supplied hybrid seeds with chemicals destroys the health of soils, human beings and the environment. These seeds lead to monoculture and destroy the traditional multiple cropping pattern.

Women decided, in their sangham meetings, to abandon hybrids from their farms.

They decided to retrieve their lost seeds. It was a slow and painstaking process. They found out where they are available, went there, collected in small quantities and multiplied them. The effort took them almost 10 years but now they have again started storing their seeds.

It meant that they could sow in their fields at the right time because

they have the seeds in their hands. And no more dependency on outside seeds. It meant that they, the women had complete control over our seeds. They were once again leaders of the community. They returned diversity into their farms. Inputs now low. Yields high. Health started improving. Soils got better. Food become diverse, tastier and health. Children had more nutrition. Food and farming was under their control once again.

Another case study is Laxmamma's story. That is today the story of over 5,000 women. Poor farmers had to depend on rich landlords for seeds all the time and beg for seeds. Because of this the farmers cannot plant the seeds in time. Now each woman has 20 to 30 varieties of seeds in her own home. Situation now completely altered. Big farmers come to the small farming women for seeds. Now we have 55 community seed banks, traditional, rare and lost seeds for the community. In their village level, seeds banks seed keepers save 37 summer cultivars and 48 winter cultivars. They have 10000 kilograms of quality seeds, 85 varieties good for over 1000 hectares of land. Government seeds bring fights and deaths. Our seeds bring peace and life. They ensure our sovereignty. Next year, we will try to reach 1000 communities and teach them about the experience in seedbanking.

Bangladesh

Seed is very important to us. When he was still a child they have a lot of varieties of seeds. When the green revolution came they bought hyv seeds to the communities and the rich farmers planted them so that small farmers will be engaged to use the hyv seeds too. The old and young farmers decided to keep and protect the local seeds in the community. They formed a seed committee that collects the local seeds (rice, vegetables, etc). In every village, 20-25 varieties are kept at the household level. At the village level they have established a seed hut (seed bank). Apart from the seed hut, we also have a seed-ware center.

The big companies are coming to sell seeds. Seed is weapon to kill, if we let the seeds in the hands of the companies then we will die. It is very important to keep the seeds in our hands. We have land, we have the knowledge how to keep this seed. So these companies go to our village and tell us that they are high yielding seeds. But no, all the countries must keep their seeds in their hands and keep the companies' seeds. I am inviting everyone to unite and keep the companies out because if we let the companies in, then we lose everything. If we are talking about food sovereignty, seed is the only food security.

They have collected 2000 varieties of rice and 100 vegetable seeds. This time is harvesting time so women are not allowed to go outside the house. Women are keeping the seeds and doing the selection. Soil health is getting back. Their health is getting back.

(A song on the different species of fish composed by one of the Bangladeshi farmer himself was presented by the farmer, wherein he mentioned 55 species!)

2.3 Varieties improvement and selection

The experience of varieties improvement and selection were presented by the representative of Masipag, Philippines and Alternative Agriculture Network in Thailand.

The Philippines

The case study on rice improvement and selection is the experience of Renato P. Gonzales, Filipino farmer-breeder.

Seed improvement objectives, activities and methods:

1. PO-managed trial farm establishment/seed banking.

Establishment of trial farm, grown with at least 50 rice cultivars in the community. It is in this trial farm where different traditional rice varieties, farmers' selections and MASIPAG bred rice are grown, maintained and evaluated. Major activities of the PO members in the trial farm are: trial farm management such as land preparation, seedbed and seeds preparation, sowing, transplanting…until harvesting and seed storage, farm and crop observation, in-situ rice breeding, etc.

2. Breeding/seed varieties improvement

a. Objective of this initial start of breeding (cross) was to produce a rice cultivar that is aromatic, with long panicles and resistant to pests and diseases.
b. Synchronization of flowering
c. Emasculation
d. Pollination

3. Selection and mass production.

4. Continuous education and skills updating training.

Along with this process of sharing the rice breeding experiences among and between MASIPAG farmers, the number of farmer-breeders have multiplied. As of November 30,2004 there is a total of 14 rice breeders with 91 crosses, 60 selections and 72 bulks.

After presentation, there were some question from the participants.

The question were about the technique of Seed improvement such as : what is crosses and the bulk method? And what is the advantage of the bulk method? The answer was bulk method increases the genetic base. And there are legislations regarding giving incentives to breeders (certification). Masipag stand on such legislation is that we are against it since it will give the companies and government the chance to patent the varieties and control over the seeds will be again taken out of the farmer's hands.

There are some exchange from the Bangladesh experience that before harvesting, they observe the land for good seeds for next year and what is the preservation methods. For the Philippines, they choose the best grain and hang it to dry, some will keep it in jars but the next season, they plant it to preserve it (on-farm preservation) .

Thailand

The representative from Thailand presented that they learned from MASIPAG in 1988 how to breed. But when they came back to Thailand, the Thai were not ready and not fighting IRRI like MASIPAG and Filipino farmers. They decided to collect the seeds and think probably that the Thai farmer will learn in 10 years. After 10 years, they improve their local TRVs, not by breeding but by selection. Example of the Jasmine rice. They discovered the technique to make the Jasmine rice high quality and high yielding with minimum inputs through SRI. Other organizations practice SRI, but other Thai farms do not practice SRI because they find it difficult.

Techniques: Get premium seed and plant the premium seed for 2 croppings. The yield they get is 10tons per hectare. Then they used transplanting and without chemical fertilizers. This year they expanded to 2 hectares. Direct sowing: 9.5 tons/ hectare. Select land, bring the seeds. Unhusked the seeds and from the unhusked seed select the most perfect (not chalky, no white dust inside, must be transparent, no broken line inside, skin must be very firm not wrinkled, color must be perfect). Select 3% from the bulk, meaning to get 100 samples, you must select it from 3300 unhusked seeds.

Process of selection :

- Exclude discolored seeds by naked eye.
- Choose firm, long seeds, magnifying glass should be used .
- White jasmine rice is being exported.
- Germination – seeds are mixed with burned rice husks in a claypot. Put the pot in a tub with water.
- Transplant

Farmer sharing:

- Germination period.
- He used the HYV and from this method he grow in dry land using only small square meter of land. He used every seed for seeding, at 25 cm apart. He got 25 kilograms from the 4 seed.
- Don't use any chemical fertilizer.

There were some questions from the floor such as: for how long can you use the seeds that were selected? It cannot use the same seed source more than 3x (3 years). If you produce much jasmine rice the market will collapse. But our goal is to make jasmine rice cheap and accessible to everyone. And the one who uses the selection method is the small farmers

2.4 Soil Improvement: Indigenous Micro Organism (IMO)

Philippines

Farmer profile and history of membership in the MASIPAG is Mr. Palermo "Dagol" Catamora. He has 1.0 ha. land was given through the CARP but it was very acidic. In 2001 he started planting rice organically when he attended a MASIPAG training. He began diversifying his 1.0 hectare land immediately. He also started a fishing pond and started raising livestocks and other farm animals. He attended many trainings on soil fertility management practices but he was interested in IMO. He learned from the trainings that not all microbes/microorganisms are bad. When using IMO, he noticed that his yield increased 4x, or at the maximum, 5.5 tons per hectares, depending on the season because the Philippines has 2 seasons. One of the most important thing he learned from using the IMO, is that it is a cycle of benefit: the soil benefits from the application of IMO and he benefits when the soil give good yields. In MASIPAG-Mindanao they have a Farmers' Innovation Forum held 2x a year where farmers share their innovations and experiences and are validated by invited scientists.

His presentation on the techniques used in IMO making. There were materials such as wooden box, clay pot, paper& string, cooked rice and sugar. And the procedure were 6 stages started from put the cooked rice inside the box, cover the box for five days and cover it with plastic sheet…. After a week, he could get the juice.

The questions are : is it applicable to other countries? It was applicable since the IMO technology is from Korean Nature Technique. The question about the feasibility for the type of soil. He answered that in his experience, Mindanao has many type

of soil and he didn't notice that IMO cannot be applied in one type and not in another.

what type of microorganism is extracted and what does it do to the soil? The microorganism extracted is something that is good for the soil. IMO can be used to spray soil and plants which enhances the microbial content of the soil which helps in the soil's fertility.

Thailand

Farmer from Thailand presented his experience on IMO. And he hope that in the future, farmers will be stronger. Farmers have the ability to learn from each other, to rely with each other. In the past, farmers thought that they had no potential. But now the farmers know that the government cannot help them. For example, when forest was destroyed by the government, the country became so dry and the country's diversity was reduced. More chemicals used in the countries is increasing every year, so more insects and inputs for the farmers become more expensive. The new style of learning, he learned from the Ngos, which different from what the government taught. You get into the life, into the university, and livelihood but he learned from the Ngos about soil improvement. At the beginning, they were not very confident with using the soil improvement technique. So this time, he is still in the process of learning. He is using the fast-growing crops as a starting point. At the beginning he used composting for the fast growing crops. He used molasses. The portion between crop and molasses is 3 kilo crop and 1 kilo molasses. This is not fixed. Other farmers need to try out which ratio works best for him. Composting using the molasses is not fixed. For example they can also use dead animals with molasses as well as crop. The important thing is that farmers work together and try it out. For example, if they want to make animal manure for fertilizer, one animal manure is different from another animal. Different nutrient contents. The thing that they know of the way they are doing is they get the dung and they try if the soil is improved.

Bio extract procedure: there are Materials: Rice bran good soil, brown sugar, fermented liquid, paper and rope. Procedures: mix rice bran with good soil (1:1kg), mix fermented liquid with water (1:10) with moisture rate of 55-60%, mix brown sugar with #2, shape it into round figure with size:1 kg and cover with paper. Leave for 7 days

How to use: Soak ready-made bio-extract fertilizer for one night and mix it with water (1:10) and apply to soil.

Indonesia

The farmer from Indonesia presented the background on Indonesia.

And he have perception that farmers not only in Indonesia but the whole world have been marginalized. 3 factors: regulation, economic, social factor. The green revolution showed the failure of world agriculture. Most land in Indonesia is controlled by military and also cronies of Suharto. Before the fall of Suharto, farmers were trying to reclaim their resource land.

Struggle to get their ancestral land. However the farmers are also fighting the Gene Revolution promoted by Monsanto and other companies.

They try to know the lifestyle of their ancestors why they live long lives compared to new generations. They observed that it has something to do with the food they consume. So in the last couple years, they came to BioTani Indonesia Foundation and learnt about organic farming.

Procedures were displayed through the visual aids on the wall in the conference room.

2.5 Pest Control Experiences

Philippines

The farmer from the Philippines Mr. Pepito Babasa presented his own knowledge on pest control. Mr. Pepito Babasa owns a 10.5 hectare farm near a lake in San Miguel. He has been practicing conventional farming for 20 years and in 1998, he shifted to organic farming. That's also when he began researching by planting as trial varieties and trying other techniques. He gave attention to pest control techniques, especially golden apple snail. His farm is near the lake and the snail has always been a pest so he made a pest control method for the snail. He used pait leaves and trunk and also lime chop and pound it and add 1 litre of water. Extract the juice using the strainer and place it in a container and cover it.

Aside from the golden snail, he also manages black bug by using plant extracts. He mixes lemon grass, madre de cacao and pait juices with coconut oil and powdered soap to use as spray during rice's grain filling stage.

With vegetables, he uses leaf extracts of Blumea balsamifera, soursop and a local plant called "kamancao". He told that it is very effective with cucurbits like watermelon, cantaloupe, bitter gourd

and bottle gourd and squash and for eggplant and string bean.

Thailand

Introduction of the farmer-presenter, Mr. Nakorn from Supanburi. The presentation focused on "Rice farmer field schools". The farmer field school is the learning process of the farmers. It is successful because of the power of repeating, bringing the students to the trainings/discussions, the trick is how to bring them for the training for 6 weeks. Curriculum of the training. Sharing/discussions between the participants.

There were 7 villages in one sub district and they went to see each other at first before the training started. Once a week for 8 hours. They wanted to learn the plant extracts to control the extracts. They studied the plant extracts that control not destroy the insects and they went to find that the herbal plants. They went to the government and asked for the opinion of the experts. They collected all that we needed from the community and the forests. Fermented the herbal plants was the main method. Collecting the insects from the rice fields. They identified the bad and good insects and studied the proportion of the bad and good insects. If the proportion was bigger for the good insects, then there was no need to spray since the good insects could control the bad insects. Identifying the predators and prey, he compared his identified predator with that of the government.

2.6 System of Rice Intensification (SRI)

The experiences on SRI were presented by the representatives of countries. Those were Cambodia and Philippines. They presented after visiting the farmers who practiced SRI in the village in Kampong thom province.

Cambodia

SRI is the changing management practices to increase rice productivity with fewer inputs and more profitability. SRI is being promoted in Cambodia since 1999 and there were field test by farmers in 2000. SRI is different paradigms of production from green revolution paradigm. SRI changes the way that farmers manage their plants, soil, water and nutrients, reducing water use and production costs while raising factor productivity and farmers'income.

SRI principles :

- Rice is not an aquatic plant.
- Rice seedlings lose much of their growth potential if they are transplanted more than about 15 days after they have emerged in their nursery.

- During transplanting, avoid trauma to seedlings and especially to their roots.
- Wider spacing of plants will lead to greater root growth and associated tillering, provided that other favorable conditions for growth such as soil aeration are provided.

SRI practices : practices varied to conditions.

Basic Practices:

- Transplanting young seedling.
- Wide spacing-single plants, in square pattern.
- Soil aeration-through water management and weeding, so aerobic conditions prevail in soil.
- Organic matter added to enhance the soil.
- Weed control with rotation hoe is commended.

There are some questions from the participant about the technique of SRI such as the best distance of transplanting. That depends on the quality of the soil and variety of the rice (old variety 25x25, new variety 30x 30). And the national average yield is 3.5 tons/ha.

The experience from Philippines: PABINHI

Sustaining agriculture system promoted by other farmers. Self sufficiency is achieved when they do it. This farming systems includes organic farming, dynamic farming, natural farming, agro ecology tried and proven in the Philippines. Training was provided to the farmers. And also collecting and selecting Traditional Rice Varieties (TRV).

- Improvement of varieties : Maintains 600 lines (both TRV, farmer selected and farmer bred lines). Live seed banking.
- Training on on-farm research for pest control, soil fertility management. Have advanced this method further as nature farming with the use of IMOs.
- 25x25cm spacing. Using single seedling. Saves up to 40% of irrigation costs. No fertilizers, using compost.
- The government committed to funding and promoting SRI.. we will have to see if this public statement will be followed through. We want the government to adopt SRI as its program.
- Once farmers recognized the gains from SRI, we can reduce the amount of land devoted to rice.

From the case study, they found that rice needs oxygen so you must

control the irrigation so as just to keep the soil moist.

SRI objective is to increase rice production without having to make any significant new investment.

Key principles:

- transplant very young seedling (with 2 leaves).
- 25x25 we use 6-8kg/h 30x30 we use 3.5kg/h.

Some questions from the floor were :

- Won't the mechanical weeder damage the seedlings? The answer is controlling the rotary weeder so as not to damage the seedlings.
- how many laborers to transplant? He use 20 planters, but transplanting is staggered.
- is it more time-consuming and needs more laborer? The 1st cropping is a learning stage so it needs more time and laborer.

2.7 Chicken raising

presented by the farmer from Cambodia

Farmer who raises chickens shared technology on chicken raising in his home area.

Chicken raising based on natural principle. His experience on chicken raising comes from his parents, his ancestors. It is his 25 yrs of experience learned from his ancestors… the important point is the experiences that he learns from the past is not a problem of chicken food. He has observed that using chemicals has caused many chickens to die. He would like to say that traditional chicken raising does not bring much profit, many chickens die. He learns from the experience… his economic gain is getting hire. Natural chicken raising increases the length of life of the chicken. The natural principle on chicken raising I find that we have to learn about animal husbandry… male/female we have to find a good healthy female that will lay a good eggs and a strong- healthy cock.

The technique of chicken raising are:

- should use chickens free of diseases.
- Use a big (2-2.5 kg) female.
- The males can only be kept for 3 years.
- Avoid relative/ same blood of chickens for raising to prevent future problems and diseases.
- If you use the hen or cock, the hen doesn't lay good eggs and the chicks get diseases easily.
- The cage is very important for effective raising. It can be made of bamboo and select an area that is not flooded. It is better to find an area that is 70% out of sunlight.
- The area for raising is important including developing a

composting area, cow manure, chicken manure, worms; all of this provides a source for chicken food. My chickens are feed by natural food not by chemical food.

- The food for the chickens is available in the local area… I don't buy food that is imported from other countries. The food is easy to find. We can use rice, corn, vegetables and even rice powder can be mixed up and fed to the chickens.
- You can also mix duckweed with rice powder or other vegetables to feed to the chickens. We also use grinded sea shell and tiny stones to feed the chickens.
- *Disease prevention:* I was never interested in medicine to cure my chickens. I usually use local plants as a medicine to cure the chickens. We use lemon grass. We boil it in water and give it to the chickens to drink as medicine. Other kinds of medicines include the use of certain kinds of trees, bitter fruit…used for de-worming.
- We try to reduce expenses as much as possible. We can develop our own equipment such as abandoned tires.
- Bamboo can be used as a feed container as well.
- *Sanitation:* in early dry season I always to evaporate the water from the soil.
- In my practice of chicken farming I find that I can raise 2-3million riel per year.
- People can ask me to share my experience of chicken raising. As of today I have shared my experience with 600 people in Cambodia. Now at least 18 families practice natural chicken raising. I expect to extend my chicken raising and share my experience.

Some questions were asked by the participants : chicken and duck is a part of diversity… my question is, are you raising chickens for biodiversity or for selling for meat and eggs, which one? The farmer answered that for selling meat and to eat eggs…and to gather chicken manure for fertilizer and also to use the chicken to eat worms and insects to help keep our vegetables healthy.

Can we do chicken with raising with other animals like ducks, pig? The answer is no, we cannot. I don't like to raise pigs because they consume more food.

Can you show how you make the medicine for de-worming.. Can you show us the pictures? The mixtures are separate. Do no mix the rice with stone, etc. showed a picture with sand and small stones. The shell can be grinded and put in a separate container.

Do you mix the chicks with the mother? How do you avoid bird flu for you chickens? Is your sanitizer chemical or not? The answer is that I always give the water everyday during the dry season. This is mixed with medicine. You have spread a coat of soil in order to evaporate the heat from the soil.

2.8 Organic cotton

Organic cotton presented by the representative from Indonesia and India.

The experience from Indonesia.

Why organic cotton?

Organic cotton is a part of our strategies, to bring all diversified crop to our farm. Integrated organic cotton farming with many vegetables. Three micro-ecology farming: wetland (rice or fish pond), ladang/ huma, woodcrop "forest"

The case study from Indonesia was the organic cotton with multiple cropping in Kamang West Sumatera. In upland village farm during 1996-1998, PAN Indonesia has successfully identified several crop combinations for cotton based on organic systems (organically-grown with multiple cropping). There had been research on cotton with multiple cropping. And found that a field trial for cotton cultivation through organic systems with multiple cropping patterns had successfully achieved. By planting three hybrid cotton varieties, although plot for trials are small size. But the farmer could get a good harvest. Three cotton varieties have suitable combinations in term both economically and ecologically with three cash crops, namely groundnuts, mungbeans and soybean. There were 2 trial of cotton cultivation. And there were some findings .

India Cotton Presentation

A farmer was supposed to come from India to present this, but the farmer wasn't able to get a passport. If you are a business man, landowner, etc it is easy to get a passport but nearly impossible for a farmer.

In the western part of India, which is known for its black rich soil, farmers started to grow cotton. They started to realize that indigenous cotton was really good. It is called a left alone crop. Hybrids were introduced and the government subsidized.

Due to crop failures, the farmers returned to organic. During transition period yield is reduced but after 3 years the organic yields exceed hybrid yields. Higher net return in organic cottons.

Bio research was done. There is a publication to get more information on the research at www.ddsindia.com

Some questions from the floor, were the following:

Monsanto claimed that the Bt cotton has expanded in India, what is the reason for this? The answer was that the farmers have no option for selling the seeds. The seed dealers give the seeds. The dealers have been bought over by Monsanto. The farmers have no choice. …. Second farmers are still motivated by economic profit, so until we move away from economic profit to the larger ecosystem…

what do you mean by non Bt? It means that non chemical non hybrid seed.

Comment: from Indonesia

The confession from Monsanto on how Monsanto has failed in Indonesia… you can read in this publication which showed here.

In Pakistan there is no pesticide to get ride of white fly? How to do? There are a series, keep soil healthy, neem, chili, dung, calulin? And returning organic material in the soil. There is a study of 2 villagers that are getting much higher yields than bt cotton. I strongly recommend that you see the film during the tea time. It is a very effective film made by the farmers for the farmers… it is very effective film.

POLICY DISCUSSION

Moderator: Witoon from BIOTHAI, Satheesh from India
Presenters: Shalini & Vladimir from GRAIN

Based on issues that we discuss what kind of policies should we recommend to governments, ADB and other such institutions.

Shalini: Wrapping up the process and introducing all the issues that have come up during the course of the country presentations and reports. The purpose of farmers and friends coming from ten countries across the Asia region to highlight Farmers Research Experiences was with the objective of:

- sharing good experiences
- developing an informal network
- showing what "research" really is to the public, policy maker & private

The background to this workshop was the ***Growing Diversity*** Project.

What are then the issues around Research: Corporate Takeover

Privatization (of resources, of knowledge)

Another issue was the access to farmers for basic resources, access to and the privatization of knowledge through IPR.

If TRADE is *"free"*, then why does it create limits of access to knowledge and resources? Why do TNCs dictate the type of research and products.

Plant variety standards

Sixteen international agricultural research centers such as CGIAR; NARS, FAO (ITPGR). All of the centers have collections of farmers' seeds and they have been instances when germplasm has leaked to TNCs. They dictate research policies to countries. These centers were set up to give directions to individual countries and then phase out, but instead have become in trenched and control the system.

The FAO has an agreement that essentially binds them the hold these seeds in agreements in *"trust"* but this is under question and IPRs are developed giving TNCs control and access to seed and information.

The ITPGR gives a definition of "farmers rights" but creates no international obligation to recognise these rights, it is left to country governments to implement. The FAO defines the rights rather than facilitating farmers to define what their rights are.

FAO and it endorsing bio tech: proposed the way to feed the poor

Post Green Revolution the increasing emphasis on techno-fixes: biofortification

Last but not the least is the issue of finance and how money controls institutions and research

But for farmers' research, we are different:

The Concepts that the workshop has reinforced are

- Asserting Autonomy
- Community and food sovereignty
- focus on AgriCULTURES, Traditional Knowledge and - 'insitu' resistance

Fighting the global from on-the-ground resistance

We envision and endeavour to put back farmer-ed and farmer-ocused research from the lab to the land.

Major themes of the presentation: FomGrowing Diversity to Growing Knowledge.

Farmer-Led, Farmer-Oriented Research

From the Lab to the Land

Vladimir:

Positive Agenda:

- **Sustainable management and agricultural biodiversity as a form on in-situ resistance and assertion of autonomy**

Four themes that emerged towards a POSITIVE AGENDA:

Sustainable management of agricultural biodiversity as a form of in-situ resistance and assertion of local autonomy...examples of farmers experiences in seed saving, free exchange and needs-based improvement of farmers varieties / selections as a deliberate effort to cut dependency from private seed and agrochemical corporations.

Forging strong partnerships between farmers, NGOs and academics in reclaiming the social and political space for farmers research...from farmers experiences in the BASA-Asia network, where partnerships are seen as a strategy in advancing farmers perspectives on various agricultural development issues including the fight against agricultural policies of the government that endorse the interests of private corporations and multi-lateral aid institutions.

Women as actors in agricultural research and development...this came through strongly from farmers experiences in South Asia where women play leadership roles in the generation, development and sharing of practical and traditional knowledge systems related to agricultural biodiversity, as well as in dealing with agbiodiversity itself.

Local security, consumption and utilisation as priority focus of production... Whether it was growing organic cotton, raising organic chicken or tapping uncultivated crops, farmers experiences with small-

scale, family agriculture stressed the importance of production based on local needs as opposed to artificial demands dictated by market forces. This highlights the need to re-evaluate the integrity of local food systems, consumption pattern and utility value of products and innovations.

Open House Discussions of Farmers

Pakistani farmer:

- We the farmers should conserve our seeds and the outsiders like the company have given nothing to us. We should take care of our seeds. We should also go to other countries and share with the farmers our experiences because farmers are the main actors. I have myself have learned a lot by looking at the SRI method. I have learned a lot from the exchanges.

Bangladeshi farmer:

- It should be mentioned that whether we are talking about Hyv or GMO … seed banking (no we are not talking about GMO or Hyv or seed banking)

Philippines' farmers:

- Innovation forum should be held by the NGO's, so that different countries have sharing of experiences of the farmers' innovation. Publish innovation results that are validated by scientists. In seed banking, the trial farm method is a very good practice of in-situ banking so that the TRVs will not be lost/ will be preserved. The NGO's should support the people's organizations. NGOs should also support women's group as they perform a role in seed preservation.

Satheesh : On the scientific validation, it should be a two-way validation between scientists and scientist-farmers as well as between farmers.

Philippines:

In the Philippine experience, in the innovation forums, scientists are invited to explain the farmer's research result in scientific terms.

Indian farmer:

Seed preservation is an extremely important step but we must also understand the intrinsic relationship between seeds and soil. So we must concentrate first with our own varieties. Another very important issue is stopping the use of chemicals. We must also give a lot of publicity on the farmers' knowledge so it becomes in par with the scientists

knowledge. We should start dialoguing with the scientists (farmers).

There is also need to understand traditional agricultural methods and implements.

Cambodian farmer:

Interested in conservation of the traditional varieties of rice and other crops. Interested in the ___ of other countries. Very interested in the impact of the imported variety. We have to should know the sources of the traditional varieties and must learn how to identify seed varieties. This is to protect the trvs. This is our seed conservation method. I am happy because the seed exchange and that people from many countries have gotten seeds from Cambodia.

Thai farmer:

We all come from many different countries. We can see the weak and strong points but we haven't discussed how the farmers can move for themselves. We need to bring our strong points to become government policies. If we don't do this then the TNC ties the hands of the farmers. As a farmer don't expect the farmers to be rich, if we expect that we will never be rich. We just want to be sustainable farmer for our life and our family.

One thing I am concerned of in my village is about the new generation. They are very important we must let them understand about our genetic resource.

Thailand: other comments

This workshop is very good. But there is a problem about the language. We could not exchange directly. I want to know how other farmers save seeds. How can we communicate better, more directly.

BIOTHAI

Both farmers of Philippines and Thailand have made it clear to develop the research system of the future between scientist and institutions. We have to be clear about the role of the institutions, scientist and regime. We have to clarify the role of the farmer. The role of language as the farmer brought up, the question of how we can go forward to solve this problem. Maybe this kind of workshop cannot solve the communication, but maybe other kinds of activities can share and find out discussion and sharing for the future out comes of workshop.

There should be stronger partnership between farmers and scientist. The scientist never take the political and social issues into consideration. Therefore the NGOs and farmers have a strong responsibility to put for their research forward.

- **Stronger partnerships between farmers and NGOs in reclaiming social and political space for farmers research**
  - Sri experience
  - Ecological agri
  - New agri movt
  - Organic chicken raising

Discussions

Cambodia:

Farmers play an important role in seed conservation. I recommend that outsiders such as NGOs should play an important role seed conservation, storage, and seed exchange for women. In terms of capacity building but not specific to research.

Another Cambodian farmer:

The government, especially Cambodia government, should provide capacity building and gender development in the community.

Indian farmer:

we should create community seed so that there is a way to share seed knowledge from generation to generation.

Bangladesh:

The scientist do not accept the farmers research. I think we should promote?

Philippines:

There is no progressive scientist that promote farmers. We need farmers that support farmers.

Pakistani farmer:

We don't have a partnership with scientist who support and research ecological research.

What should we be doing to make scientist realize that farmers research is valid.

KMP:

Yes it is correct that the farmers have been doing their research for decades but the scientist have ignored this. It is only recently the the farmer research... this has resulted in many alliances. Other countries should be able to forge alliance and take up the issues (research) and put it forward into the national advocacy agenda of the NGO and national alliances.

Indonesian:

make a bridge with scientist

Philippines: KMP

The farmers were able to share the effects of GEO on soil

- **Women as actors in agricultural research and development (India, Pakistan, Bangladesh)**

Discussions

Satheesh

We must not make the mistake of being patriarchal in our dealing with women. We must make sure that we give leadership to women.

Philippines:

Farmers research should focus on what the government needs not what scientist want.

Reflection and Evaluation

5 minutes meditation

Reflection: Whatever you think about the workshop for the last 3 days

Ten minutes for impression: What is the negative and positive impression for the workshop?

Cambodian woman farmerlady: the main important experience is seed conservation and seed selection. I also learned about authentic agriculture and to oppose GMO. Natural agriculture is a good approach and I also value the agreement to select and storage seed. Local seed breeding at the community level and soil improvement especially as we convert from monocropping. We learn from the intercropping such as fruit tree and vegetables. I also learned about biodiversity including in the forest. I learned from the exchanges of farmers about bio-extract, farmer group mobilization and farmer organizations to conserve natural resources. When I go back I will bring this experience to share among the villagers. So I will bring this experience and apply to my farm. Thank you to all participants. I wish you all happiness and long life.

Indian woman farmer: What we saw as we were coming from Bangkok, the kind of natural resources and the relationship between the producers and consumers was very interesting to me. Yesterday visit to the village – the variety of plant, animals, vegetable was very interesting to me.

Pakistani farmer: I am very thankful to the Thai and Cambodia for conducting this workshop. I have learned many things from here and when I return I will share it with the other farmers.

Indonesia: I learned a lot about organic farming and I give thanks to the hospitality.

Thailand: On behalf of the Thai participant I would like to invite you all to visit Thailand again.

Bangladesh: In Cambodia I was very happy to look at the rice field. The trees, plants are very nice. The language is a probably. I would like all the participants from the 10 countries to come to Bangladesh.

THE SIEM REAP STATEMENT

We, farmers from 10 countries across Asia, have gathered at the International Workshop on Farmers' Experiences with Agricultural Research held on 14-20 December 2004 in Bangkok, Thailand & Siem Reap, Cambodia, in celebration of the diversity of food and farming cultures that our region of the world represents. We have shared different country experiences, exchanged farm innovations and practices, carefully analysed farmer-researches and reveled in the knowledge and learning that we have in our midst.

In recognition of this and of our authentic collective wisdom that sustains not only the life & livelihood of our families but the entire world, we envision a critical role for farmer-led, farmer-oriented research based on local needs of communities and oriented towards mutual sharing. We have decided to make the following statement to advance this agenda

We have observed

with deep concern, the growing nexus between so-called science and the politics of trade liberalisation which legitimises the piracy of our knowledge, and insist that our governments take immediate action to stop this.

with dismay, through our experiences with CGIAR-led Green Revolution technologies and its current preoccupation with biotechnology, that scientists cannot solve the problem of farmers.

with incredulity, the manner and scale in which the international agricultural research systems have become extensions of agrochemical corporations and the modern biotech industry by serving their agendas and pushing governments to take the route of genetic engineering.

We strongly object to this transformation of a system that had based its very existence on farmers' resources and knowledge in the name of supporting small farm agriculture. We condemn the way contemporary scientific institutions ignore farmer-research and dismiss our knowledge as unscientific.

We demand with immediacy that

Consultative Group on International Agricultural Research (CGIAR) institutions stop the promotion of expensive, capital-intensive and input-dependent technologies that do not suit poor farmers' conditions and which irreversibly threaten agricultural biodiversity. These disruptive technologies - like genetic engineering and hybrid rice technology - do not only damage our natural environment but also lead to the loss of farmers' control of genetic resources that further exacerbates the problem of poverty.

agricultural research be reoriented towards addressing the needs of poor and marginalised farmers that composed the bulk of the agriculture sector across Asia today

funding agencies reorient their priorities and not support researches that threaten the very foundations of farmer-controlled agriculture.

governments support small farmers' initiatives in planting diverse crops, which are suitable to our environment, our health, our cultures and our belief systems, and honestly recognise women-led community seed banks as authentic forms of agricultural research and make investments in these initiatives just the way they invest in national gene banks.

governments desist from collaborating in neoliberal trade agendas against the interest of their own farming communities in Asia.

We commit ourselves to

reclaim true respect and dignity for our food and farming cultures, and to show our will and power to achieve these through sustainable and self-reliant means.

further develop our own technologies through our own researches that respond to the diverse and changing needs, priorities and aspirations of farming communities, by consciously integrating the social and political realities of our agriculture.

reaffirm our faith in the leadership that women have always taken in the ecological stewardship of our agricultural systems, and to advance this leadership role in our communities for seed storage, management and control at the community level.

In a symbolic act today, we exchanged our own seeds and knowledge of sowing them, saved from and improved by countless generations of farming throughout our individual country histories. Together we are committed to not only growing diversity but also growing knowledge and sharing it amongst ourselves.

Siem Reap, Cambodia,
19 December 2004

WORKSHOP CO-ORGANISED
BY BASA-Asia & SANFEC

CO-HOSTED

BY AAN, BIOTHAI & CEDAC

Participating countries and signing organisations

Bangladesh: *Policy Research for Development Alternatives (UBINIG)*

Cambodia: *Cambodian Centre for Study and Development in Agriculture (CEDAC)*

India: *Deccan Development Society (DDS)*

Indonesia: *BioTani Indonesia, Bitra Indonesia, Organisasi Tani Jawa (Ortaja)*

Malaysia: *Farmer*

Nepal: *U.S.C. Canada Nepal*

Pakistan: *Lok Sanjh*

Philippines: *Peasant Movement of the Philippines (KMP), Farmer-Scientist Partnership for Development (MASIPAG), National Initiative on Seeds and Sustainable Agirculture (PABINHI)*

Sri Lanka: *Centre for Human Development (CfHD)*

Thailand: *Alternative Agriculture Network (AAN), Biothai, Khao Kwan Foundation, Rural Reconstruction Alumni and Friends Association (RRAFA), Sustainable Agriculture Foundation(SAF)*

International: *GRAIN*

APPENDIX

DIRECTORY OF PARTICIPANTS

Farmers' Experiences with Agricultural Research
17-20 December, 2004
City Angkor Hotel, Siem Reap

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
1	India	Begari Sammamma	F		Farmer	DECCAN DEVELOP-MENT SOCIETY	101, Kishan Residency, Street # 5, Begumpet Hyderabad 500016 A.P India. Tel: 91-40-27-764-577 or 0091-402776474
2		Begari Laxmi	F		Farmer	DECCAN DEVELOP-MENT SOCIETY	101, Kishan Residency, Street # 5, Begumpet Hyderabad 500016 A.P India. Tel: 91-40-27-764-577 or 0091-402776474
3		Masanagari Narsamma	F		Farmer	DECCAN DEVELOP-MENT SOCIETY	101, Kishan Residency, Street # 5, Begumpet Hyderabad 500016 A.P India. Tel: 91-40-27-764-577 or 0091-402776474
4		Byagari Sharanappa	M		Farmer	DECCAN DEVELOP-MENT SOCIETY	101, Kishan Residency, Street # 5, Begumpet Hyderabad 500016 A.P India. Tel: 91-40-27-764-577 or 0091-402776474
5		YERROLLA JAYAPPA P.V. Satheesh	M		DY Director / Farmer	DECCAN DEVELOP-MENT SOCIETY	101, Kishan Residency, Street # 5, Begumpet Hyderabad 500016 A.P India. Tel: 91-40-27-764-577 or 0091-402776474
6		Shalini Bhutani	F		Regional Program Officer Asia	GRAIN	134, Tower 10 Supreme Enclave Mayur Vihar Phase I, Delhi-91 India Tel: 0091-11-22753706 Email: shalini@grain.org
7	Japan	Akiko Horita	F	06-Oct-1980	Teacher	SAGA	dokubero@hotmail.com
8	Bangladesh	Naba Kumar Dey	M	5 May 1957	Farmer	NAYAKRISHI ANDOLON	Tel: + 88-028-124-533 E-mail: NKrishi@bdmail.Net
9		ABDUR RAHIM CHISTI	M		Farmer	NAYAKRISHI ANDOLON	Tel: + 88-028-124-533 E-mail: NKrishi@bdmail.Net
10		Rafiqul Haque Tito	M	16 Jun 1963	Coordinator	UBINIG	Tel: + 88-028-124-533 E-mail: NKrishi@bdmail.Net
11		ABDULZABBAR	M	26 Jul 1980	Research Associate	UBINIG	Tel: + 88-028-124-533 E-mail: NKrishi@bdmail.Net

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
12	**Sri Lanka**	R.P.G. Rajapaksa	M	28 Feb 1957	Coordinator	C.F.H.D	Tholanganuwa SRILANKA Tel: 035-22671-38 E-mail: cfhdpodi@SRILANKA.net
13	**Nepal**	Lekh Nath Neupane	M	1958	Agriculture Extension Worker Farmer	U.S.C.Nepal	U.S.C., Tel: 4426378 E-mail: usccn@ecomail.com.np Web site: www.uscnepal.org
14		Nada Gurung	F	1973	Agriculture Extension Worker Farmer	U.S.C.Nepal	U.S.C., Tel: 4426378 E-mail: usccn@ecomail.com.np Web site: www.uscnepal.org
15	**Cambodia**	Ouch Ngak	M	17 Oct 1974	HR Manager	CEDAC	ouchnagk@online.com.kh
16		Hour Sreng	M	1970	Zonal Coordinator of CEDAC	CEDAC	012721644@mobitel.com.kh
17		Tath Sok	M	1974	FO Support Officer	CEDAC	Tel: 855-12-832-279 E-mail: 012832279@mobitel.com.kh
18		Chea Chourn	M	27 Feb 1977	Province Base Officer in Kg Cham	CEDAC	Tel: 855-12-936-462 E-mail: 012936462@mobitel.com.kh
19		Sopha Phal	M	10 Nov 1979	Province Base Officer in Svay Rien	CEDAC	Te: 855-12-600-038 E-mail: sophapha2002@hotmail.com
19		Pheng Kea	M	08 May 1980	FCF	CEDAC	TeL: 855-12-755-365 E-mail: pheng_ke@yahoo.com
20		Keo Sokha	M	1964	Deputy of FNN	FNN	Tong Neak Village, Sdoa Korng Commune, Baphnom Districe, Prey Veng Province.
21		Kea Kimsan	M	23 Apr 1980	Agricultural Program Monitoring	CEDAC	Tel: 855-12-979-378 E-mail: kimsan_ke@monbitel.com.kh
22		Hong Sean	M	1957	Farmer	CEDAC	DTung village, Prasat Commune, Konpong Trabek District, Prey Veng Province
23		Uy Chhon	M	1960	Farmer	CEDAC	Trapeang Ré village, Chrey Commune, Konpong Trabek District, Prey Veng Province

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
24		Va Sophat	M		Farmer	CEDAC	AngVeas 100 Village, Antoung Commune, Kompong Trabek district
25		Seoun Reub	F		Farmer	Banteay Srei	Tapul Village, Siem Reap District, Siem Reap Province. Tel: 855-63-963-254
26		Phanlong Bothkomar	M	02 Feb 1979	Admin and Account	Banteay Srei	Tapul Village, Siem Reap District, Siem Reap Province. Tel: 855-63-963-254
27		Charm Sy	F		Farmer	Banteay Srei	Tapul Village, Siem Reap District, Siem Reap Province. Tel: 855-63-963-254
28		Sor Samnang	M		Staff of Agriculture Office	Department of Agriculture Siem Reap Province	Tel: 855-12924-287 Department of Agriculture, Forestry and Fishery Siem Reap Province.
29		Sun Samith	M		Staff of Agriculture Office	Department of Agriculture Siem Reap Province	Tel: 855-12924-287 Department of Agriculture, Forestry and Fishery Siem Reap Province.
30	**Cambodia**	Nget Vanny	F	1973	Farmer	CEDAC	Trapeang Kok Village, Por Pel Commune, Tram Kok District, Takeo Province.
31		Phin Rann	F	1953	Farmer	CEDAC	Krachang Village, Komareach Chea Commune, Baty District, Takeo Province.
32		Yous Mony	M	1953	Deputy Director	Department of Agriculture Prey Veng Province	Tel: 855-12950-154 E-mail: rprppv@camitel.com
33		Naoy Thun	M	1960	Staff of Extension Office	Department of Agriculture Prey Veng Province	Tel: 855-12950-154 E-mail: rprppv@camitel.com
34		Or Thy	M	1975	Trainer	CEDAC	Tel: 855-12-985-272 E-mail: cedacnetwork@.com.kh
35		Tann Huy Ly	M	1975	Program Officer	CGA	# 29, G2 , Sandan Village, Tek Vill Commune, Pouk District, Siem Reap Tel: 855-12-898-655 E-mail: huylytann@hotmail.com
36		Thong Kakada	M		Vice Director	Khmer Ahimsa	855-12-316-654

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
37	**Malaysia**	Shun Mun Hong	M	08 Aug 1946	Farmer	DETDEM	Jalan Jambai, Batu 3, Jalan Pahang 35000 Tapah, Perak, Malaysia Tel: 0122-066-083
38	**Philippines**	Weng Buena	F	09 Apr 1976	Tech Officer	MASIPAG Inc	3346 Aquila St. Rhoda Sube Anos los banos, Lagura. Tel: 63-495-365-599 e-mail: info@masiroq.org
39		Rene Jaranilla	M	10 Feb 1948	Farmer	PABINHI PHILIPINAS	Los Banos Lagura
40		Palermo Catamora	M	15 Aug 1958	Farmer	MASIPAG Inc	3346 Aquila St. Rhoda Sube Anos los banos, Lagura. Tel: 63-495-365-599 e-mail: info@masiroq.org
41		Renato Gonzales	M	07 Aug 1963	Farmer	MASIPAG Inc	3346 Aquila St. Rhoda Sube Anos los banos, Lagura. Tel: 63-495-365-599 e-mail: info@masiroq.org
42		Pepito Babasa	M			MASIPAG Inc	3346 Aquila St. Rhoda Sube Anos los banos, Lagura. Tel: 63-495-365-599 e-mail: info@masiroq.org
43		Vladymir Rivera	M	21 Jun 1972	Program Officer	GRAIN	Genetic Resources Action International (GRAIN), Aurora Apts., Unit 2, Pearl Street, Umali Subd., College, Laguna 4031 Philippines, Tel.: (63-94) 536 2468, E-mail: grain@mudspring.uplb.edu.ph Tel: 63-495-363-979
44		Karen Faith Villaprudente	F	30 Nov 1970	KMP Rep	KMP	17-0 Kasing kasing St. Kaminas Road, Quezon City

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
45	Thailand	Walaiporn Odompanich	F	05 Apr 1961	Program Officer	RRAFA	86 Ladprao 110, Soi Sonthiwathana 2, Ladprao road , Bangkok 10130 Tel: 66-2-935-2981-2 E-mail: walai-04@yahoo.com
46		Arreerat Kittisiri	F	18 Feb 1962	SA Promotion Officer	AAN	912 Ngomwong Wan 31, Muang district, Northaburi. Tel: 66-2-591-1195 E-mail: areerat-siri@hotmail.com annet@ksc.co.th
47		Nakhon Kaeophila	M	1947	Farmer	Khao Kwan Foundation	13/1 soi 6, Srakaew, Sub district, Maung district Supanburi. Tel: 66-2-591-1195 E-mail: annet@ksc.co.th
48		Sanong Khamjanta	M	1956	Farmer	Sustainable Agriculture Network North Region	38 M007, Charonorat Sub district Mae Pi district Payoo Province. Tel: 66-2-591-1195 E-mail: annet@ksc.co.th
49		Saeh-ama Roma	M	15 Jul 1965	Farmer	AAN	13 M004, Tambon Wangprochan, Amphun Knundon, Satin. Tel: 66-2-591-1195 E-mail: annet@ksc.co.th
50		Suwit Thanakhun	M	07 Nov 1951	Farmer	AAN	72 M004 , Tambon Kammad, Amphur Kudchum, Yasothon. Tel: 66-2-591-1195 E-mail: annet@ksc.co.th
51		Ratni Chipomcha	M	10 Oct 1955	Farmer	AAN	127 005, Kuan boon Village, Tambon Janpen, Amphur Tao Ngug Sakolnakorn 47260. E-mail annet@ksc.co.th
52		Supa Yaimuang	F	05 Jun 1955	ED for SAF	SAFT	SAFT 912 Soi 7, Ngamwongwan 31, Ngamwongwan Rd, Muang districe, Northaburi Province 11000 E-mail: annet@ksc.co.th

No	Country	Name and Nickname	Sex	Birthday	Position	Organization/ Institution	Contact Address with telephone number and E-mail
53	**Thailand**	Auaiporn Suthonthanyakorn	F	04 Jun 1966	Campaigner	RRAFA	86 Ladprao 110, Soi Sonthiwathana 2, Ladprao road , Bangkok 10130 Tel: 66-2-935-2981-2 E-mail: auaiporn@hotmail.com
54		Daycha Siripatra	M	18 May 1948	Chair of ANN	Khao Kwan Foundation	13/1 Soi 16 , Srakew Sub district, Maung district, Suphanburi 72110 Tel: 66-2-35-597-193 E-mail: daycha@loxinfo.co.th
55		Paula	F	28 Dec 1968	Researcher	RRAFA	86 Ladprao 110, Soi Sonthiwathana 2, Ladprao road , Bangkok 10130 Tel: 66-2-935-2981-2 E-mail: curranpc@hotmail.com
56	**Indonesia**	Jumarni	F	03-11-1967	Staff of BETRA Indonesia		JL.Bahagra by Pass No 11/35 Medau Indonesia. Tel: 62-217-874-08 E-mail: jumarni2000@yahoo.com
57		Riza Tjahajadi	M		Excusive Director	BIOTANI PAN INDONESIA	JL.Persada Raya RT.10/11 No. 1 Menteng Dalam, Yakarta 12870 Biothari Pan Indonesia Tel: 62-21-701-257-25 E-mail: indoalternate@yahoo.com
58		Mohammad Rois	M	13-05-1965	Agriculture Coordinator	LaCi Lead Alternative Concern Indonesia	JL.Persada Raya RT.10/11 No. 1 Menteng Dalam, Yakarta 12870 Biothari Pan Indonesia Tel: 62-21-701-257-25 E-mail: indoalternate@yahoo.com
59	**Pakistan**	ASIM YASIN	M	15 Aug 1974	Program Coordinator	Lok SANJH Foundation	H# No 500, St 4, G 10/4, ISLAMABAD Tel: 0092-51-2101043 E-mail: lok_sanjh@yahoo.com
60		Zafar Lqbal	M	07 Jul 1964	Farmer	Lok SANJH Foundation	H# No 500, St 4, G 10/4, ISLAMABAD Tel: 0092-51-2101043 E-mail: lok_sanjh@yahoo.com

Example of case studies

FARMERS' RICE VARIETY IMPROVEMENT & SELECTION
The experience of RENATO P. GONZALES, Filipino farmer-breeder (Philippines)

Introduction

Incursion of chemical farming as introduced by the Green Revolution in the 60's and supported by the Philippine government did not benefit the small and resource-poor Filipino farmers. High yielding varieties (HYVs) introduced by IRRI, whose package of production technologies had tied them to endless debts had led to the loss of farm land to usurious traders, decreased farm biodiversity and degraded the soil fertility and the farm environment. Because HYVs increasingly demanded higher chemical inputs, increased costs of production, and stimulated more virulent pests and diseases, MASIPAG farmers decided to find alternative to IRRI's high input agriculture. The need for an alternative had pushed small and resource-poor farmers to decisively retrieve, collect and maintain traditional rice varieties and use these as parentage to improve their agronomic characteristics that are responsive to local situation and farmers' needs.

Varieties improvement and selection

Farmer's Profile

Renato P. Gonzales, chairperson of the San Dionisio Integrated Farmers Multipurpose Cooperative, is 41 years old, married to Elena and have a daughter. He cultivates 1.3 hectares acquired through agrarian reform in Cudionan, San Dionisio, Iloilo, Philippines. Together with his family, he grows ½ hectare of rainfed palay, ½ hectare of corn and the remaining 0.35 hectare is grown with fruit and forest trees. His family also raises livestock and poultry animals.

Seed Improvement Objectives, Activities and Methods

1. Peoples' Organization (PO) – managed Trial Farm establishment / seed banking

Establishment of trial farm, grown with at least 50 rice cultivars in the community was the first important activity undertaken by their organization in 1998 to demonstrate that there is an alternative to HYVs seeds. It is in this trial farm where different traditional rice varieties, farmers' selections and MASIPAG bred rice are grown, maintained, monitored and evaluated. Major activities of the PO members in the trial farm are summarized as follows:

- trial farm management : taking care of cultural management practices from land preparation, seedbed and seeds preparation, sowing, transplanting, water management/control, soil fertility management, weeds management/control until harvesting and seed storage.

- Farm and crop observation, data collection, and documentation
- In-situ rice breeding
- Farmers' field day and selection of top ten (10) best performing cultivars
- Continued maintenance of trial farm
- Verification of top ten cultivars in individual farms of members, at least after 2 cropping cycles
- Selection of parent materials for improvement

2. Breeding/Seed Varieties Improvement

After two cropping cycles of observing the agronomic characteristics of the different rice cultivars in the trial farm, it was observed that there are some cultivars and varieties that have high tillering capacity, long panicle and are early maturing and aromatic. Based on the documented agronomic characteristics of the rice cultivars grown in the trial farm, it was observed that there are traditional rice varieties and cultivars that could still be improved.

The rice breeding training attended in 1999 has motivated the farmer (RPG) to do actual breeding. The first pair of rice varieties identified and used for breeding parentage were **#74** and **SULIG.**

Parentage	X	Y
	# 74	SULIG
Agronomic characteristcis	High tillering capacity Long grains (oblong) Early maturing	Long panicle Late maturing Aromatic Resistant to pests / diseases

a. Objective

The objective of this initial start of breeding (cross) was to produce a rice cultivar that is aromatic, with long panicles and resistant to pests and diseases.

b. Synchronization of Flowering

Desired plants of parent materials are placed in separate plant pots to protect from damage by stray animals in the field. It is important that the time of flowering of these two parentage will synchronize or happen at the same period.

c. Emasculation

When selected parent materials bear flowers at same period, emasculation is undertaken. The tools used for emasculation are the following:

- Scissor – to cut the lemma and palea
- Small pointed stick – to remove the anther
- Magnifying glass – to aid in clear sight while removing the anther
- Glassine bag – to cover the emasculated panicle
- Paper clips – to fix /prevent the glassine bag from being removed

The best time to do the emasculation is at 2:00pm to 5:00pm. Emasculation is the process of removing the male parts of the flower.

d. Pollination

Pollination was done the following day after the emasculation, best at 10:00am to 12:00noon. About 2 – 4 panicles at flowering stage of the selected male parent variety were selected and pollen grains was taken then carefully inserted into the flower of the emasculated female parent variety.

25 days after pollination, harvesting of the successful F1 was done.

e. After harvesting the F1 seeds, a nursery was prepared for the planting of the female seeds and F1 seeds.

f. It is important to observe and compare the characteristics of the female parent and the F1 seeds to check the characteristics of the male or female parent in the F1 seeds.

g. The next harvest produces the F2 seeds. Selection is done in bulk. Planting is done continuously and until stability of the seeds characteristics is observed, at least starting F3, where selection is being made.

3. Selection and mass production

The 1st successful rice breeding resulted to RPG-1-1 rice seeds. At present, RPG seeds are now at F10 and demonstrate stability in the field. The seeds are now being mass produced and shared to other farmers in Iloilo and Antique.

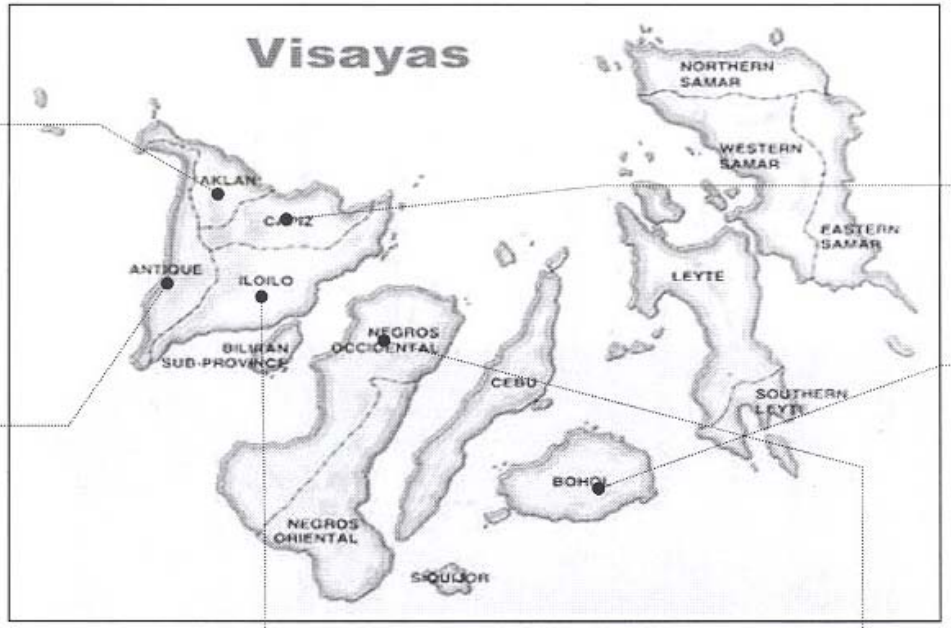
4. Continuous education and skills updating training

Regular forum with other farmers doing actual breeding work help strengthen the confidence of farmers as breeders. Continuous education, skills updating training and experience sharing among and between farmers further enhance the knowledge and practical skills in genetics conservation, seed banking and seed improvement. A one-cropping cycle practicum training in the farm of a MASIPAG rice breeding expert, Renato Gonzales have successfully developed new crosses in addition to his first RPG line. These are the following:

Parent Materials of Crossess		Selection Codes	No. of Selection	Fillial Generation	Date Started
Female	Male				
#74	Sulig	RPG1-1	2	F10	2nd crop 1999
India	M195-2	RPG2-1	2	F3	Sept. 2003
BR4998	Bangkitan	RPG3-1	4	F3	Sept. 2003
Ginorado	M285-3	RPG4-1	3	F3	Sept. 2003
	M2-1	RPG5-1	3	F3	Sept. 2003
Binulungan	Senador	RPG6-1	Bulk	F2	Feb. 2004
	M97-1-1-2	RPG8-1	Bulk	F2	Feb. 2004
	M237-2	RPG10-1	Bulk	F2	Feb. 2004
Manombalay	M281-1	RPG7-1	Bulk	F2	Feb. 2004
	M263-3	RPG9-1	Bulk	F2	Feb. 2004
Balasang Red	M236-1	RPG11-1	Bulk	F2	Feb. 2004
	M270-2	RPG12-1	Bulk	F2	Feb. 2004
M203-2	C3WSO3-W	RPG13-1	Bulk	F2	Feb. 2004
M195-4S2	M147-4	RPG14-1	Bulk	F2	Feb. 2004
	M197-4	RPG15-1	Bulk	F2	Feb. 2004
M270-2	Dinalusan	RPG16-1	Bulk	F2	Feb. 2004

In the process of sharing the rice breeding experiences among and between MASIPAG farmers, the number of farmer-breeders have multiplied. In three years time since 2002, there are 11 new rice-breeders in the Visayas region who have successfully developed new crosses of rice varieties. As of November 30, 2004 there is a total of 14 rice breeders with 91 crosses, 60 selections and 72 bulks in MASIPAG Visayas region.

MASIPAG Rice Breeders
as of November 2004



AKLAN (1)
1. Elvis Flores
- 14 crosses & 14 bulk
- 4 crosses & 4 bulk (Ian Masula)

ANTIQUE (1)
1. Honorato Mariano
- 4 crosses & 4 bulk

CAPIZ (1)
1. Ramon Davas
- 3 crosses & 3 bulk

BOHOL (1)
1. Tito Gambuta
- 3 crosses & 3 bulk

ILOILO (7)
1. Renato P. Gonzales
- 16 crosses, 14 selections & 11 bulk

2. Nilo B. Selguera
- 5 crosses, 12 selections & 1 bulk

3. Lydia M. Lemera
- 2 crosses, 5 selections & 1 bulk

4. Domingo Calambro
- 1 cross & 2 selections

5. Joe Marie Cantallopez
- 1 cross & 4 selections

6. Noel Haro
- 17 crosses, 6 selections & 15 bulk

7. Alberto Cabacang
- 1 cross

NEGROS Occidental (3)
1. Elpedio Paglumotan
- 18 crosses, 17 selections & 14 bulk

2. Renato Villacacan
- 1 cross & 1 bulk

3. Robinson Arroyo
- 1 cross & 1 bulk

Why do dryland farmers practice **BIODIVERSE AGRICULTURE?**

a presentation by

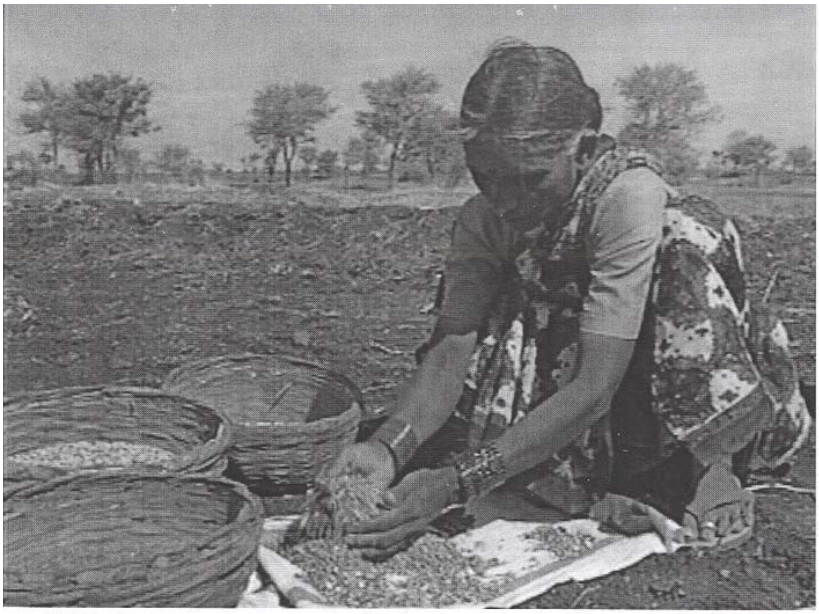
Bidakanne Sammamma &

Yerrolla Jayappa

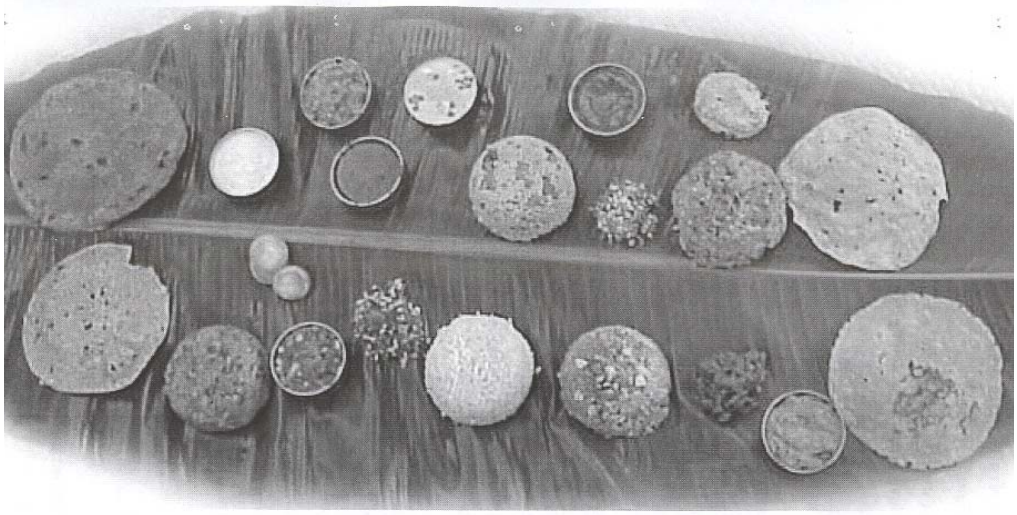
Medak District, Andhra Pradesh

India

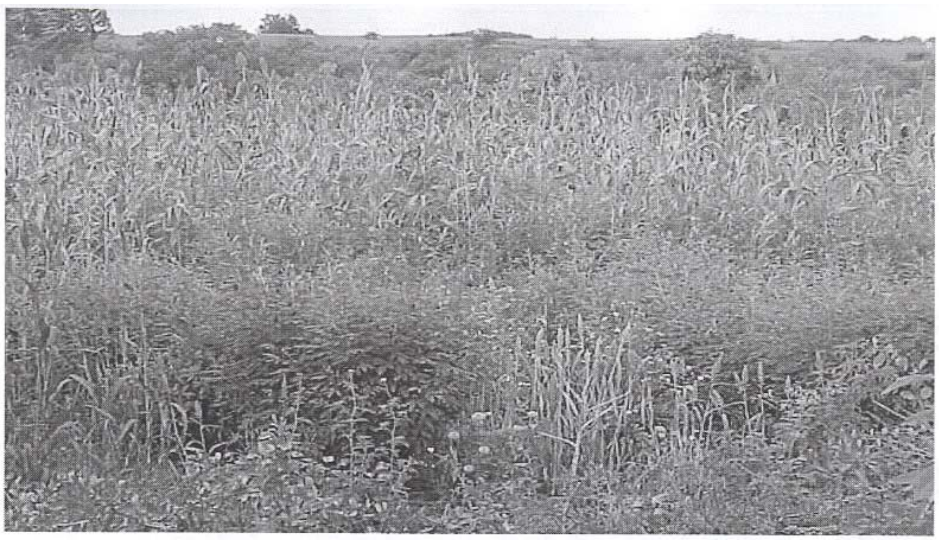
Poor farmers own extremely poor lands in rainfed Deccan in South India. For them to survive, agriculture has to be ecological and biodiverse.



Women ensure this diversity even while mixing seeds for planting

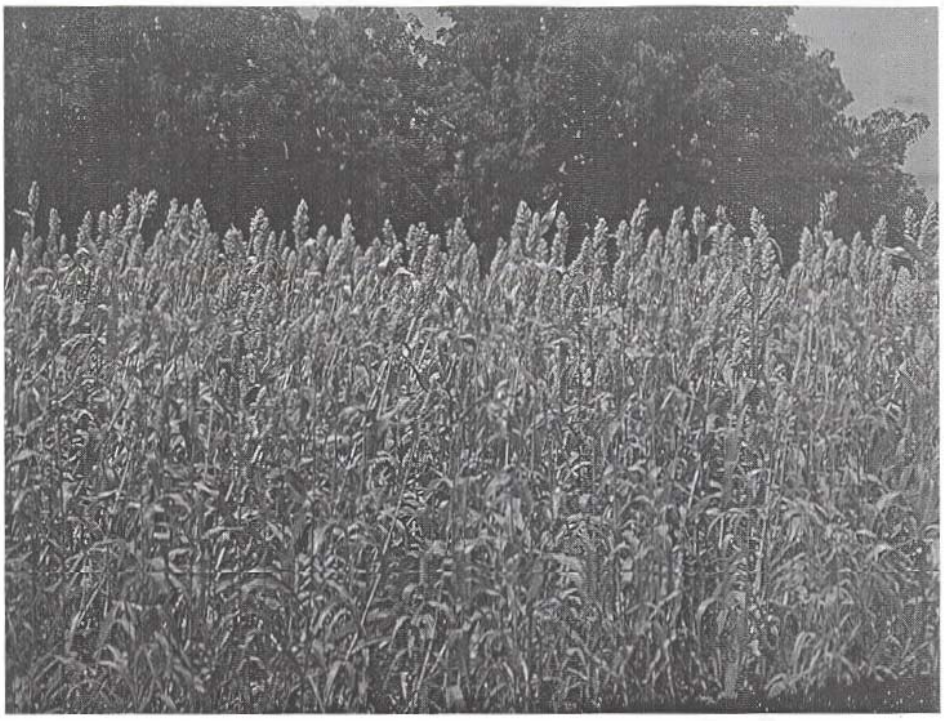


The produce from their lands is the basis of the diverse foods eaten by the Deccan community.



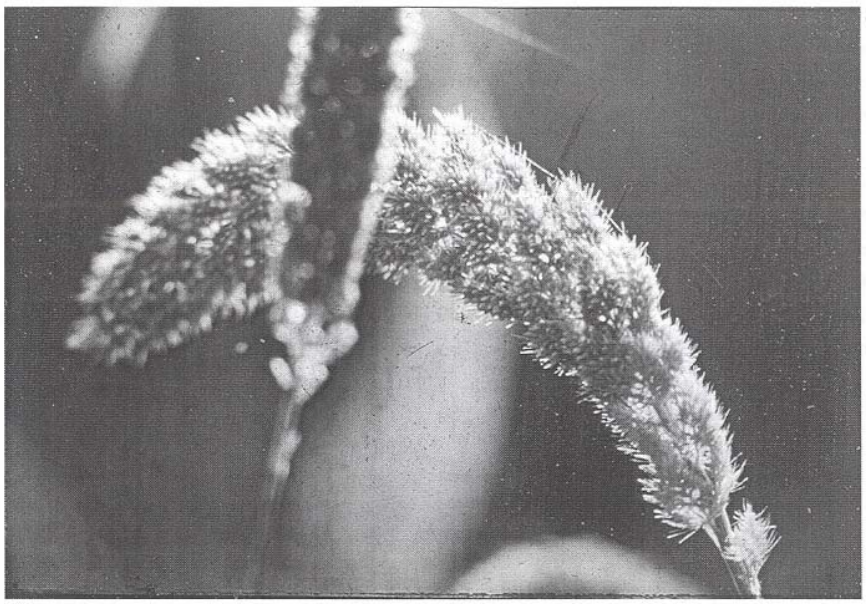
The resultant highly diverse farms sport a variety of crops that are a basket of millets, legumes and oilseeds. These crops offer diverse fodder to their cattle and abundant UNCULTIVATED FOODS for human consumption.

This cropping system is also known for its capacity to generate *in situ* soil fertility through nitrogen fixing and leaf fall.



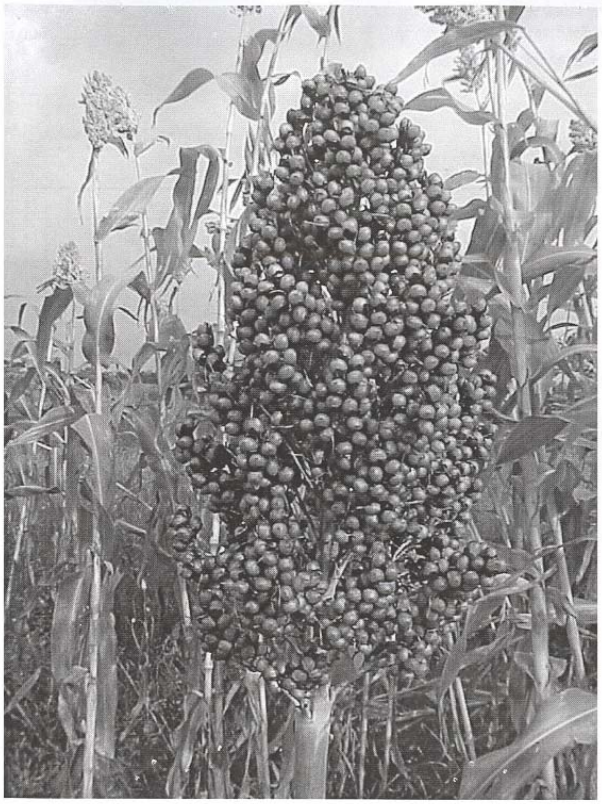
Monocrops like these are incapable of offering all these benefits.

The ecological farming system of the Deccan is also known for the medicinal property of the foods that it produces. For eg. This Little millet is known as a *COOL FOOD* and is eaten extensively in the summer months.

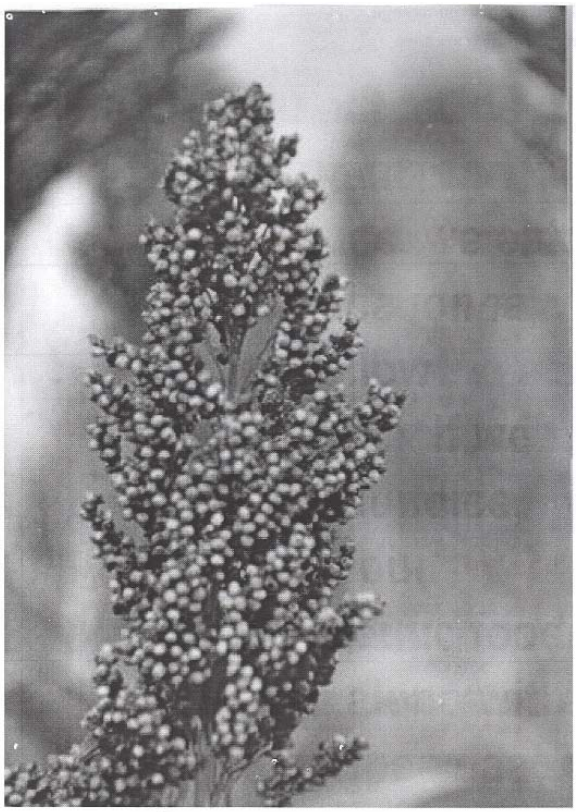


Foxtail millet on the other hand is a warm food and is an antidote for fevers

Most people in the Zaheerabad region of the Deccan eat sorghum bread as their daily meal. They also grow many varieties of sorghum on their farms.

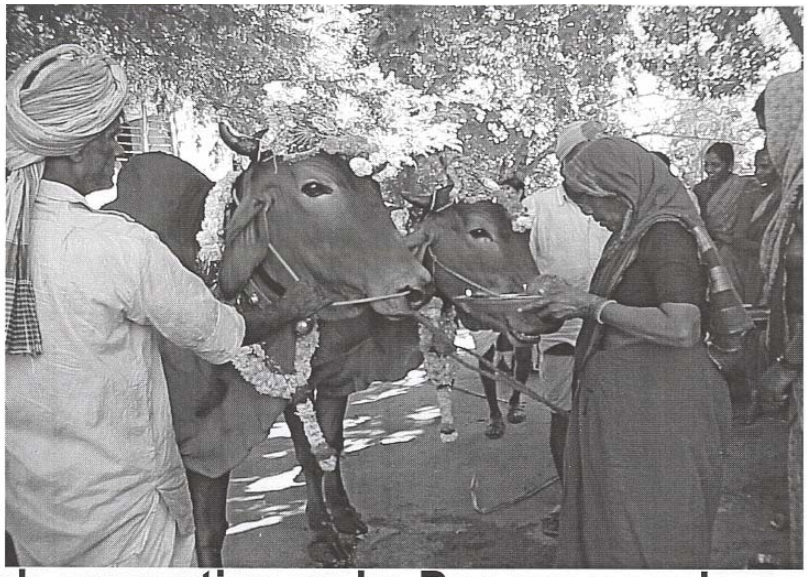


Red sorghum is good for diabetics, since it has a lot of fibre and releases sugar slowly.



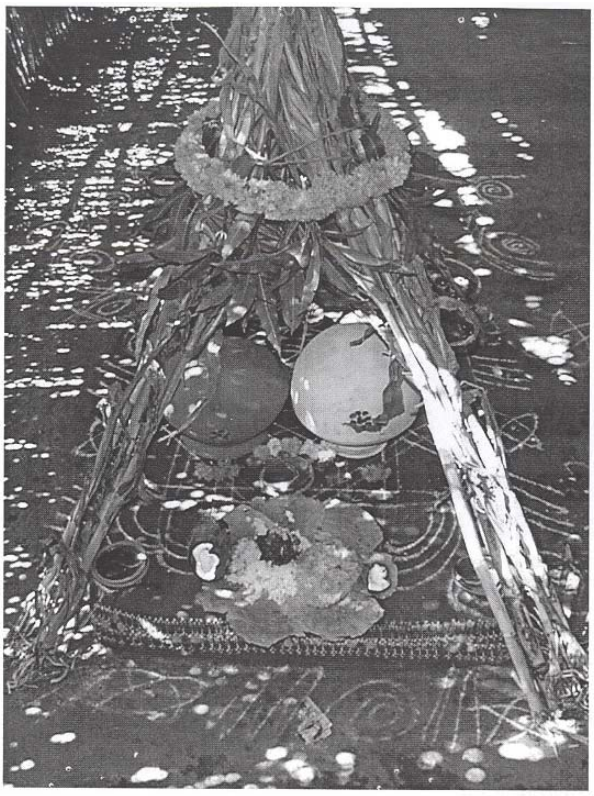
One of the sorghum varieties we eat is *pacha jonna*, the yellow sorghum. If we have jaundice, this is our therapeutic food eaten along with pigeonpea daal

Horsegram, also grown here is good for kidney stones. It dissolves them.



Such properties make Deccan people revere their biodiverse ecological farming. Different farming elements are worshipped like the bullocks here in *Erokka Punnam* Festival.

Before manure is added to the farms, manure heaps are worshipped in *Penta Pooja*



When the crops are in full bloom, the farmers of Deccan feel that Mother Earth is pregnant and offer her various foods in a special festival called *Soonem Panduga*

Endlagatte Punnam is an annual festival that celebrates agro biodiversity in an obvious fashion.

Organic Farming in Indonesia[1]

Retro and Reflection of Current Situations

Report prepared by
Riza V. Tjahjadi[2]

BioTani Indonesia Foundation

Indonesia was developing a major organic agriculture programme. In light of the fact that the agricultural sector was still the largest employer in Indonesia, that the agricultural sector was the second largest economic engine after manufacturing, and that agricultural exports had been falling, organic agriculture was seen as one option to regain momentum for the sector (ESCAP)
Indonesia organic farming production, and trading for export and domestic consumption mushrooming in the last five years. Even tough through Go Organic 2010 the government want Indonesia as one of the biggest exporter of organic farming product in the world.
A dozen of farmers' group, with around 26,000 hectares cultivated areas consentrate with door-to-door organic rice marketing in North Sumatera. In contrasts most of producers and traders reluctant with various reasons, and not pridely exposing precise information and data.

Indonesia lies between the mainland of South-East Asia and Australia in the Indian and Pacific oceans. It is the world's largest archipelago state with the fourth population in the world, counting 215.600.000 million people[3]. Indonesia is made up of five main islands – Sumatra, Jawa, Sulawesi, Kalimantan (part of the island of Borneo) and Irian Jaya (the western half of New Guinea) – and 30 smaller archipelagos. In total, the Indonesian archipelago consists of about 17,500 islands; 6000 of these are inhabited and stretch over 4828km (3000 miles), most lying in a volcanic belt with more than 300 volcanoes, the great majority of which are extinct.

[1] Report prepared to Growing Diversity Part 2: FRE, Thailan-Cambodia, 14-20 Dec.2004
[2] The Executive Director of BioTani Indonesia Foundation, also National Coordinator of PAN (Pesticide Action Network) Indonesia, Executive Secretary FIAN Indonesia.
[3] A national census 2005 organised by BPS, Central Statistic Agency and the General Election Commission

The landscape varies from island to island, ranging from high mountains and plateaux to coastal lowlands and alluvial belts[4].

The Indonesian Archipelago is exceptionally rich in biodiversity. According to the National Planning Agency, Bappenas: Indonesia Biodiversity Action Plan, IBSAP 2003, it includes at least around 90 type of ecosystems, from glazier at top of Jayawijaya, alpine, sub-mountainous, mountain (ring of fire) up to rainforest in the lowland, coastal forest, grassland, savanna, wetland, equestrian, mangrove, "*padang lamun*", coral reef and deep sea areas[5]. Although occupied only 1.3% of the world land area, Indonesia has highly diversity of wild animals[6]:

- Around 12% (515 species, 39% endemic) of total *mammal* species, the second rank in the world
- 7.3% (511 species, 150 endemic) of total reptilian species, the fourth in the world
- 17% (1531 species, 397 endemic) of total bird species, the fifth rank in the world
- 270 species of amphibian, 100 endemic, the six rank in the world
- 2827 species *invertibrate*, other than freshwater fish.

Indonesia has also 35 *primata* species the forth, 18% endemic) and 121 butterfly species (44% endemic). Indonesia has around 1,400 freshwater fish species[7].

What organic farming pre-and-during Green Revolution?

It maybe say, around sixty percent of total rice farmers not using chemical fertilisers. Meanwhile, most of fruit trees and other crops – non largescale plantatation - traditionally grown without any chemical. However, in the early years of the Green revolution such as noted by Riza V. Tjahjadi[8] t here was tendency that fertilizer application more higher in small holding farms. In Jawa island most farmers applied phosphate while outer Java' farmers applied regulator growth and ZA. Farmers who applied fertilizers reached at 5.9 million households (57.7%); it was higher than farmers applied fertilizers combined with animal manure. Farmers who just merely applied animal manure reached at 3.2 million (31.7%), while farmers who practiced traditional organic farming method reached at 1.0 million households (10.6%). Moreover, the President Soeharto, at that time, has claimed that there were increase fertilizer application tendencies. It was toned from 75 to 100 kg fertilizer

[4] Excerpt from Travel Guide; www.travel-guide.com.
[5] IBSAP, Indonesia Biodiversity Action Plan. Bappenas. 2003
[6] Dephut, department of forestry. Jakarta. 1994; Mittermeier *et all*. 1997
[7] I b i d.
[8] Riza V. Tjahjadi (1991a) Alternative Agriculture Movement in Indonesia. A Preliminary Assessment on Organic Farming. A Briefing Paper in commemoration the World Food Day. PAN Indonesia. Jakarta. 16 October 1991

per ha in rice fields, although it known that overuse of fertilizer will cause soil infertile in the long term.

On the other hand, pesticide demand for food crop increased 237%, and 710% insecticide alone during 1974-1982. Between 1981 and 1986 reached at insecticide application increase from 8.890 ton to 17.230 ton, its mean, pesticide application reached at 1.69 kg per ha. While the government of Indonesia (GoI)'s subsidy to pesticide reached at $ 24,4 million (40% of world market price) in 1987. In January 1, 1989 the GOI completely abolished the subsidy price – this was part of development strategy: looks outward rather than inward in line with GATT to liberalizing its trade and investment long before WTO and AFTA, in fact, selected food crops are full protection by Soeharto: such as rice, and clove; IMF made it faster track of agricultural liberalisation.

✹ What is organic farming during Soeharto regime?

Popularly we can say, that was what Soeharto and his family eaten, while some farmers' group grown rice underground. That was because, Soeharto's apparatus, at all cost, promoted high external inputs. Soeharto had invited seven transnational pesticide companies when he launched Green Revolution in early 1970's. Moreover local authorities, often, have burnt or destroyed whenever they found farmers grown local rice varieties[9]. It may be said there was the double standard type governance has strongly performed by the government, from central to local authorithies. In the meantime, there was three-to-four NGOs used conservation on biodiversity and research as to cover their organic farming with undrgound practices. PAN Indonesia was the prime mover in upland, while Yayasan Sido Makmur was in lowland. PAN Indonesia began with on-farm alternative to pest management (APM) by developing multiple cropping as to reduce pesticides for selected upland vegetables in three upland village in three provinces in Jawa during 1985-1988[10]. In the meantime Yayasan Sido Makmur developed community seed banking of local rice varieties – with nonpesticide farming system - in some parts of Central and East Jawa. On the other hand, there was the oldest organic farm, Bina Sarana Bhakti, in Cirasura in

[9] Riza V. Tjahjadi (1993) Nature and farming Biodynamic Agriculture and Communal Resource Adaptation Systems. Selected Cases in Indonesia. PAN Indonesia. Jakarta. 1993. For information, Riza V. Tjahjadi (1991a) revealed researchers pointed out that self-sufficiency on rice has achieved not based on the farmers awareness, but the stick-driven government regulations which have been driving farmers to cultivating only rice. As consequence, the rice production has increased successfully – but only for short period, 2,5 years. In contrast, it's has been losing the interest of the farmers. Therefore farmers became a refugee of development in real situations.

[10] Riza V. Tjahjadi (1989) Organic farming and Community Seed Bank. Proceeding of The ASEAN Travelling Workshop. Walhi-PAN Indonesia. Jakarta. July 1989; see also: Riza V. Tjahjadi (1991b) A Grassroots Organization Moves Its Country Towards Alternatives to Pesticide, in Rengam, S. and Snyder, K. The Pesticide Handbook: Profiles for Action. International Organization Consumers Union (IOCU) and Pesticide Action Network (PAN). 3rd Revision. Penang, Malaysia. 1991, also: Tjahjadi, R. V. (1991c) Multiple Cropping Controls "Magic Bullets". ILEIA_7-4-17. A newsletter. Luesden. The Netherlands.

the West Jawa which publicly claimed merely demonstration farm for research purposes - as softliner in organic farming development, but announced as one of top receipient of Enterpreneur Agribusiness award, twice, and the last was by the minister of agriculture 26 November 2004 and years before. However, another NGO, namely CRAD developed on-farm organic farming in several villages in the hinterland of Garut of the West Jawa[11]. Later, organic waste from animal manures collected from the Jakarta' zoo park, then packed into a plastic bag with 5 kilograms each, first appeared as sales promotion, displayed at front office of Walhi, Friend of the Earth Indonesia, in1989.

In brief, when PAN Indonesia promoted on-farm organic farming for rice and vegetables both in lowland and upland in several provinces 1991-1999, some initiatives have carried out such as assessment organic market development, i.e. by set up an organic food restaurant in South Jakarta, and home delivery to artists/ celebrities, although very short its lifecycle the first peri-urban organic agriculture has been assessed. Another program was to develop an organic farming network of women farmers' in the five provinces, including built a small outlet for selling organic vegetables, and promoted organic coffee and tea for selected consumers, etc. This because farm size was relatively smallscale and located mostly in the remote areas, in turn, too small amount with too much diversified items, all, economically not viable for entering the market on regular basis[12]. However, most the agenda was set as alternative to mainstream: multiple cropping patterns based on local initiatives, i.e. multiple cropping vegetables, including cotton – as oppose to Bt cotton, and monoculturisation, etc.

In the meantime massive organic agriculture farming famously known as Gayo Mountain Coffee entering the world organic market on early 1990s The Holland Coffee Group's factory, where Gayo Mountain Coffee beans are produced, is located in Takengon, in Aceh province – the arm conflict areas. The factory is the only one of it¹s kind in North Sumatra producing high quality washed and unwashed coffee. This coffee certified by SKAL[13] to bring Organic Sumatra Arabica to market. Gayo Mountain beans are available as organic or non-organic prepared coffees. Riza V. Tjahjadi (1991) described several thousand tons of organic coffee of Central

[11] Riza V. Tjahjadi (1989) *Op cit*.
[12] PAN Indonesia. Women and Organic Farming in West Sumatera, Lampung, West Jawa, East Kalimantan and South Sulawesi. Six monthly report, 1996-1999 period to a donor agency; personal communication with Indra Tata, 30 November 2004.
[13] It worthy to say, SKAL/EKO of the Netherlands, when met in Amsterdam 1991, has had persuaded PAN Indonesia to become a representative for making inspection to the famous organic coffee in Central Aceh (now a arm conflict areas), but It was refused, since PAN Indonesia want to promote organic farming at large, although it must work (again) underground; see: Tjahjadi, R. V. (1991a) Alternative Agriculture Movement in Indonesia. A Preliminary Assessment on Organic Farming. A Briefing paper in commemoration the World Food Day. PAN Indonesia. Jakarta. 16 October 1991; also Riza V. Tjahjadi (2003) Organic Agriculture mushrooming, but climate change serious affecting. A sketch of from Indonesia. A News article sent to Editor of IFOAM magazine, 1 September 2003.

Aceh grown by a cooperative farmer groups surround mountain of Gayo areas through inspection by a Dutch organic certification organization, namely SKAL/ EKO has been facilitate marketing its coffee to Amsterdam since two years ago. However, supply capacity of these cooperatives reached at 15,000 tons. On the other side EKO had suggested that PAN Indonesia should set up a national organic certification organization in order to anticipate the implementation of the International Federation of Organic Agriculture Movement (IFOAM) Standard in the European Community Country in near future. He has had persuaded PAN Indonesia to become a representative of his company.

According Fair Trade Profile[14], the factory of Gayo Mountain beans is among the most efficient and modern in the world. Farms range from one to four acres in size and are inter-planted with fruits and vegetables, allowing farmers to be more self sufficient in times of volatility.

Gayo Organic Coffee Farmers Association (or PPKGO) is an organic, Fair Trade cooperative located in the Gayo highlands of the Aceh province of Sumatra, Indonesia.

The co-op's 1,900 farmers encompass 24 communities, and 20 percent of PPKGO members are women. In a region known for political conflict, the cooperative has achieved relative peace and unity, even among the different ethnic groups that comprise its membership.

Gayo farmers believe in producing a high-quality product from the ground up, taking the ecosystem into account, and using a labor-intensive organic system-effectively pruning, controlling erosion, recycling organic matter, enhancing biodiversity, and protecting songbird habitat. All of PPKGO's coffee is shade grown and certified organic.

Fair Trade, however, work together with ForesTrade Indonesia (FTI). FTI promotes fair trade principles and assisted their coffee partners PPKGO in the formation of a cooperative and registration with the Fair Trade Labeling Organization (FLO). Fair trade certification, guarantees PPKGO members and their organization a fair return based on a floor price of US$2.77 per Kg. for Fair Trade coffee and US$3.11 per kg for organic and Fair Trade coffee. The price differential is significant given the current world coffee crisis with prices frequently lower than $1.00 per kg. However, FTI has also granting bonus and conservation scheme, etc.[15].

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[14] Fair Trade Profile: PPKGO, Aceh, Sumatra. Social & Environmental Responsibility. Fair Trade Partners, see: http://www.gmcr.com/ContentPage.aspx?Name=PPKGO&DeptName=SocialResponsibility © 2004, Green Mountain Coffee Roasters, Inc., 33 Coffee Lane, Waterbury VT 05676

[15] Indonesia ForesTrade Indonesia "Promoting Sustainability at the Source.

Gayo Mountain Coffee was scored between 85 and 88 point – based on decaffeinated by the solvent-free Swiss Water Method. Humboldt Bay Coffee is a small-batch, quality-oriented wholesale roaster established on California 's NoBlind Assessment – by coffee reviewers in September 2004[16]. Goodman Coffee Company (2004) claimed there are four rare-type coffees from Indonesia. There are Celebes Kalosi Toraja, Papua New Guinea- Kinjibi Tribal Plantation Sumatra Gayo Mountain Organically Grown, Timor Organically Grown Shade Grown[17]. East Timor, however, is no longer part Indonesia since end of 1999.

- **What is organic farming during early reformation stage era (1998-now)?**

That is the farmer freedom, although since 1992 farmer have freedom to choose what crop variety they want to grow, such as stated in the 1992 Bill on Crop Cultivation. Mushrooming the freedom of the farmers, back to organic argiculture[16], also sprouting advocay groups of the farmers in country. However, it can not be ignored many farmers, in different locations, have began reclaiming their ancestral land areas which have had been occupied by both the state enterprises and private sectors, including Soeharto's cronies, for mostly, large crop plantations or animal husbandry ranch for more than 30 years[17]. In fact, the farmers have in the weakest level on purchasing power in the early of multi dimentional crisis, that worsen by prolong drought (El Niño) in the middle of 1997

The atmosphere of "farmers' freedom era" cooincidently with what the saying that agriculture as the only survive sector - with others sectors have collapsed - during the crisis. In fact only export-driven crops (cacao and another plantation crops) have enjoyed it due to overvalued of US$ against *Rupiah* (IDR)[18]. Another contributing factors was the department of agriculture began to implement regional autonomy domain in some district, less centralised policy direction.

In this period, however the food-aid had flooded the countries as to serve their political and economic interests of several donor countries during 1998-1999 – although the farmers knew of no one who was hungry. Organic agriculture, as one

[16] http://www.coffeereview.com/review.cfm?ID=430, also http://www.coffeereview.com/allreviews.cfm?search=5
[17] http://www.rarecoffee.com/products/categories/category2.asp
[16] Dini Djalal (2000) in FEER, also Inside Indonesia
[17] Farmers who have successfully with of land re-occupation through mass action, between 1993 and 1999, pursue both technical facilitation and financial support to NGOs concern with organic farming: ref: Agustiana, 1993, M. Rois, 2004: around 2,000 hectares dryland reclaimed since 1998-2004 in Central Jawa.
[18] As publicly known, later, the financial crisis in 1997 revealed a number of hidden weaknesses in the economy such as a feeble financial system (with a lack of transparency, unprofitable investments in real estate, and shortcomings in the legal system.

of the recommendations by NGOs, therefore, suggested to be reconsidered as a priority in providing seed assistance packages[19].

Multi dimentional crisis maybe a kind of windfall that has pushed alternative agriculture development as well as alternative to medicine. Some farmers by their own awareness assesing organic agriculture, facilitating by NGOs, but also technical assistance from several the state universities and small private enterprises. However, hundreds rice farmers – spread out in Jawa island – have developed their own farming system since they can not afford chemical inputs. Using kerosene or detergent soap as substituting pesticide to control pest, was one of example.

After almost than two decades the organic agriculture has grown tremendously although it still does not have a single unified a kind of federation until the down fall of Soeharto, below some highlights.

♦ On early September 1998 several organic agriculture advocates with support from local NGOs organised themselves and form a network on organic farming on 10 September that year. This network recently has 40 NGOs, including several farmers' group as members. Two years later organic farming advocates moved further, by organised seminars, meeting, including visiting Malaysian organic growers and Greenet in Thailand, for observing their business activities, in order to gain insight how to set up, in technical term, a certification body. Later in April 2002 it was named as BioCert - which recently has 34 members.

♦ On 7 August 2003, a number of farmers producing organic food have formed the Indonesian Organic Goods Producers Association (APOI). APOI, as reported, would help the Indonesian government improve the quality and quantity of the country's agricultural produce through organic farming, and hopefully, the environment.

The association consisted of groups of producers of food crops, horticultural crops, plantation crops, fishery products, marine products, husbandry products, organic seedlings, organic fertilizers and bio-pesticides.

On the other perspective, many people back-to- nature lifestyle, by using traditional aromatherapic/ Homöopathie to cure or maintain their health as well as an alternative beauty treatment. Traditional medicine industry has grown fast as well as alternative to modern health sector. *Jamu* became popular medicine for both poor

[19] Riza V. Tjahjadi, (1999), also INFID (1999): INFID Statement on Food Aid.

people and middle class housewives[20]. In brief, *jamu* is drunk to preserve health, and herbal cosmetics are applied externally.

Box

During the multidimensional crisis *jamu* has taken advantage. Slobodan Lekic as quoted by Riza V. Tjahjadi, 2004[21] illustrating in his news report in 2001, *w*ith many of Indonesia's poor unable to afford Western medicine, the *jamu* industry has developed into a multibillion dollar' business. Factories produce millions of ready mixed sachets to meet steady demand from around the archipelago, and now manufacturers are hoping to capitalize on the renewed interest and acceptance of herbal medicine worldwide to open global markets for *jamu*.

Besides, there are *jamu gendong* (*jamu* hawkers) by women selling a small glass of *jamu* from street to street, almost, over Indonesia, which originated from Nguter, a small town south of Solo one of the oldest city in Central Jawa.

Moreover, *jamu* should be perceived in the broad term. In essence, beauty care in Indonesia is a total system as traditional medicines and beauty products are pert of the same programme. Indonesian women are introduced to *jamu* right from birth--but especially when a girl begins menstruating. To give her their blessing, female relative sprinkle her with perfumed water and give her *Jamu Gadis* (virgin *jamu*) which is made with a little earth that she picks up from the garden. The ceremony symbolises the girl's entry into womanhood, her fertility and future resilience, and her eternal love for family and friends. At her wedding, a traditional bride-to-be is confined to the bedroom for 40 days before the event, and given a daily *lulur*, so she's at her most beautiful on her wedding day. As a final touch, on the night before the wedding, she drinks a special aphrodisiac *jamu*, called *Jamu Kamajaya Kamaratih*, named after a famous loving couple in the *Wayang* (shadow puppets) theatre.

Is the traditional healing with herb remedies in outer the palace has the similar track? It may not. The secret is belongs to the shamans. However, the most popular herb remedies is easily found in vendors in towns or coastal areas in South and East Kalimantan. That is *pasak bumi* or *tongkat ali*. Prof Saad (2004) suggested, please note that *tongkat ali* works on libido, not on erectile capability. Therefore, those of your patients who are using Viagra or another phosphodiesterase type 5 inhibitors (or alprostadil) should be encouraged to continue to use these agents when intending to have intercourse[22]. Though the knowledge of medicinal herbs has been associated with magic and religion more and more people are turning to organic medicines. This elixir of life is reputed to cure everything, keep ladies beautiful and babies healthy. Who knows, Indonesians may indeed have discovered the fabled fountain of youth[23].

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[20] *Jamu*, the traditional prevention treatment, incuding cosmetics, in this report, should be considered as close to organic and/or, natural products, since there is no bio-spice board type in Indonesia.

[21] Bio-piracy and Bio-patenting in Indonesia. Advocacy Strategy on Anti Bio-piracy and Bio-patenting: Case Study of Indonesia. Paper presented to Southeast Asia APHD Farmers' Conference 2004, 17 October 2004 at Hotel Brongto. Yogyakarta.

[22] Sumatra Pasak Bumi / www.pasakbumi.com; also Riza V. Tjahjadi (2004), Ibid

[23] www.tourismindonesia.com 2002, Last Updated: Sep 3, 2002.

"Natural products", or "Organic" are brandnames among pharma-cosmetic products promoted by industry-based *jamu* companies since early crisis until now. "Natural color", or "No animal testing" and so on are part on the label. One company that promote such kind of cosmetics, including other ingredients is Haldin Pacific Semesta, PT, a subsidary of an Haldin International.

"At Haldin, we produce an extensive line of quality natural ingredients for our customers in the Beverage, Food, Confectionery, Nutraceutical, Cosmetic, and Pharmaceutical industries", as promoted in the internet, with Products featured are Cajeput, Citronella Oil, Coffee Liquid Extract, Green Tea Extract /T-Base 30™ [24].

However, absolutly using organic materials is impossible as claimed by a home industry-based cosmetic company. The owner of a cosmetic company, PT. Pusaka Tradisi Ibu, applying MLM (multi Level Marketing) system disclosed the difficulty to find supplier organic ingredients for preservative. She mentioned, organic oil plam, for example[25]. Notably some brands of the cosmetic products has exported. On the other hand, as observed in Jakarta, there are outlets selling both natural products for medical care and "tea health" – mostly imported for the midlle class consumers - located surround the entrace hall of supermarkets. Moreover, on the small part of supermarkert high quality rice imported from India is also sold, with additional brand for "health", or labeled as "organic rice".

By and large in 10 December 2003 it was reported, the *jamu* industry is now worth $200 million annually, with most of the traditional medicines being marketed as aphrodisiacs, slimming products and breast size enhancers for the middle low segment of people to the high segment of people, especially women.

"I am exporting my traditional cosmetics and *jamu* to ASEAN, Middle East, Holland, East Europe. Some countries are offering to joint us in the business," said Mrs. BRA. Mooryati Soedibjo, the owner PT Mustika Ratu Tbk, a leading Indonesian manufacturer of health and beauty products and traditional herbal supplements, when interviewed by Indian Spices. Total Sales of the company, by 30 June 2002, amounted IDR (*Rupiah*) 125,023,298.59. For next year PT Mustika Ratu is projecting a 30 to 40 per cent increase in its sales in 2005 compared to 2004, which is expected to reach Rp261.35 billion (US$28.7 million).

Project-based organic agriculture, a mainstream

For almost two decades, it can be said most organic agriculture development in Indonesia depending on the grant fund support. Below is some examples of the project-based on organic agriculture develoment in Indonesia.

[24] www.haldin-natural.com
[25] PT. Pusaka Tradisi Ibu. Personal Interviewed with Yusuf Sandy, 29 Nov2004

■ ForesTrade's organic cloves come from remote Mentawai Islands off the coast of West Sumatra and are harvested by the local, indigenous Mentawaian farmers. Currently, 356 farmers from six of the Mentawai Islands supply ForesTrade's certified organic cloves. ForesTrade purchases the mature buds as ingredients for teas, spices, seasoning mixes and essential oil. The income received by the cooperating farmers is more than they would get from logging, and they now have an incentive not to clear the forests or to sell their land. The Mentawaian farmers have also chosen to use portions of their incomes and organic bonus to pay for their children's educations, health supplies, and paramedic services. Moreover, ForesTrade also developed a variety of partnerships and strategic alliances. For instance, Green Mountain Coffee Roasters (GMCR), another Organic Trade Association member company, provided the initial $10,000 seed money to initiate ForesTrade's coffee project with PPKGO (the Gayo Organic Coffee farmers Association). GMCR has continued to support the project and Takengon community through grant assistance upwards of $60,000 since 1996. Over the years, this money has been used to build a community center, cupping lab, micro-processing plants, and nurseries[25]. To date, FTI works with an estimated 3,500 farmers located in about 100 communities in Sumatra, Bali, and the Mentawai Islands, Approximately 3,500 Local, Indigenous Farmers (Organized in Village Based Groups)[25].

Today they are one of the largest importers of organic spices in the world. The Dutch government recently launched a 1.1 million Euro matching fund project that will allow ForesTrade to build a new state-of-the-art processing center in Padang, Indonesia[26]

■ Experiences related to organic agriculture (…) organic and specialty coffee, mushrooms, baby corn and other items mentioned in abstract of project, entitled Indonesia, Commodity Monetization 416(b) Program Distressed Areas Assistance Funding: U.S. Department of Agriculture (G-497-2000/594-00)-$2,558,000
Time frame: September 2000 - September 2003 (Program is currently operating on monetization funding. A formal extension period is pending.)
Project inception: 1976.[27]

■ Inspired by the experience of Bolsa Amazonia in Latin America, there is Bolsa Nusantara which under support by Wetland International in Indonesia. The products

[25] Spotlight on: ForesTrade, Inc. Brattleboro, Vermont; see: http://www.ota.com/forestrade.html
[25] Indonesia ForesTrade Indonesia “Promoting Sustainability at the Source”. Op cit
[26] Weiss-Tisman (2004) Organic food boom is boon for ForesTrade. News report by Howard Weiss-Tisman. Reformer Staff./ Brattlebo - 2004-10-20 15:46:24, at website of Indonesia Investment Board (BKPM)
[27] www.ncba.coop/clusa_work_indo.cfm

they work with include organic coffees, honey (from bees and coconut), handicrafts, stola (using natural dies), candles (bamboo and coconut), and natural herbal products. This organisation has organised a workshop', held in Yogyakarta, in March 2003, with aimed to explore possible collaboration between different stakeholders in order to promote the trade from sustainably produced Indonesian bio-products. Among the stakeholders involved were: community-based initiatives, NGOs, including the industry, government agencies and scientific institutes. Currently, a small group of volunteers is in the process of designing a follow-up plan[28].

■ Groups of urban poor communities in the west of Jakarta has been growing lowland-vegetable organically in the idle lands (30 hectares) within modern housing complex near the Jakarta Airport international since early this year. Through small grant fund by monetising rice for the poor – as part of food aid from U.S. to Indonesia – the community has able harvesting various vegetables, such as bitter gurt, *brassica* (kailan, caisim), chili, eggplant, *kangkung*, string beans, etc. on weekly basis. However, most of their harvest sold to the nearest common market. Another location, nearest airport around 15 hectares also cultivated with lowland vegetables grown organically by 5 groups of farmers (10-14 persons) with duck and goat rising has made direct selling, free from middlemen, However, they are still not dare to sell to middleclass consumers who live surround it[29].

■ *Jaker PO*, *Jaringan Kerja Pertanian Organik*, a network of 40 NGOs and farmers' group for organic farming, was another example, how organic farming related activities need financial support. A project proposal, entitled Mainstreaming Organic Agriculture in Grass-root Levels in Indonesia based on Local Resource for 24 months project cycle, circulated to limited persons, for critics and improvement, at end of September 2004[30].

■ Group of rice farmers formerly unified within the national program on integrated pest management (IPM), currently heard will implement organic rice cultivation spread out of the country supports by the US-based Development Alternatives, Inc.[30]

Another type organic agriculture promoted by self-own capital is organic gardening as part of the package sold as back-to-nature lifestyle for short staying duration.

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[28] Exchange News. Activities and Developments May 2002 – April 2003. Written by: Editors 'Voices from the Forest'. www.BolsaNusantara-ntfp.org.htm
[29] M. Rois. Personal Communication, 10 Dec.2004.
[30] Message circulated by e-mail to four organization, which BioTani Indonesia was one of it.
[30] Heribertus Wibowo. Personal Communication. 30 November 2004.

This type of organic farming can be found in the internet such as promotion to live in villa in Bali island.

✹ What was the government has been doing?

The state minister on environment was the most proponent to made lobby to the Soeharto's apparatus when dealing on agrobiodiversity conservation, including organic farming. This was as consequence since some national NGOs have made preference to the ministry during Soeharto dictatorship era. Between 1995 and 1997 there was several times dicussion meetings annually initiated by the expert staff of the state minister on environment. Some some NGOs, including representative of farmers and food retailer/supermarket have assessed market development on organic farming but it was too slow to be materialised. Later some top level officers at department of agriculture, in collaboration university researchers set up an association for organic farming, namely *Masyarakat Pertanian Organik Indonesia* (Maporindo) on 1 February 2000[31].

SNI Pangan Organik

Indonesia has not made any act so far for protection of organic agriculture legally. So far there is the national standard, namely *Standard Nasional Indonesia* (*SNI*) *Pangan Organik* or Organic Food, literally (SNI 01-6729-2002) issued by *Badan Standardisasi Nasional* (BSN), a national standard agency. SNI was adoption of CAC/GL 32-1999, Rev.I 2001**,** Guideline for production, processing, labelling and marketing of organically produced foods, with additional modifications in the context of Indonesia. SNI use normative reference CAC/GL 32-1999, Rev.I 2001**,** Guideline for production, processing, labelling and marketing of organically produced foods, and IFOAM Basic Standards for Organic Production and Processing, 2002. JAS, NOP USDA, NASA, EU[32].

SNI approved by the minister of agriculture by end of 2002. Later, the minister in 2003 has also appointed *Pusat Standar dan Akreditasi* (PSA) as Competence Authority (*Kompeten Pertanian Organik*, KPO). *PSA* has undergone, at least, training twice which include a farmer on *SNI* with comparison to IFOAM standard, and financial management on organic farming unit, etc. early this year.

Currently *KPO*, with participation of the stakeholders from various sectors, is underway revising SNI as adjustment to meet the situations. As observed to a day national consensus discussion on 7 December 2004, there are several subject should be addressed in the revising *SNI*, i.e. tables that clearly differentiating what is allow and not allow as input to organic farming practices, re-wording on social justice, add a new article on water (in general as introduction). Before end of this

[31] *65 Persen Sawah di Pulau Jawa, Kritis*. Suara Pembaruan daily. 2 February 2000.
[32] *Standard Nasional Indonesia* (*SNI*) *Pangan Organik* or Organic Food, literally (SNI 01-6729-2002) issued by *Badan Standardisasi Nasional* (BSN). No date.

year revision of *SNI* is finalized as to get approval from BSN, a national standard agency (Tjahjadi). An issue that cannot be included in *SNI* is *haram* (kosher food) and suggested by representative by consumer organization, YLKI, should include in different regulation that is labeling. For information labeling is overseeing by different agency: BPOM, a food and drug agency[33].

It worthy to note, a kind of standard on organic seafood is prepared by the ministry on fisheries ad maritime.

By and large, the department of agriculture has set a kind of program, entitled promoting Go Organic 2010, with very ambitious target: as one of the biggest exporters of organic commodity in the world. This program began in 2001, with three stages. 2001 was categorized as The First Step (consolidation), and 2005 well-developed Infrastructure, and in 2010 Indonesia will be one of the biggest organic agriculture producers in the world.

According Mahfudin[34] (29 Nov. 2004), head of sub-division of the environment management at *Direktorat Jenderal Bina Usaha Pertanian* of department of agriculture since 2001 until 2004, there are organic demonstration farms located in more than 20 regencies (districts) in west part of Indonesia such as Jawa: Bogor, Sukabumi, Cianjur, Sragen, Yogyakarta, Malang dan Cimande. In Sumatera island organic demonstration farms in Bengkulu and Agam – the famous vegetables farm with heavily chemical inputs. Although there is none organic demonstration farm in east part of Indonesia, he pointed out there are organic farming such as organic coffee in Toraja the upland areas of South Sulawesi, and West Timor (Nusa Tenggara Timur).

Next year, 2005, within Go Organic 2010 scheme Indonesia has ready to compete with other regional country, such as Vietnam in exporting organic coffee and other organic products from agricultural farms. However, we may ask, will organic agriculture become the cornerstone of the Indonesia economy?[35]

[33] Personal Observation. Jakarta, 7 December 2004.
[34] Mahfudin. Personal Communication with Arif R. Hidayat and Yusuf Sandy. 25 November 2004.
[35] At present, Indonesia has integrated in global economy system, so Indonesia conventional agriculture product price, in general, always being benchmarked to the world product price. For example, Indonesia agriculture product price are relatively higher than Vietnamese or Thai, so the domestic price become less competitive than global price. These conditions are caused by low productivity of Indonesian agriculture farming.

What is the market of organic farming?

The high price as well as people wanted as prevention and improve health within Catholic Community supplied twice a week by Bina Sarana Bhakti. That was during Soeharto era (1966-1998). However in the last couple years some companies looked for justification by getting approval or certification. Once, as one of examples, there was a private company in East Jawa submitted a list of spices medicinal crops that ready to be certified, to BioTani Indonesia Foundation in 2002. Another example was development non-timber forest such as cinnamon as export commodity by community in the bufferzone of Kerinci Seblat National Park, with assistance of WWF Indonesia and ForesTrade midleman in early 1990s. Organic syrop of fruit nutmeg trees in Menggamat community, a bufferzone of Leuser Mountain National Park has promoted, also by WWF Indonesia in cooperation with BioTani Indonesia. This effort was not successful, except community action built cemetery for dumping pesticides, as indirect support to certification process for organic patchouli for export to the US, involving 56 farmers from Manggamat was underway[36].

Organic spices exported from Indonesia have mentioned earlier. In the recent months it was reported another product, such as organic waste of a town in East Jawa will be exported to other country, as reported by LKBN Antara News Agency (9/28/2004 1:44:08 PM)

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> The Malang mayoralty administration is planning to send organic waste to Canada to be recycled into fertilizer in cooperation with a private company, a local official said on Monday evening.
>
> "The mayoralty will cooperate with PT Semeru Bio Fertilizer, a subsidiary of a foreign company, to process the waste in Canada and turn it into fertilizer," Malang mayoralty head of sanitary agency Adjumain said.
>
> Malang city produces an average of 700 tons of waste daily with some 65 percent of it organic waste.
>
> "The mayoralty will provide a plot of land 3.5 hectares to 4 hectares in the Lowokdoro dumpsite with an initial shipment of 220 tons (of waste) each day," said Adjumain.
>
> Meanwhile, Malang city spokesman Gatot Setyobudi said the private company would provide an investment of Rp 200 billion (US$21.9 million) in the project.

[36] Riza V. Tjahjadi (1996) Action against pesticides in Indonesia. PAN UK, 1996. http://www.pan-uk.org/pestnews/Pn35/pn35p9a.htm. This article first appeared in Pesticides News No. 35, March 1997, page 9.

"The mayoralty will only provide the waste and get Rp 400 per ton plus a 1.5 percent fee from the company's gross income for 20 years," he said.

"The city will get additional 10 percent from the net profit for the first five years and 20 percent from the sixth year on."

The officials, however, did not explain why the organic waste had to be sent to Canada for processing instead of setting up a processing plant here.

Organic shrimp

As an archipelago country Indonesia has large coastal areas. In the couple years the blue revolution in early 1980s has shifted into eco-friendly, or organic system. Shrimp farmers in Sidoarjo in East Jawa as well as in Vietnam have since entered the organic arena with on-going certification process. However Sidoarjo organic shrimp has made controversy in Sweden (www.organicstandard.com, issue 38/June 2004).

“During organic meeting in Rome (as a member of a Steering Committee of the International Task Force on Harmonization and Equivalence in Organic Agriculture) two weeks ago, I clarified to the fora that such a controversy is not true. Organic shrimp we had established in Sidorajo is a novel methods in reducing the high use of chemicals and antibiotics and improving the surrounding environments,” said Dr. Ananta Kusuma Seta, the *gatekeeper* of *SNI Pangan Organic* to BioTani Indonesia[37]

In the exporting organic farming products, however, has serious problem which contributing high cost factors. This because as part of export commodities in general are not escape from corruption and bribery, as reported by a staff of a company (see: Opinion).

By and large, as observed there is no official statistical data concerning on production, export and import of organic products. BPS, Central Statistic Agency, as observed, is not specifically preparing this type of data. However BPS has been adopted HS since 1999. Below is example information tabled by the national agency for export development (NAFED).

[37] Ananta Kusuma Seta. Personal Communication, by e-mail. 8 December 2004.

Name of Plants	HS	SITC
Temulawak	1211.90.210	392.49.210
Cubeb Pepper	1211.90.220	392.49.220
Kumis Kucing	1211.90.230	292.49.230
Cinchona Bark	1211.90.249	392.49.249

Source: Nafed on Sunday, December 30th, 2001

Marketing channels, shop-resto and outlet

Back to a decade ago, in 1994, one of chinese tycoons in bank and property business had offered to NGOs to sell their organic products in his supermall in a new city in the west side of Jakarta, but none have able to meet it since mass scale quantity with regular basis requirement. Some NGOs with their farmers' groups still not have confident to dealing business with out of the NGOs communities. Years later, it was recognised a kind of business on organic rice with branded and non-branded, or at least, label, among NGOs communities spread out in the country.

Current situation, according the department of agriculture, despite marketing and industrialisation stage begin in 2005-2006 as planned within GO Organic 2010 but since 2002 demand on organic farming commodities relatively high. Therefore many organic farming producers have trying to meet its demand. However, domestic demand as well also rising since last year, which, consequence, most of them turn back to serve domestic consumers. For illustration the private companies dealing in marketing as well as NGOs listed in Directory of Organic Farming produced by department of agriculture (attached).

Ananto Kusuma Seta who is managing Go Organic 2010 shown that PT Amani Mastra which specially selling organic farming commodities has increased its sales soaring up to 600 percent per year in the domestic market, especially for Jakarta consumers. He was optimistic sales of organic farming products with keep increase in the coming years[38].

"Domestic consumers as well as expatriates in the last couple years more aware to the need on organic products, such as fresh vegetables and fruits," Ananta said.

However, a kind of the central information system of consolidation of product lines is still lacking. Therefore reliable source of market information is also questionable. This situations is far behind, for example, China which has been developing computerized and set website for detail information on green food production[39].

[38] Ananta Kusuma Seta. Personal Communication with Arif R. Hidayat and Yusuf Sandy. 25 November 2004.
[39] Personal Observation during an expert group workshop on OFGF.net. Guangzhou China, 16-18 November 2004.

China ministry of agriculture has organized expert group meeting between China and representatives of ASEAN member countries in Guangzhou 16-17 November 2004, assessing initiative developing the “Asia-Pacific Organic Farming and Green Food Information Network”, OFGF.NET.Until now OFGF.net has listed 25,000 entries, including 12,000 enterprise entries and over 100 academics and 218 large enterprise group. OFGF.net intended serving as platform in developing green trading among China and ASEAN[40].

In Jakarta, currently there are around 20 outlets selling organic vegetables (Saragih, 9 Dec.2004), including a shop, namely Healthy Choice, a franchise of Taiwan's Yogi House, which also has branches in Singapore and Malaysia. Ninety percent of the products on the shop-and-resto, are imported from the United States, Switzerland, New Zealand and Taiwan.

Local products include vegetables, rice, eggs, chicken and mushrooms, which are obtained from organic farms in Bandung and Puncak, West Java, but there is a problem of standardization.

"It's difficult to obtain organic products here because there is no clear standard (governing them). In Europe, for instance, the land where organic vegetables are planted must be free from chemicals for at least 10 years," the owner, namely Stevan said.

With few organic produce producers, there is the problem of ensuring product availability, especially fresh produce scheduled to be delivered every Tuesday and Friday from local farmers.

"Spices, for instance, aren't organic yet. So, the products here are yet to be 100 percent organic, but we're trying," said Stevan[41].

For more illustration, at the shop it was sold a small package baby corn with styrefoam, a sticker with a bombastis statement: “Pure organic Produce” (top) “Real Organic ^{TM}” (center) with logo, and “All Natural” (bottom)[42]. Other was several fresh vegetables with plastic-type package, entitled Bukit Organic. Meanwhile rice sold with statement: “Produksi Organik”, and “Mentik”, as to indicate a name of two local fragance rice varieties in Central Jawa province.

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[40] Personal Observation. Ibid; see also: *China dan ASEAN Mendorong Perdagangan Pertanian Organik* (China and ASEAN push Trading on Organic Farming). A news report at Kompas daily. 20 November 2004.

[41] Diani, H (2004) Organic store gives freedom of healthier choices. News article in Hera Diani, The Jakarta Post, Jakarta. 17 October 2004

[42] Personal Observation to two food shops. Jakarta, 27 November. 2004

In a general supermarket, not far from Healthy Choice, found organic vegetables labeled with a brandname: Doctor Rocket's, organic herbs. This is herbs in small package imported from Australia. Beside there was also organic rice, claimed by a cooperative grown rice in upland areas of East Jawa.

Another type of promote organic product was door-to-door selling in a bufferstock areas for rice near Medan, a capital of North Sumatera province. Through through three medical doctors as marketing channels, around 12 groups of farmers have been developing such type of marketing under the auspice of PAN North Sumatera since April to December 2002. Began with non-pesticide rice (2002) until full organic grown rice (now) with three local fragance rice varieties, around 15 tons of non-branded and non-certified sold. Total area cultivated for organic rice 26,000 hectares[43].

Sad story, however, should not be forgoten. Around 7.5 tons of upland rice variety grown organically, which delivered by woman farmer near wholesaler market for rice in Jakarta, when she found price set by middleman (middlewoman, actually) differed as agreed before. "Its only 80 percent compare to price she had promised. How dare I the rice of my group sell to her," said a woman when complain to BioTani indonesia in May 2000. Later, with no choice, she sold her organic rice to a TV-star with the same price with middleman.

More recently, a shop which listed No. 30 in Directory Organic Farming (attachmed) had sold organic vegetables in a mall near Biotani office, also another shop in east of Jakarta was not found anymore – as observed twice in the first week of December 2004[44]. Even tough telephone called has no answer (see. No. 39 as listed in Directory Organic Farming; attachment). Previously total number of organic agriculture products collected from internet amounted 25 outlets[45].

Organic agriculture as refelcted in the most news reports and news articles in the daily newspapers still indicate the promotion stage on what is organic farming, from both economic and ideological perstives, also merely mentioned the economic profit of both food crops and cash crop, i.e. rice and coffee, which is grown organically as high-value export commodity, etc. Unfortunately, most of articles and news report seem have no figures and reliable data to strengthen statements or arguments.

[43] Sabirin, a coordinator PAN North Sumatera (2004) Personal Communication; long distance conversation. 8 December 2004.
[44] Personal Observation, Jakarta, 6 December 2004, and Observation by Soraya Juleha 8 December 2004.
[45] Sabastian E. Saragih. Personal Communication. Pontianak, West Kalimantan 10 December 2004.

Opinions
(by e-mail to more than fifhty organisations working organic farming, including the direcorate general custom and excise, face to face interviewed and observations).

The key institutions working in the organic "field":

2. What is the key institution in organic farming?

For company who exporting organic agricultural products claimed the key institution is community level organizations, such organic farmer group, *adat* or traditional institution, and village institutions. On the other hand, representative of donor agency, consumer organization, and trainor for organic farming, all, pointed out the department of agriculture as the key institution. Most of them stressed, coordination among relevant department such as the ministry on environment, department on health, and department on national education is important. Other added, department on trade also important.

On the other hand, representative from consumer organization, as well as donor, and trainor on organic farming, all together, pointed out the government is key institution in organic farming.

2.1. Central government (do mention relevant department, and its directorate)

For company who exporting organic agricultural products perceived up until now there is nothing approach on organic farming, except disincentive, by central government. Even tough there is fumigation measures to every container storing dried-raw agricultural commodities, as requisite – that is perceived the government policy as a barrier. Another example, good export prices of organic farming products have made impact too many levies applied by the government agencies.

On the other side, a representative of donor and representative of consumer organization did mention organic farming closely related to a division in department of agriculture, namely Food Security Agency. That is also indicate food security is a strong issue at grassroot level. Also mentioned department of trade, the ministry on environment, and department on health.

2.2. Regional government (do mention in specific)

Although without mentioning specific agency at district level there is a kind of illegal tax that should be paid six-monthly basis. Another illegal tax collector is the youth gang – which asked on monthly basis.

This kind of information revealed that in the export trading is not escape from corruption and bribery, as commentators saying there are increasingly concerned about the thriving corruption at all levels of the government bureaucracy, even though many members of parliament through out the country facing prosecutor in the court: KKN (*korupsi, kolusi, nepotisme*) practices**,** as they later became known.

The rest of three representatives all

2.3. Religius institution, university, political party, etc

Religius institution, such as mosque participating in organic farming development, by including the benefit of organic farming toward sustainable livelihoods when deliver sermon, which is, in turn, part of the profit gain from trading on organic farming products donated to build a new or rehabilitating mosque.

3. According your experience,

3.1. How long donor agency needed as to reach stable development stage of organic farming for you or your beneficiaries?
(To those works with self-financing capital, ignore this question)

Almost all representative said three years financial support from donor agency is enough for developing organic farming, while the rest added a year more. However, all representative pointed out the first two years budget should be allocated for pre-and-post production, while the last one year for dissemination through publications, mass media, etc. For representative of exporter company the last three years of grant period should be directed for developing cooperation with other organization that willingly promote the international marketing in order to find marketing channel or buyers in other country.

The general characteristics of organic (is there a national law; what is government policy towards organic; harmonisation; how is organic perceived i.e. cash crop/subsistence approach; etc.)

4. Describe, please, to the following questions

4.1. Is there any law or national policy on organic farming?

Only a jargon: Go-Organic Indonesia 2010, said representative of a company who exporting organic agricultural products. Meanwhile the rest say, “Don’t know.”

4.2. What is the government policy on organic farming?
(Central government, provincial, district, classified, please)

There is a kind of corporate farming for organic farming in Tanah Karo North Sumatera province, as share by a representative of a company who exporting organic agricultural products, as informed by said representative of a company who exporting organic agricultural products.

The rest three representatives say: “Don’t know”.

4.3. How far, as you recognize, the government harmonise regulations/ policies toward the international trade regime?

“Don’t know,” said a representative of a company who exporting organic agricultural products as well as the rest.

4.4. What is your opinion

4.4.1. The selling-driven type of organic farming (domestic, or export)?

Our focus is exporting organic agriculture product, therefore commodities should meet criteria and organic farming regulations or organic farming standard, such as BS IFOAM. Certifier Organic team is always monitoring, and we should maintaining good quality standard as to keep our product classified as Organic Specialty coffee, for example.

The rest three of representatives suggests should not merely export-oriented, but domestic market should be developed. Most important they suggest farmers should be educated that organic products they produced is not only for selling, while they consuming non-organic products. Ironic.

4.4.2. Organic farming as direction/ scheme in the "production design" as sustainable way of doing things to marginal farmers?

All representatives say, yes, it is good for marginal farmers..

5. According your experiences

5.1. What is the biggest commodity quantity of your production?
(To who work as No, 4.4.2. commodity is equal as crop and husbandry)

Coffee and vanilla, said a representative of a company who exporting organic agricultural products.
Crop: rice and coffee in Jawa, and cashew nut in Flores. Animal: cattle and goat, said a donor.

5.2. What kind of organic commodity, and how much quantity you sales?

It's around 1,700 ton/annum for coffee, and for vanilla 3 tons (dried)/annum said a representative of a company who exporting organic agricultural products.
No data from the rest of representatives.

5.2.1. Since when?
1998 for coffee, and 1996 for vanilla, said a representative of a company who exporting organic agricultural products.

5.2.2. Total per year, since when?
5.2.3. (.....) according your own calculation

5.3. What is written as labeled on your package of organic commodity such as to make guarantee to consumers?

Representative of a company exporting organic products was not answer directly but his company must get confirmation about marking to organic certifier, and buyer also could ask to certifier who issued certificate.

Only "Organik" said a representative of donor said, participate in the exhibition. The rest not answer.

No answer from the rest of representatives.

Trade issues (key crops marketed; is there domestic trade and how much; volume and approximate value of exports; etc.)

5.4. What kind of market?
5.4.1. "Door to door"/ special consumers

5.4.2. On-site/ own outlet
5.4.3. General market
5.4.4. Supermarket
5.4.5. Export
5.4.6. Others

Export, said a representative of a company who exporting organic agricultural products. Representative of donor said, participate in the exhibition. The rest not answer.

5.5. Regular selling?

Yes, realization of contract start from beginning of harvesting until end of harvesting period. (Contract was made in the early harvesting) said a representative of a company who exporting organic agricultural products. The rest not answer.

5.6. Are your market or your consumer need quality guarantee (organic)?

Sure, as ECO symbol from SKALint the Netherlands said a representative of a company who exporting organic agricultural products. The rest not answer.

5.7. According your market or your consumer, who is the competence agency to make guarantee marking?

Certifier, and the analyst laboratory conduct lab-test said a representative of a company who exporting organic agricultural products. Representative of donor said the department of health and department of trade. The rest not answer.

5.8. How much value (gross) of your marketing, if you don't have objection (per transaction, or total sales, rough or precise value, please do mention)

No answer from all representatives.

6. Will you share data export-import on organic commodity?
Quantity, value, country destination/ country origin
Please, provide address of sources

No answer from all representatives.

The key constraints to adoption of organic in (market, organizational, policy realms)? Is there primarily a local informal market focus or an outward one that requires certification and more sophistication?

7. What is "the important barrier which is not being solved"?
(to all representatives).

Red tape bureaucracy, especially in the regulated-trade and its regulations is the important barrier which is not being solved said a representative of a company who exporting organic agricultural products. The rest not answer.

7.1. Pre-production;

Uncertainty of the climate and fragility of the nature, etc. was the main obstacle said a representative of a company who exporting organic agricultural products. Representative of donor agency working capital is the most obstacle. The rest not answer.

7.2. Production process;
None, except production process as long as requested by buyer said a representative of a company who exporting organic agricultural products. Representative of donor agency said quality assurance during production process is the most obstacle. The rest not answer.

7.3. Post production;

Availability of container, the ship out of schedule, but uncertainty of policy on custom and excise said a representative of a company who exporting organic agricultural products. Representative of donor agency said cost and procedure for organic certification, packing is the most obstacle.

The rest not answer.

7.4. Trading;

New regulations in the buyer country such as Bio-Terorism Act of the U.S. measurement on *Ocratoxin* fungus-free by the Japanese government is the barrier said a representative of a company who exporting organic agricultural products.

Representative of donor agency said price information and production continuity is the most obstacle. The rest not answer.

Conclussion

To summary, although duration for data gathering too short, can be drawn as follows.

1. There are two tracks on organic farming in Indonesia. The first, organic agriculture as part of social movement or the option struggle against hegemoni of the agribusiness gang (TNCs on chemicals), including croniy of capitalist interests, while enhancing food security from their own perspetives. Second, organic agriculture as an opportunity, through alternative trading, to develop better quality of the livelhood of human being as well as environment improvement.

2. The government policy on organic agriculture to vague, and as consequence, what the government has been doing not clearly understood, except a program on Go Organic 2010. Moreover, Competence Authorithy still not much popular to the grassroot level who practising organic farming, including a smallscale-grant donor agency.

3. Department of agriculture develop SNI *Pangan Organik* as well as Go Organic 2010 can be seen as linear direction or stages model approach. Meaning, sequential stage treated as driven-growth for organic farming development within organic farming community in Indonesia.

4. Dealing with domestic trade, there are fantastic growing in the last coupe years. Although, data and figures is still not easily collected, time will tell us the sustainability of the outlets selling organic agriculture products in the urban areas, esp. Jakarta, in the future.

5. Regarding export processing carried out by organisation dealing export organic raw materials has still facing bribery practices at local level.

Recommendation

1. Longer period study on organic agriculture movement in Indonesia will be able draw more comprehensive picture.

2. Further step to compile data in systematic way from actors involve in organic agriculture in the country, by public sector such department of agriculture and BPS, Central Statistic Agency is expected.

3. To be honest, organic farming is still quite marginal in Indonesia because of the influence of agro-chemical corporations. Therefore it's so important to develop a combination actual implementation of organic agriculture with nationwide campaigns.

Jakarta, 10 December 2004
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Future plans include community training in hospitality and conservation, a return
to organic rice agriculture, and the establishment of an irrigation society ...
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Attachment

Notification
Indonesia Notification on SPS to WTO until April 2002

No.Notification	Date	Title
G/SPS/N/IDN/1	28 August 1996	Decree of the Minister of Agriculture concerning Entry and Exit Point Capable of Harbouring Fish and Pest and Diseases
G/SPS/N/IDN/2	2 December 1996	Draft of Government Regulation on Trading of Fresh Fruits and Vegetables
G/SPS/N/IDN/3	15 July 1998	Decree of Minister of Agriculture Concerning The Designation Of Testing Laboratory And Control Of Pesticide Residue of Agriculture Product
G/SPS/N/IDN/4	15 July 1998	Decree of Minister of Agriculture Concerning The Implementation Of The Indonesian National Standard Of Agriculture Product
G/SPS/N/IDN/5	20 January 1999	Technical Guidelines for Controlling and Testing of Milk Quality and Safety
G/SPS/N/IDN/6	12 May 2000	Hazard analysis and Critical Control Point (HACCP) System and Guidelines for its Application
G/SPS/N/IDN/7	30 May 2000	Government Regulation on The Implementation of Animal Quarantine
G/SPS/N/IDN/8	25 July 2000	Importation Procedures of Animals and Products derived from Animals
G/SPS/N/IDN/9	26 July 2000	The Regulation of Government No. 69/99 on Food Labelling and Advertisement
G/SPS/N/IDN/10	13 September 2000	Draft of Indonesian National Standard on Maximum Microbiological Contamination Level and Maximum Residue Limits for Pesticides and Veterinary Drugs in Food of Animal Origin
G/SPS/N/IDN/11	21 September 2000	Consumer Protection Law
G/SPS/N/IDN/12	22 September 2000	Government Regulation on the Implementation of Fish Quarantine
G/SPS/N/IDN/13	17 November 2000	Government Regulation on the Implementation of Plants Quarantine
G/SPS/N/IDN/14	12 February 2001	Temporary suspension of live animals and animal products of ruminant origin from EC member countries
G/SPS/N/IDN/15	11 April 2001	Prohibition of live animals and animal products of ruminant and pig origin from European Union and Argentina
G/SPS/N/IDN/16	26 October 2001	Revocation of Restrictions on the Importation of Fresh Fruits from New Zealand

Rice Farmer Field School:
A Curriculum on Pest Management by Biological Methods

Alternative Agriculture Network
Khao Khwan Foundation, Suphanburi

Introduction

The conversion to sustainable farming systems by small-scale farmers has called for the organization of learning processes which are farmer-centered, environmentally conscious and respectful of local culture.

Under conventional farming, these learning processes have been disrupted, and the development of knowledge by farmers themselves been impeded . For instance, rice farmers' traditional knowledge of rice plant breeding and selecting has almost been lost as seed rice is now purchased instead of being saved by the farmers themselves. After long periods of chemical use, farmers have paid little attention to the ecosystems of rsice cultivation or the development of herbal extracts to substitute agricultural chemicals.

For at least 15 years government agricultural extension has attempted to introduce to farmers integrated pest management (IPM) through the so-called farmer field school but have failed to make any significant impacts on rice farmers' practices. Most of the participants at one point have returned to the application of agricultural chemicals, the practice of which has never been ruled out in IPM anyway. Government-run farmer schools have placed emphasis on pest control techniques but ignored rice farmers' awareness, social relatinship in communities and values related to their farming practices. Neither has the program recognized the importance of ecological sustainability and the farmers' way of life.

Considering these limitations of government agencies' programs for reduction of chemical use, Khao Khwan Foundation has been reviewing existing knowledge to develop an approach for rice farmers' learning process in order to spread sustainable farming practices to other farmers, especially those in Thailand's central region. Most of these farmers have been heavily in debts following decades of practicing modern agriculture. Moreover, traditional knowledge of rice cultivation in rural farming communities has been alarmingly eroded. The development of sustainable farming systems for rice farmers needs to address these critical problems.

Characteristics of rice farmers in Rice Farmer Field schools' target areas

Problem analysis shows that after 30 years of conventional rice farming, a majority of rice farmers in the project's target areas have faced the problem of

increases in production costs resulted from heavy use of fertilizers following the adoption of high yield varieties (HYV). Pesticides have increasingly been applied as pest outbreaks and diseases have occurred frequently. Pesticide use has also had long-term harmful effects on the farmers' health. The fact that the farmers have no longer saved and selected their own seed rice has led to adulterated rice varieties which fetch lower prices for their inferior quality.

Environmental problems have been worsening as water sources have been contaminated by agricultural chemicals. and air has been polluted by chemical spraying. Illnesses caused by the use of poisonous chemicals have inflicted on the farmers' health and finance. Increases in inputs have driven the farmers in deeper debts.

Chemical farming has also taken its tolls on rural community life as farmers have had less time left for their families and communities. The social and spiritual aspects of rice culture embodied in traditions of mutual help and rice ceremonies have been discarded and replaced by market-oriented production..

The foundation and its farmer participants have been working together to find ways to reduce production costs and chemical use. For this purpose, the learning approach through rice farmer field schools has been adopted to prepare and enable the farmers to change their production systems. The experiences with this approach have resulted in significant changes which would be instructive for other projects.

Rice Farmer Field Schools

This farmer-centered learning process emphasizes the development of farmers' learning potentials, social and communal awareness, community relationship and traditional values. This approach differs from government-promoted farmer schools which focus on technicality.

The organization of the learning process resorts to group participation to enhance the farmers' learning capacity and potentials. NGO workers serve as facilitators for discussions and exchange of experiences among farmers on community issues, technical knowledge, field trips to learn from other projects in their network. Farmers' participation has ensured that the contents and communication methods of these activities are in line with the farmers' localities and needs. It is also important that the facilitators have confidence in the farmers' capacity to change into sustainable ways of production.

The learning process's continuity and farmers' role in determining it contents have raised the awareness and enthusiasm of both the farmers and the NGO workers. The farmers would gain confidence from repetition of experiences learned from the school until they decide to change their methods

of production, using knowledge from diverse sources including on-farm experimentations, NGOs, and concerned government agencies. This process has been a very effective tool to bring about changes in the participants' perception and attitudes towards farming practices.

The farmer school program covers 18 weeks of group learning activities. At present the foundation has been operating four farmer field schools in districts of Suphanburi: Tambon Banpho of Muang, Tambon Wat Daow of Bang Plamaa , Tambon Ban Don of U-thong and Tambon Rairot of Don Chedi. A total of 195 rice farmers from 11 villages have taken part in the program.

The purpose of this paper is to illustrate the farmers school's knowledge building on pest management by biological methods and to assess its strengths and weaknesses for further improvements of the program.

1. Learning Process of Rice Farmer Field School

Analysis and identification of problems for learning

Problem analysis is the starting point for farmers to reflect on their problems and work out the solutions. The facilitators' role is to arrange for the farmers to discuss the situation and identify problems which are to be solved.

At this stage the participants could be farmers from diverse groups,mixed between those who have newly been interested in ways to reduce production costs and use of chemicals and those have had some experiences working with the foundation. The participants would be informed of conditions and procedures to be followed for participation in the farmer school. The farmers have to decide for themselves whether they would accept these conditions or not. Therefore, participation in the program would be made by the farmers' own choices.

The discussions would help the farmers identify problems in their rice farming and start finding out solutions together. At this point the farmers would come to recognize that their problems are the consequences of changes in production methods and their ways of live. They need to find ways to change their farming systems and gain knowledge about methods to substitute the use of chemicals.

Problems identified from discussions at Muang District Rice Farmer Field School

- rice plants affected by diseases
- increased costs of production and use of chemical fertilizers
- heavy use of herbicides
- adulteration of seed rice
- degraded soil
- weed problems in rice fields
- water polluted by chemicals

Setting common goals and targets

Following problem analysis of rice cultivation, the farmers would collectively determine their goals for learning process: questions, assumptions, potential solutions and the contents of a curriculum which would lead to finding answers to the problems. The curriculum and contents could vary from one locality to another depending of the needs of the participating farmers.

Shared goals for participants of a farmer field school

- attend 18 sessions (weeks), 3 hours for each
- reduce production costs, stop using all chemicals except for fertilizers, best if even no use fertilizers preferred
- have life-long supply of organic rice for own consumption
- have good health, physically and mentally
- improve the environment, water and air quality

Collective agreement on attendance and class rules

Since the decisions to attend the school are made by the farmers themselves, it is important for them to define what they expect to achieve together and to collectively make rules to which everyone would commit

through 18 weeks of learning. Meeting places would be chosen as the participants see fit such as village temples, community leaders' houses, or members' rice fields.

It is important for successful learning that class hours and meeting places should be fixed and not changed until the program is completed. Repetition is a powerful tool to free the farmers from preconceived ideas and attitudes and relearn new knowledge.

Shared commitments by the participants of Muang District Rice Farmer Field School

1. regular class attendance
2. each participant to carry out his or her own on-farm experiment in areas of at least two rai (0.8 acre).
3. be punctual and responsible to their own group.
4. if important business preventing a participant from attending class, a substitute has to sit in for his of her place.
5. the maximum number of missed classes allowed is two consecutive weeks or four weeks in total
6. class held on Tuesday from 9-12 am; late arrival no later than 9.30 am
7. participants who never miss classes to get awards
8. non-participants able to attend classes if interested
9. classes to be conducted in a designated room or spot for collective learning

Curriculum and Content Design

The first few classes are designed for the farmers to learn about soil fertilization and pest management by biological methods. Soil fertility, which has been depleted in most of rice farms through years of application of chemicals, needs to be revived because it is crucial to growing healthy plants. Knowledge of organic methods for pest control will introduce to the farmers basic understanding of ecosystems in their rice fields and techniques to deal with pest problem biologically. There are numerous techniques for the participants to learn and put to test on their own farms.

The group will plan for lessons for each week. These lessons would vary for each group, depending on the needs or interest of its group members.

Curriculum for Muang District Rice Farmer Field School

Week 1	Get-to-know session; pest management for rice farming
Week 2	Natural and herbal controls for rice pest
Week 3	Agricultural chemicals and their effects on health
Week 4-18	Rice field surveys: collecting insects, counting beneficial versus harmful insects, observing rice plant growth, preparing herbal pesticides, training on using trichoderma to control fungal diseases

Knowledge transfer in rice farmer field schools

The farmer field schools have employed a number of methods to pass on knowledge to farmers with an aim to effect changes in farming systems as well as farmers' awareness and attitudes. The transfer of knowledge is achieved directly by the participants' group activities and indirectly by communication between them and other farmers and community residents. Methods used are as follows:

- 3-hour class for 18 weeks; review of what the participants have learned and report of on-farm trials; some participants dropping out welcome to join next rounds of school
- mobile classes held every three months for the participants to visit and exchange experiences with their counterparts in other farmer schools in the network
- communication between the participants and their family members
- communication between the farmers and their communities or consumers who buy their produce such as rice
- participation in rituals associated with rice culture, especially a ceremony to show respect for *Mae Phosop* or rice guardian, restoring traditions such as mutual help among neighbors in rice transplanting, harvesting to strengthen community ties.

Where to find information and knowledge

NGO facilitators would play a role here to help the farmers gain access to necessary and information which are locally available or to be obtained from

external sources. The participants can decide for themselves if any information is appropriate and applicable for their farming practices. Information could be obtained from various sources:

- external sources including soil development offices, pest control centers, a university's microorganism studies center.
- local sources including community elders who can recount traditional beliefs, customs, rice ceremonies, farming tools for rice growing
- participants' practices and experiments such as collecting microorganisms from forest soil
- books, printed materials, other media, etc.
- resource persons including farmers with success in cutting production costs; experts from rice research centers; Khao Khwan field researchers

The information obtained would be categorized and screened by the farmers who would consider which is appropriate and applicable in solving their problems.

Exchanging knowledge and on-farm experiment

At each meeting the farmers would learn together from open discussion, exchange their experiences, and review knowledge to gain understanding of the results of of their experiments. At the end of each class, they would be assigned homework to contemplate and do research about. The participants would report the findings to the class and answer questions from their fellow farmers at the next meeting.

Requirement of field trials would challenge the farmers to put to test new information combined with what they have learned together in the class. The farmers could develop techniques suitable for their own farms which could be shared with other participants and further improved.

The farmers are encouraged to develop and make use of local materials and resources to replace agricultural chemicals in various ways. Numerous local plants which can be used for controlling pests include neem, galanga, lemon grass, leech lime,*Cocculus tudicus, Tinospora crispa*, *Dioscorea doemona* and *Clitoria macrophylla.*.

Soil fertilization techniques of Mr.Sanan

1) spread rice straws by using modified harvesting machine
2) pump water into rice fields mixed with EM mixtures 1 liter/rai (0.4 acre) to accelerate straw decomposition
3) use tractor to mix straws into soil (or release a flock of ducks to do the job for 2-3 days to activate EMs in decomposition
4) keep the fields flooded for at least 20 days
5) mix the soil thoroughly into fine mud, keep some water in the fields
6) soak rice seeds in water over night until they begin to germinate, then keep them out of water for another night before broadcasting
7) use 25 kg of seeds for 1 rai

Soil fertilization techniques of farmer Petcharat

1. spread rice straws in the fields
2. pump water into the fields, mixed with EM mixtures 3 liter/rai
3. mix straws into soil with tractor twice, 7 days apart
4. sow rice seeds
5. when rice plants 22 days old, apply quick compost 200 kg/rai
6. at 43 days old, add quick compost 250 kg/rai
7. spray herbal pesticides and apply fermented plant juice 4 times when rice between 40-70 days old
8. after rice plants produce ears, apply herbal mixtures and fermented juice again

2. Rice Farmer Field Schools and Development of "Learning Community" for Rice Farmers and NGO workers

Group learning processes employed by the farmer field schools have been able to boost the participants' confidence in converting their rice production. The series of activities have encouraged the farmers to learn and seek out further information and knowledge which they could apply to their farming. Moreover, they have gained skills in observing, articulating, writing, analyzing and presenting through their discussion and reporting to the class. This learning process has helped the farmers transform from recipients of technology into those who are able to invent and develop appropriate technology for themselves. The farmer schools have also helped the participants to rebuild their confidence and pride as farmers, and strengthened relationship between community members. NGO facilitators have also benefited from learning together with the farmers, and gained knowledge they can put into use in the future.

3. Impacts of Rice Farmer Field Schools on Rice Production

The farmer field schools, facilitated by Khao Khwan Foundation, have brought about changes in the participants. After completing 18-week school, the farmers reported that they have gained companions who share their ideals and had better understanding of their rice ecosystems. They have greater confidence to apply the knowledge such as soil fertilization, use of indigenous microorganisms, quick composts, herbal pesticides to their rice farming. These practices have brought the average costs of product down from 3,000-3500 to 750-1,300 baht / rai, and helped reduce the farmers' debts. The farmers' relationship have also been improved as they helped each other more and spent more time in their communities. Environmentally, the farmers have found their soil more fertile, water sources cleaner, more natural food available. The restoration of traditional rice ceremonies and worship of rice guardians has brought back the farmers' spiritual ties and gratitude to nature.

4. Conclusion

The learning process through the organization of farmer field schools has not been confined to introduction of farming techniques. It has been designed to facilitate knowledge building and conversion to sustainable agriculture. The farmers are expected to change their farming systems by applying what they have learned from the schools, combining local knowledge with new appropriate technology, so as to eventually stop using chemicals, reduce costs while maintaining production, and earning more income.

More important, the farmer schools aim to bring about changes in the farmers' attitude and perception from chemical, market-oriented to sustainable farming which gives importance to health, community ties, the environment , and farmers' confidence and pride in local culture which are respectful to nature, the traditions they would pass on to the younger generations.

5. Suggestions for further development

The implementation of rice farmer field schools is still in their early stage. The number of rice farmers interested in and ready to join the program is rather small in since the dominant conventional ways of farming have discouraged collective and community activities among farmers. The NGO facilitators need to play an active role in building the network for learning with the farmers. The program needs to complement with different approaches for learning. Successful implementation for some farmer schools may not necessarily work in others. It is important that each school has to make adjustments to satisfy the needs of its own communities.

Weekly Notes of Muang District Rice Farmer Field School

Week 1	Orientation, discussion on expected outcomes, agreement and class rules, pest management by biological methods, planning for week 2
Week 2	Learning about herbs effective against rice pest, exchanging experiences in using different recipes of herbal pesticides, learning more about herbal pesticides from research information provided by Agriculture Department
Week 3	Lessons on agricultural chemicals; public health officials taking blood test on participants for toxic chemicals
Week 4	Studying ecosystems in a participant's rice fields, collecting insects, sorting them out and studying their behaviors; 95% iderntified as being beneficial, 5% harmful
Week 5	Taking field trip into natural forests to study and collecting medicinal plants such nontaiyark for propagation
Week 6	Participants collecting insects in Mr.Boonma's rice fields when rice was 50 days old; the farmer applied herbal pesticides 10 day ago; participants presenting the findings in which fewer insects were found as a result of herbal pesticides being used; beneficial insects outnumbering harmful ones

Week 7	Visit to the provincial pest management center to learn about breeding of beneficial insects, participants recognizing the importance of preserving beneficial insects in their rice fields
Week 8	Visit to another farmer school in Nong Chaeng of Don Chedi District; joining their activities
Week 9	Collecting insects on the rice fields of Mr.Boonma, who had applied herbal pesticides three times, the last done 3 days ago; fewer insects found; beneficial outnumbering harmful ones
Week 10	Study tour to a herbal medicine center in U-thong District to learn about medicinal plants and use of *Diospyros embryopteris* as fungicides, getting herb seedlings to plant
Week 11	Farmers successfully adopting non-chemical rice farming came to share their knowledge about insects in rice fields with the participants; observing insects and rice plant growth on Mrs. Lamchuan Chanthathong's farm; the participants agreeing check out insects in their own rice fields
Week 12	Participants reporting to the class the results of their surveys, which found more beneficial insects than harmful ones; the farmers sorting out and identifying the insects and their benefits
Week 13	Resource persons from Suphanburi Pest Management Center giving a workshop on use of trichoderma, the farmers learning how to prepare trichoderma from rice and being given samples to try in their rice fields

EXPERIENCES WITH THE SYSTEM OF RICE INTENSIFICATION IN CAMBODIA

Yang Saing Koma, Cambodian Center for the
Study and Development of Agriculture (CEDAC)

CEDAC is a Cambodian NGO founded in August 1997 with initial assistance from GRET, a French NGO. Since its creation, CEDAC has been working with farmers and other organizations in Cambodia to develop and disseminate innovations in ecological agriculture. Our priority has been the improvement of rice-based farming systems in rainfed lowland areas. We have been working on rice intensification since 1998, with a focus on improving soil and nutrient management practices.

It was thus very timely when CEDAC learned about SRI from the ILEIA's newsletter in December 1999 (Rabenandrasana 1999). In early 2000, we received also more information on SRI from CIIFAD (Uphoff 1999 and 2000), and in the wet season that year, we integrated the elements of SRI, namely, its principles for water and plant management, into our sustainable rice intensification program. Here I will summarize the results and experiences of SRI adaptation in Cambodia since 2000, including some thoughts on the future of SRI in my country.

SRI AND TRADITIONAL/CONVENTIONAL RICE CULTIVATION

Rice is the main staple food in Cambodia, and rice farming provides income and employment opportunity for around 65% of its population.[1] Officially, the national average yield of rice is estimated to be between 1.65 and 1.80 tons per hectare in the wet season (MAFF 1995-2000, and FAO/WFP 1999). This is relatively low compared with other countries in the region.

Improvement of rice productivity has to be one of the main objectives of any agriculture and rural development program in Cambodia. During the last three decades, especially in the 1980s and 1990s, a lot of effort went into improving traditional rice farming. This effort focused on developing and diffusing recommendations for fertilizer applications and on introducing improved, high-yielding varieties as well as integrated pest management (IPM).

Although this approach can help farmers to increase their yields, the environmental sustainability and economic advantage of this for small farmers, and for Cambodia, still remains an issue. Rice productivity remains relatively low compared to the growing demand, while farmers' costs of production are increasing, mainly due to the cost of fertilizer and fuel (for pumping water in the dry season). SRI offers opportunities to increase rice production through changes in plant, water, soil and nutrient management rather than through the use of new or purchased inputs. Thus it can will be very attractive if initial results can be sustained.

RESULTS AND EVALUATION OF SRI EXPERIENCE

SRI under rainfed conditions

Rainfed rice cropping makes up around 80-85% of the total rice area cultivated in Cambodia. In the wet season 2000, 28 farmers experimented with the principles and techniques of SRI in four provinces of Cambodia. Their total area under SRI was 1.57 ha, and their average yield

[1] About 85% of Cambodia's 12 million people live in rural areas, and about two-thirds of this rural population depend mainly on rice farming.

was 5 tons per ha, which is 150% more than with traditional practices. The most significant advances were made by two farmer brothers in Kampong Thom who got more than 7 t/ha (one of them used SRI on 4,000 m^2), and by one farmer in Prey Veng who was able to harvest more than 10 tons per ha (11.8 to 13. 7 t/ha from his different plots). Even though the plots of the latter were small (11 and 8 m^2), they showed that even a traditional variety can give a very high yield when grown with SRI practices (Koma 2000).

In 2001, about 500 farmers adapted SRI in Cambodia, mainly supported by CEDAC, GTZ in the province of Kampong Thom, and by the European Commission's Support Programme for the Agricultural Sector in Cambodia (PRASAC) in Prey Veng and Takeo. According to the data collected from 393 farmers in 6 provinces of Cambodia (see Table 1), the yield under SRI varies considerably, depending mainly on how many elements of SRI are adapted by farmers. More than 80% got yields above the national average.

Even in the same village, there is one farmer who got just 2 tons per ha with SRI methods while another farmer got 10 tons per ha. This showss that SRI is not a fixed technology, but rather a set of principles that farmer can adapt to own specific needs, preferences and circumstances. Also the yield obtained from SRI adaptation depends upon strongly farmer skills and knowledge for managing their plants, water, soil and nutrients.

Table 1: Number of Farmers and Yield Harvested under SRI, Wet Season 2001

Yield classification	Number of farmers	Percentage (rounded)
Less than 1 t/ha	20	5
1-2 t/ha	71	18
2-3 t/ha	114	29
3-5 t/ha	131	33
5-10 t/ha	54	14
More than 10 t/ha	3	1
Total	393	100

Most of the farmers got 3 tons per ha or more while rice yields under traditional practice vary between 1 and 2 tons per ha. The most interesting result was that 57 farmers got more than 5 tons per ha, and among these, 3 farmers get more than 10 tons per ha. The highest yield for 2001, 14 t/ha, was obtained by a woman-farmer supported by the GTZ rural development program in Kampong Thom province.

At least 70 different rice varieties were used by farmers, most of these being traditional ones. Table 2 shows that with SRI, higher yields are possible for any variety. However, improved local varieties seem to do better than traditional and IR varieties. Improving seed selection with traditional varieties is crucial for increasing their productivity. Since with SRI, farmers require only small amounts of seed, they can more easily undertake their own seed selection and improvement based on a traditional variety.

Table 2: Yield Variation according to Variety

Category of variety	Number of farmers using variety	Average yield
Traditional varieties	247	3.00
IR varieties	112	3.30
Improved local varieties (CAR)	34	4.27

SRI used under flood recession

In 2001, we worked with 6 farmers in Prek Lovea village, Kandal province, to test SRI under flood recession conditions in the dry season. Such areas make up about 15% of Cambodia's rice area. The average yield achieved under SRI was 6 t/ha, about 50 % higher than with traditional practices. In 2002, around 40 farmers evaluated SRI under these conditions. Preliminary data show that they are able to get yields from 5 to 10 t/ha (Rady et al 2001).

Most farmers are using IR varieties in these areas.[2] However, this year at least 3 farmers evaluated the use of SRI methods with a local variety. The first result obtained from one farmer showed that with SRI, the traditional variety could produce 7 tons per ha. This will be a big advantage for farmers since when using IR varieties, they cannot keep seed for more than one season cycle.

Other advantage that flood-recession rice farmers observed was lower expenditure on fuel (for pumping water), pesticides and fertilizers. There is also an environmental benefit as the expansion of area for the cultivation of flood- recession rice has been occurring at the expense of flooded forest. If farmers can produce more rice on a smaller area, then economic pressure on these forest areas can be reduced. On the whole, there is also a benefit for local fisheries because there is less chemical pollution of the water and reduced pressure on the flooded forest areas.

Evaluation of SRI within farming systems

SRI opens the way for more intensified and diversified rice-based farming systems in the rainfed lowlands. All Cambodian farmers who have adapted SRI have considered it as a good solution for their situation because with SRI they can get a higher yield with less expenditure on purchased inputs and lower seed requirement. The enthusiasm for SRI is very strong in all villages where it has been introduced, and it is expected that around 2,000 farmers will adapt SRI in the wet season 2002. (Note that we avoid the conventional term "adopt" because we expect farmers to be making adaptations in the basic SRI system to fit their own conditions.)

Many SRI farmers consider this methodology as an important means for diversifying their rice-based farming systems because once they can get higher rice production from their small plot, they are ready to covert some of their rice fields into growing upland crops and digging a pond and canal for practicing fish culture. In partnership with farmers, CEDAC is developing SRI into a "System of Intensification and Diversification" of production in the rice field, or SID. Already around 180 farmers have started to develop this system.

Also, as farmers realize that there is a high return from investing in rice farming, they are more ready to invest in increasing the supply of biomass to be applied to the soil through increasing efforts to collect organic matter, grow green manure crops in the rice field, and grow trees for producing green leaves to add as mulch or compost.

Also, with SRI when using a local variety, there is abundant rice stubble after the harvest. This stubble, if used for mulching the rice field, opens the way of minimal tillage or zero tillage. For this wet season, around 10 farmers will be testing this practice as part of SRI.

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[2] IR varieties are the ones most commonly used in flood-recession rice cultivation. In many communities, the traditional varieties have been lost (Rady et al. 2001).

CONCLUSIONS AND FUTURE PERSPECTIVES

The results of SRI evaluations in Cambodia since 2000 have shown consistently that with SRI, small farmers are able to increase their rice production with less inputs of seed, fertilizer and water. Significant yield increases are possible under a range of natural condition in the lowlands of Cambodia, both rainfed lowlands and flood-recession agroecosystems. Yield increase has been achieved with many different varieties, with traditional varieties doing very well with SRI. Their usual yield is rather low, but their market price is high as consumers much prefer them, so being able to double their yields, or more, is much appreciated.

SRI shows that there is a large biological potential in rice plant that remains to be tapped. This potential can be effectively used if farmers are enabled to acquire better knowledge and skills for practices of plant, water, soil, nutrient and pest management that capture synergies between root and tiller growth which in turn lead to greater grain filling.

Farmers see SRI as not just a way to maximize rice yield, but as opening the way for them to diversify their rice-based farming systems in the rainfed lowlands. This is good for improving nutrition, incomes, and landscape diversity.

CEDAC has become convinced that SRI is a good solution for millions of Cambodian farmers. Thus, we are stepping up our efforts to develop and diffuse SRI and SID in Cambodia. Collaboration with other organizations is needed to ensure that a maximal number of farmers have an opportunity to learn about SRI. We envision, and are making efforts to ensure, that by the year 2010, all rice farmers in the lowlands of Cambodia will have had an opportunity to learn about SRI.

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Organic Cotton with Multiple cropping In Kamang West Sumatera

PAN Indonesia
(Maria Muris, team leader, on-farm)
Riza VT, program coordinator

Whenever NGO react to mainstream in different way of doing things, much known as developing alternative(s). The most popular term is TATA, There Are Thousand of Alternatives. As to pursue alternatives to global concern that cotton is known as the second largest pesticide used in the world after rice - years before Bt (Bacillus thuringiensis) cotton became controversial issue - and anticipation to the national based-massive cotton plantation in seven provinces scheme funded by the Asian Development Bank (ADB), PAN Indonesia has been developed organic cotton trial cultivation, at farm level.

In an upland village farm in West Sumatera, during 1996-1998, PAN Indonesia has successfully identified several crop combinations for cotton based on organic systems (*organically-grown with multiple cropping*), although in the last two years data reported not complete. Similar period, PAN Indonesia also facilitated conservation as well as utilization local adapted *kapok* trees grown with other traditional crops of Dayak Paser community, in East Kalimantan. *Kapok* (white silk or *Ceiba petandra L. GAERT*) usually use for make pillow. *Kapok* tress with upland rice, etc.

Three cotton varieties have suitable combinations in term both economically and ecologically with three cash crops, namely groundnuts, mungbeans, and soybean. Cotton varieties used, namely Kanesia, Sukothai, and a variety named 36 KI 19 L4-R.

First Planting season (1996-1997)

One interesting finding, a field trial for cotton cultivation through organic systems with multiple cropping patterns has sucessfully achieved. By planting three hybrid cotton varieties, although plot for trials are small

size, she has got good harvest. Then, during June, she look for detail information regarding fiber quality measurement, maintaining rough cotton storage, etc. to some institutions/ organization, included to home-made weaving processing units in Silungkang in Sawah Lunto Regency. This village famously known as a *kain songket* weaving production center. She also visited a textile private company, and the provincial level of department of industry and trade in Padang.

Figure 1. Cropping pattern of Cotton

Oct. 1996 - Jan. 1997	Feb.	June 1997
/	cotton (three varieties)	/
/ peanut	/ corn /	mung bean /

Source: Proceed from Monthly Reports of field staff on January, February, June, July 1997.
Note: corn was the second companion, but it was pull out, after three weeks. Due to its competition with leaves of cotton; then, place with green bean.

Three varieties of hybrid cotton planted as follows. Kanesia variety planted in 24 x 12 m, L 4-R variety 17 x 4 m, Sokuthai variety 17 x 9 m.

Cropping combination cotton with peanut indicated vegetative stage of cotton became longer, while generative stage late. Clear reason is still examined. Perhaps effects of animal manuring, that added with nitrogen from roots of peanut, or perhaps the seed was originally used to treat by chemicals, etc.

As far, cutworm that infested peanut was not spread out to cotton. Meanwhile, growth stage and yield of peanut showed good in quantity, but fairly enough in quality. This reflected that empty pods often found.

Table 1. Result of Peanut Companion With Cotton

No	Parameter for observation	Remarks
1.	Total pod per stalks	10-40 pods
2.	Wet weight	104.0 kilograms
3.	Dried weight	43.2 kilograms
4.	Price per can (5.4 kilograms)	Rp 12.500
5.	Total sold of dried peanut	7 cans (37.8 kilograms)
6.	Total selling	Rp 91.250
7.	Stock seed for next planting	1 can (5.4 kilograms)
Source: Monthly Report of field staff on January 1997.		

Table 2. Organic Multiple Cropping of Cotton October 1996-June 1997

No	Variety	Plot size	Seed amount	Yield on May	Additional yield (by June)
1.	Kanesia variety	24 x 12 m	300 grams	50.7 kg	2.0 kg
2.	L 4-R variety	17 x 4 m	100 grams	8.9 kg	1.0 kg
3.	Sokuthai variety	17 x 9 m	>300 grams*)	24.7 kg	1.0 kg

Source: Report of Field Staff on June 1997.
Note: 1. multiple crop with peanut, for the first three months. Then green bean interplanted for fourth until eight months of cotton planting period.
2. *) not all seeds planted.

Findings from first trial of cotton cultivation

1. Cotton was cultivated during the rain season end of 1996 to early drought 1997; that was October 1996 until now.
2. Without selective cutting to reduce the amount of fruit, therefore the fruit were smaller in size (compared to reference).
3. A pest, namely *Sundapteryx biguttala* and mosaic disease was not able to control. Its a learning process.
4. Harvest period was cloudy, therefore humidity of rough cotton might be high.

Unfortunately, in the first planting season (April-July) the heavy drought hit most vegetables that cultivated in the farm have got dried and then died. In the following tables showed impact of drought.

Cotton combined with groundnuts during two planting seasons (rain season and dry season) resulted relatively good, although it should be treated with botanical pesticide for bettle (*kumbang*). Cotton combined with mungbeans, also two planting season has shown impressive results than previous combination.

The main challenge, during field trial of organic cotton:
" Since haze of forest fire has worsen to West Sumatera province, a field staff delayed her return home for three weeks in Jawa. She, then, invloved in several activities assigned by Program Coordinator(...) observed the government-own cotton processing laboratory in Bandung, observed some traditional cotton spinning tools in the museum, (...) In the two-day observation to cotton processing laboratorium in Bandung, a field staff of West Sumatera tried to find practical inputs for sorting harvested rough cotton, then

selection cotton quality for further processing. In Jakarta, she examined the possible planning to develop an easy way of cotton spinning tool in her village after observing several traditional models in the museum. She concluded by utilising wheels of bicycle was one of the option." (September 1997; see: PAN Indonesia, Report Sept. 1997-Jan 1998).

Assessment for further solution of post harvesting of organic cotton, carried out:

"**Further activities**

Some proposed plan that is still pursue within several months are:

1. to find a craftsman to build a spinning wheel for cotton. Several persons that she met were not capable to carry out (Ibid).

By end of 1997, PAN Indonesia issue a technical guide for field staff, including for exploring assessment of cotton processing:

Tolong isi, Mary:

Second Planting season (1997-1998)

Figure 1. Cropping pattern of Cotton

..... 1997	June 1998
/	cotton (three varieties) /
!	; ..... ! ..... !

Source: Proceed from Monthly Reports of field staff on ..... 1998.
Note: corn was the second companion, but it was pull out, after three weeks. Due to its competition with leaves of cotton; then, place with green bean.

Crop combination pattern:

Cotton + mungbean (kc. Hijau)

Cotton + soybean (kedele) KAPAN

Financial Report

Alternative Agriculture Network
Project Title: Farmer's Experience with Agricultural Research

Summary of Receipts and Payments

Duration: November 1,2004 to March 31, 2005

unit: USD

	EUR	USD	THB
Receipts			
from MISEREOR	10,000.00	12,718.65	502,364.09
from Bread for the world		13,510.00	545,644.40
from SSCN		16,432.96	659,940.66
total receipts	10,000.00	42,661.61	1,707,949.15
Payments			
1. Traveling for participants from abroad included visa fee		22,408.97	
2. Coordination (salaries, documentation, miscellaneous)		4,548.13	
3. Activities in Thailand		2,900.85	
4. Activities in Cambodia		11,919.51	
5. Reserve		0.00	
total payments		41,777.46	
Balance at March 31, 2005		**884.15**	

Alternative Agriculture Network
Project Title: Farmer's Experience with Agricultural Research

Summary Budget

Duration: November 1,2004 to March 31, 2005

unit: USD

	unit : USD
Receipts	
from MISEREOR	12,718.65
from Bread for the world	13,510.00
from SSCN	16,432.96
total receipt	**42,661.61**
Payments	
1. Central budget	
1.1 Traveling for partyicipants from abroad included visa fee	22,408.97
1.2 Salary for two coordinators in working 2 months	2,000.00
1.3 Documentation for 7 country	2,306.25
1.4 Miscellaneous	241.88
sub-total	*26,957.10*
2. Budget for activities in Thailand	
2.1 Travelling in thailand 2 days	1,000.00
2.2 Accommodation in Thailand	855.50
2.3 Food for 2 days	495.03
2.4 Documents and gifts, such as cotton bags and seminar	348.13
2.5 Miscellaneous	202.20
sub-total	*2,900.85*
3. Budget for activities in Cambodia	
3.1 Bus rental	1,690.00
3.2 Accommodation	2,956.00
3.3 Food	4,473.80
3.4 Document and seminar folders	806.71
3.5 Communication	300.00
3.6 Travelling to Thai Border for 11 participants	142.00
3.7 Passport for farmers	625.00
3.8 Visa fee	286.00
3.9 Air ticket from Phnom to Siem Reab and back	0.00
3.10 Visit Ankor Wat	640.00
sub-total	*11,919.51*
Total payments	41,777.46
Balance at March 31, 2005	**884.15**

Group Photographs

Field visit in Thailand

Field visit in Cambodia

Seed exchange and knowledge sharing among farmers

Presentation of case studies

Rapporteur

Gifts for host organizations

Cultural sharing

VCD Farmers' Experiences with Agricultural Research Workshop

14-20 December 2004

Thailand-Cambodia