Proceedings of the National Workshop on Sharing Experiences "Towards an Agroecology Transition" 30-31 October 2014, Siem Reap

Supported by:
Conseil Général des Hauts de Seine

Summary

I. WORKSHOP WRAP UP

1. Introduction

The 2 days' workshop have been very intense and very fruitful leading to paving the way to some common principles, common understanding and common expectations about agroecology (AE). There are still some works to do in order to define in an encompassing way AE, but participants have acknowledged that AE concept was not as new to them at the end of the workshop compare to the 1st day.

The workshop has offered room for a lot of experience sharing from Cambodia and Myanmar. It has enabled to start knowing each other and to get some introduction to other countries realities and AE initiatives. It also allowed identifying some challenges such as marketing AE products (with premium prices) for example.

This 1st national workshop was the first of its kind and it is expected that others will follow to keep on networking, sharing experiences and best practices and ultimately promote AE transition in the Mekong region.

2. A short account of the 2 days' workshop

2 overall questions were raised during the introduction session on the first day of the workshop to orientate the discussions:

- Do we share a common vision about agroecology (AE)?
- What are the main conditions and intervention modalities required to promote AE transition?

The 2 days of workshop have deeply contributed toward these 2 questions.

2.1 A shared vision about agroecology

The term of AE is rather new in Cambodia. However, participants agreed on the fact that a number of AE practices already exist and are well disseminated throughout the country such as IPM, SRI, Ecological Chicken Raising, Conservation Agriculture (Direct seeding Mulch based Cropping systems) or Organic Agriculture.

Most of the shared experiences, the discussions and the observations from the field visits have highlighted common principles around AE, bringing all practitioners together. It is interesting to note that they have mostly echoed the 5 main principles developed by Dr Alitieri in 2005 and summarized below:

1. **Enhanced recycling of biomass**, optimizing nutrient availability and balancing nutrient flows.
2. **Securing favorable soil conditions** for plant growth, particularly by managing organic matter and enhancing soil biotic activity.
3. **Minimizing losses** due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover.
4. **Species and genetic diversification** of the agro-ecosystem in time and space.

5. **Enhanced beneficial biological interactions** and synergisms among agro-biodiversity components thus resulting in the promotion of key ecological processes and services.

In addition, it has been also commonly agreed that AE promotion addresses in priority **small scale farmers (family farming)** and can offer a powerful leverage for **poverty alleviation and livelihood improvement**.

It was strongly reminded that innovations in AE and its promotion need to be done **for, with and by the farmers**. Farmers should be always put at the center of the process. As mentioned during some presentations, "success in the station doesn't mean or lead always to success for the farmers", "the success for dissemination of AE is first based on success of farmers".

Lastly, in line with the different discussions over the 2 days of the workshop, one could sum up the overarching objectives of the AE promotion as

1. Promotion of food security and safety and environment preservation
2. Valorization of local resources and knowledge
3. Poverty reduction and improved livelihoods of small scale farmers

2.2 Conditions and intervention modalities required to promote AE transition

First of all, some presentations have highlighted the importance of identifying **windows of opportunity** for supporting the promotion of AE practices. When the local context is not conducive for change, there is no hope to be successful in promoting AE practices.

As mentioned by JC Castella in his presentation, windows of opportunity are key moments for intervention along specific agro-ecological transition pathways. In addition, there is a need in adapting intervention mechanisms to socio-ecological context (such as land tenure security, credit accessibility, labor force availability, market opportunities).

Then, it was pointed out the diversity of AE practices and their complementarity to each other. The examples of KEM (a local bio agent developed by Apsara authority) and trichoderma were very interesting in this regards. Such bio agents are not considered as bio fertilizers and act only as boosters for natural mechanisms. The efficiency of their inoculation, and therefore their impact, is very much dependent on their complementarity with other soil fertility management practices (such as compost inclusion or green manure). This highlights the importance of offering to farmers a rather broad portfolio of practices that can be combined and adjusted to each local context. Thus, it is highly encouraged to have a **cross-fertilization of experiences and knowledge** that can benefit each AE practices and AE as a whole. In addition, it is important to focus more on promoting a transition rather than a conversion, which is more difficult to achieve.

Lastly, participants addressed the important issue of how to encourage farmers to adopt AE practices. Overall, a **better access to the market** and a **premium price** given to quality could be a good way forward for promoting AE products. Some initiatives aiming at creating such conditions were presented but challenges remain important and there is still a lot to be done to ensure better price for quality / safe / chemical free vegetable and

rice. In this regards, organic certification and PGS can offer a good option and need to be supported in a broader way.

However, it was acknowledged that such approaches often concern limited quantities of products and target specific niche markets that are opening slowly in capital and main secondary cities.

Thus, some participants, such as APICI project, supported a somehow complementary approach. Its presentation for instance pointed out the importance of promoting **AE practices that would not decrease farmers' profitability**, since this would not be bearable for most of them without any financial compensation. By doing so, AE practices can be disseminated and promoted without waiting for the emergence of high ends market outlets (that would provide premium prices). And, when these later will be available, it will be even easier for farmer to tap into them with their already good quality products.

3. Contributions to the way forward…

This national workshop, that included even colleagues and presentations from Myanmar and Laos, can be considered to some extent as our **window of opportunity for setting up the foundations of a national and regional network promoting AE transition**. The quality of the presentations and the high interest of the participants provide a very positive signal for a future network.

3.1 Mapping existing experiences and initiating some exchange visits

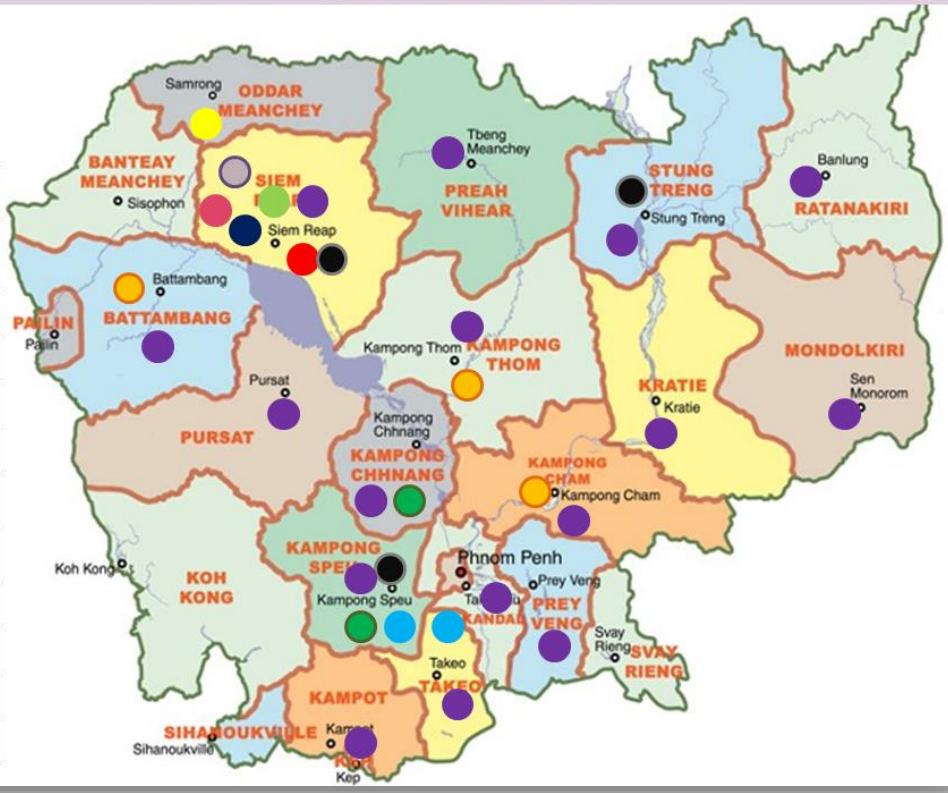
A very first attempt at mapping the different participant experiences was roughly carried out during and after the workshop. It resulted in the map hereafter.

In order to complete this very first draft map and initiate some networking actions amongst participants to the seminar, participants have been encouraged to fill up the table hereafter. This will provide a collective data base for better mapping existing agroecology experiences in Cambodia.

It is anticipated that this will also form the basis for identifying successful agroecology practices that could provide opportunities for some initial exchange visits, fostering networking and experience sharing process.

Mapping of agroecology experiences in Cambodia based on the workshop of 31st Oct. 2014

	Name
	French Red Cross
	CASC
	SOFDEC
	ADG
	GRET
	Agrisud
	CIRD
	SRER Khmer
	Caritas
	CEDAC
	APSARA



No	Organization name	Province / Village	Agroecology practice	Contact person
1	**GRET and CIRD**	Siem Reap province Sotr Nikum and Prasat Bakong districts 7 communes, 50 villages	SRI cultivation Organic fertilizers Seed production Biopesticides Multi-Purpose Farm	Touch Sokharith touch.cambodia@gret.org Lucie Reynaud reynaud@gret.org
2	**CIRD**	Stung Treng	SRI And Organic rice and Compost and organic vegetables production	Prak Sereyvath praksereyvath@cird.org.kh Chhon Sinourn chhonsinourn@yahoo.com
3	**CIRD**	Kampong Speu	Organic palm sugar production and marketing	Prak Sereyvath praksereyvath@cird.org.kh Rat Rotana rotana@cird.org.kh
4	**ADG and CIRD** **AFSA II Project**	Kampong Speu province, Udong district, Phnom Toch commune, 2 villages. Takeo province, Tramkark district, 4 communes, 8 villages.	Solid/liquid compost Bio-pesticide Poultry raising SRI cultivation Multi-Purpose Farm (MPF) EM	Mr. Than Kim Heng kimheng.than@ong-adg.be Miss. Cheav Sunnary sunnarycheav@cird.org.kh

No	Organization name	Province / Village	Agroecology practice	Contact person
5	**ADG/PUAC**	Kampong Speu province, Samrong Tong and Chbar morn district, 5 communes, 10 villages	Bio-pesticide Liquid compost	Ms. You Lun Tel: 092 973 008 Mr. Ros Houn Tel: 088 654 4745
6	**ADG** **(Food Facility Project)**	Kampong Speu province, Samrong tong and Phnom Sroch district, 2 communes, 2 villages	Solid/liquid compost Bio-pesticide EM SRI cultivation	Ms. Chuk Ty Tel: 097 591 3259
7	**French Red Cross**	Cambodia: Oddar Meanchey province, Anlong Veng and Trapeang Prasat districts, 17 villages Laos: Sayabouri province, Xienghone and Hongsa districts in Laos, 17 villages	Vegetable production: organic fertilizers, biopesticides, collective sales on local markets	David Boisson hod-lao.frc@croix-rouge.fr Sendy Veerabadren sendy.veerabadren@croix-rouge.fr
8	**SOFDEC**	Kampong Chhnang, Rolea Pha-ea, Teuk Phos, Chulkiri and Kampong Leng districts (27 villages) Kampong Speu, Phnom Srouch and Samrong Tong districts (8 villages)	SRI, Integrated farming system, Local agricultural researches	Khun Leang Hak sofdec@camintel.com Try Engmean engmean@gmail.com

No	Organization name	Province / Village	Agroecology practice	Contact person
9	**Conservation Agriculture Service Center (CASC), General Directorate of Agriculture (GDA), Ministry of Agriculture, Forestry and Fisheries (MAFF)**	- Rattanak Mundol district, Battambang - Chamcar Leur district, Kampong Cham - Damber and Ponhea Krek district, Tbong Khmum - Santuk, Kampong Thom	Conservation Agriculture Production Systems based on the principles of ecological intensification where biodiversity is the engine that drives soil-crop interactions and enhances ecosystem services (regulation and provision). + Annual upland crops: cassava, maize, soybean…etc + Lowland rice + Crop-livestock integration: annual crops and perennial crop e.g. fruit trees, rubber…etc	KONG Rada: radakong@yahoo.com Florent TIVET: florent.tivet@cirad.fr
10	**CEDAC**	Siem Reap, Sotr Nikum district, 3 communes and 26 villages	SRI, Rice seed producer groups, vegetable producer groups and chicken producer group	huotdok@cedac.org.kh Project Manager in Siem Reap

11	**CEDAC**	Takeo, Kampong Speu, Kampot, Kandal, Kampong Chhnang, Prey Veng, Kampong Cham, Tbong Khmoum, Kampong Thom, Siem Reap, Battambang, Pursat, Kratie, Preah Vihear, Stung Treng, Mondolkiri and Rattanakiri.	SRI, Organic rice and vegetable production, Multi-Purpose farm, Carbon credit (tree planting), renewable energy (Bio-digester and solar), seed production and other ecological agriculture techniques.	Him Noeun himnoeun@cedac.org.kh
12	**Caritas Cambodia**	23 villages of 5 communes of Pouk, Angkor Chum, Angkor Thom and Chikreng district of Siem Reap province	Village veterinary, SRI cultivation, Vegetable cultivation by using plastic mulching, Pig raising	Uch Samneang srpcd@caritascambodia.org Yun Thearin caritas@caritascambodia.org
13	**Srer Khmer**	Siem Reap, 19 villages, 7 communes, 4 districts	SRI, home garden, bio-pesticide, compost, cash crops, rice seed group,	yimchoem@yahoo.com Project Manager
14	**APSARA National Authority**	Siem Reap : 34 villages in Angkor Park	-**Compost** making activated by KEM; -**Chicken** raising using KEM; -**Fish** raising using KEM -**Organic vegetables** -**Green manure** -**Bio pesticides**	Dr. Tan Boun Suy bounsuytan@yahoo.com

15	**AGRISUD International**	Siem Reap Province Pourk, Krabei Riel, Chreav, Kandek communes 16 villages	Solid/liquid compost Biopesticides Cropping rotation/association SRI	CHINH Pheareak chinhpheareak@yahoo.com SENG Pichetch pseng@agrisud.org

3.2 Brainstorming about participants' expectations towards a network for promoting AE transition

Lastly, a brainstorming was conducted at the end of the workshop through group work addressing expectations of participants toward a future network for promoting AE transition and first actions to be carried out. Results are rather broad but similar from one group to another. They have been summarized in the table hereafter.

Overall, this brainstorming session demonstrated a strong interest in setting up a national/regional network gathering all AE practitioners. Main expectations focused very much on the needs of

- Developing and sharing a common understanding / vision of AE
- Capacity building for all AE stakeholders (through training and curriculum development at academic level) and increased communication
- Demonstrating and sharing innovative practices, lesson learnt, best practices and technical experience between all stakeholders
- Setting-up common standards, including about quality
- Scaling-up from national to regional levels (influencing policies, Preparing to the opening of the ASEAN market in 2015)

Most of these feedbacks are in line with the consultation process that was conducted in the Mekong region in 2013. It involved 105 persons (both consultation workshop and expert consultation) and was concluded by a first regional workshop in Vientiane in December 2013. It led to drafting an overall roadmap towards the emergence of a regional network for promoting AE transition in the Mekong region.

This first national workshop held in Siem Reap has thus strongly confirmed the willingness of the stakeholders for establishing more formalized networking actions towards the promotion of AE. It can be considered as its first milestone.

II. ANNEXES: WORKSHOP PRESENTATION EXTENDED ABSTRACTS

Challenges of the Agroecology Transition in Southeast Asia

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Keywords: land use transitions, commoditization of agriculture, livelihood vulnerability, agroecology, Southeast Asia.

Extended abstract

In recent decades, agrarian landscapes and livelihoods underwent dramatic changes in Southeast Asia. Farming households had to adapt to the mounting influence of global drivers of change in an increasingly connected world (e.g. market integration, economic policies, environmental regulations, climate change). As a result, agrarian societies - with agriculture as main occupation, as most important economic activity and as dominant ideology of rural development – gradually shifted to societies increasingly based on industrial production and services. These rapid and profound societal and environmental transformations have been influenced by megatrends such as the commoditization of agriculture, increasing divide between different forms of agriculture e.g. agribusinesses versus smallholders, and diversification of livelihoods. These trends are driven by a combination of factors such as demographic changes, market forces, government policies that impact differently local land uses depending on the stage they have reach in the shift from subsistence agriculture to commercial farming. The range of agricultural productions has greatly expanded, including intensive annual crops, livestock and tree plantations. For example, hybrid maize cultivars have replaced traditional varieties, leading to a sharp yield increase and rapid expansion of the cultivated areas. Equally dramatic was an accelerated shift toward smallholder tree plantations. This market-driven phenomenon was facilitated by strong productivity increases in annual crops, enabling large areas to be released from food production to more profitable and environmentally sustainable tree-based systems

Environmental issues are considered as one of the major setbacks of the Southeast Asian agricultural development model based on the combination of territorial expansion and production intensification. They play a central role in land-use transitions and livelihood changes. On the one hand, land degradation processes caused by deforestation have become major driving forces of economic diversification and household differentiation. On the other hand, land degradation issues are taken up by the states in their discourses to justify poverty

alleviation policies (e.g. eradication of shifting cultivation) that have critical impacts on land-uses and, in turn, on land degradation processes and extent.

Today, there is a large consensus about the necessity to buffer the negative consequences of the agrarian transition and to insure the sustainability of smallholder-based agriculture. To address problems of land degradation, in 2005, the Government of Laos issued a decree that generalizes the use of conservation agriculture across the country. In Indonesia, complex agroforests that retain approximately 50% of the biodiversity of the dense natural forests and connect forest patches to each other to create conservation corridors are under threat due to rapid expansion of oil palm plantations. Different payment for environmental schemes have been designed and tested with limited success to prevent this land use conversion. In Southeast Asia, like all around the world, the international scientific community is on the route of a "Doubly-Green Revolution", i.e. agriculture both productive and environmentally friendly. That is shifting from controlling nature to a connivance with ecosystems through agroecology. The idea that a second Green Revolution cannot result, like the first, from a simple transfer of technology, has made its way in the scientific community. Beyond a better understanding of the natural and human environments, or the design of new technologies, researchers are requested to define new development pathways, new modes of governance towards an agroecology transition.

Beyond sustained efforts to increase the system resilience or its ability to adapt to unavoidable changes (e.g. by maintaining the diversity of farming systems and practices), major transitions can be triggered by innovations that arrive at the right time, when the conditions for success are met. That is, they coincide with a window of opportunity sometimes limited in space and in time. Steering the transition towards desirable futures then consists in assessing whether the context is favorable to the adoption-diffusion of the innovation and to create the conditions for the change to happen.

Regularities can be identified in the complex transition processes in the form of trajectories that repeat themselves in space with more or less time-lag. For example, phenomena that have been described previously in Thailand, in Indonesia or in other parts of the world affected by road opening in forested uplands, land privatization by agribusiness investors in a context of fuzzy land tenure, can be identified in today's contemporary Laos and Cambodia. Lessons can then be drawn from the past experiences of neighboring countries to adapt intervention mechanisms (e.g. environmental regulations, payments for environmental service, eco-certification) to the particular context of each area, in relation with its stage in the socio-ecological transformation pathway. Indeed, locations (villages, districts) that evolve along the same pathways but at a different pace or with a time-lag can learn from each other; e.g. avoid repeating the same mistakes again. This is expected to facilitate decision making in times of uncertainty if the relevant institutional mechanisms are in place to support the exchanges across scales and sectors.

Inflexions or bifurcations in land use trajectories are systematically linked with some kind of negotiation among stakeholders, be it implementation of a new policy or granting a concession. The quality of the negotiation then determines to a large extent the type of trajectory that will unfold and who will be the winners or losers of the negotiated changes. In turn, the quality of the negotiation is determined to a large extent by who takes part, the level and quality of information held by each stakeholder and the power relations that may allow some stakeholder groups to impose their views to others. Improving the quality of the negotiation can certainly help influencing pathways of changes. For example, many experiences across Southeast Asia have shown that the adoption of cropping systems with cover crops is only possible as part of a concerted management of forage resources involving

the whole village community. By facilitating common understanding of problems related to crop-livestock interactions and providing visualization and simulation supports, researchers can engage local communities in negotiating alternative scenarios that are then explored collectively. Through active engagement of local actors in a collective learning process, local dynamics of change then appear as internally negotiated forms of the technical or organizational innovations that are proposed by outsiders (e.g. extension agents, researchers, private companies).

In conclusion, the institutional context is favorable to a transition towards agroecology but the required concerted management of natural resources and territories is largely constrained by the lack of relevant methods or more exactly by the little use of the existing methods by the transformative agents (i.e. farming communities, development workers, policy makers) in their daily practices of negotiation. A regional learning alliance on agroecology is called upon to support local communities and other stakeholder groups in negotiating their own pathways towards agroecology.


GDA-MAFF sharing experiences on agroecology practices

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Keywords: food security, small-holder farmer, IPM program, SRI, good agricultural practices, MAFF Cambodia

Extended abstract
Based on the functions of two organizations under MAFF involved the above workshop, General Directorate of Agriculture and Department of Animal Veterinary and Production, the version for consideration of technical organizations is (i) Food security (ii) Safety-Quality products (iii) Environment (iv) Economic and (v) Sustainable.

The small-holder vegetable garden is very active and was supported by many partners as MAFF, private, individual farmers and NGO. In order to improve the farmers living and some experiences of technical researchers have introduced the new model to farmers for vegetable production practice since 2002 and those methods including: 1.Plastic covering on row- this practice is (i) less weed control 80-90% (ii) less insect control 50-60% (iii) less diseases control 70-80% (iv) less irrigation 50-60% (vi) less soil density and (vii) increasing yield 20-26%. 2. Planting under net- this practice is (i) leaf vegetable increasing 10-15% (ii) less insect control 80-90% (iii) less diseases control 50-60% (iv) safety for growers and consumers and (v) less pesticide use. The GDA noted that botanical pesticide and IPM program are an efficient way to protect the plants and introduced them in early 1990s and in 2004, the principles of SRI also provided potentials for a food safety.

The small-holder chicken raising- in traditional practices, farmers have raised the chicken with the local chicken gens and feed. In 1997, the chicken raising is started changing to modern farm to supply to the market demands including the meat and eggs and an investigation showed that products from traditional practice of chicken meat and eggs still covering in domestic approximately 60% at the present. There are additional activity of department of animal veterinary and production, they still supporting and training the farmers to prevent the virus diseases from recent outbreak.

Rice has been the main staple food crop in Cambodia for centuries. The ends 1990s, under Cambodia-IRRI-Australia project (CIAP), they classified the rice cultivation areas in different agro-ecosystems ranging across rainfed upland- 2 varieties, rainfed lowland-33 varieties and deepwater rice environment-3 varieties. The cultivated areas of rice are more than 80% of it situated in the rainfed lowlands. Three sub-ecosystems are recognized within

the rainfed lowlands, these are suited for early, medium and late maturity rice varieties. So, other specific crops will be calcified.
Some constrains will be resolved: 1. Crop sub-sector (i) Seed program (ii) Cultivation and post-harvesting techniques (iii) Agro- ecology zoning (iv)Pest management and (v)Poor soil.
2. Animal sub-sector (i)Animal diseases management (ii)Animal breeding program (iii)Animal raising techniques and (iv)Social economic, Public health and Animal waste management.

To conclude, result of small-holder vegetable, small-holder chicken raising, SRI principles, botanical pesticide and IPM programs through the field demonstrations in different locations are acceptability for farmers. So, some activities of above mentions are towards agroecology transition in Cambodia and we hope to cooperate with GRET and CIRD for agriculture issue in future. There is still need to support farmers towards the technical access to reduce the chemical inputs and more productivity in agriculture production and to encourage towards the Good Agriculture Practice in both crop-subsector and animal subsector. All development partnerships are still carrying out in both subsectors should be strengthened and cooperated with involved organizations to encourage farmers' income and their better living. We noted that rice consumption will increase faster than the population growth and demands of food quantity, food safety and agricultural products quality are increasing a day to day.

Production of organic rice Trapaing Srange Agricultural Cooperative, Takeo province

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Keywords: farmers' agricultural community, organic rice production, Takeo province, FAEC.

Extended abstract
Trapaing Srange Agricultural Community was established on August 11, 2010; there are 34 members including 16 females, and there are 60 shares/200,000 riels making a total amount of 12,000,000 riels. The agricultural community is located in Trapaing Srange village, Ang Tasom commune, Tram Kak district, Takeo province.
The main activities of Trapaing Srange Agricultural Community are the creation of organic rice production team (team leader and internal checking committee); provide trainings on rice production technique; disseminating technique on compost fertilizer production; and collective purchase. As results, there are 45 producers with a total land surface area of 4 ha; collectively purchasing 9 tons of rice from members.

The reasons of producing organic rice because we found that soil fertility keeps deceasing; rice yield and quality keep decreasing; many destructive pests; high cost of chemical fertilizer; rice sale prices are low; many people are getting sick; dissemination from local organization about the benefits of organic rice. The process of team creation follows 3 steps: (i) the creation of production team in 2011 with five teams and 45 members in four communes; (ii) training specialists from CIRD and ADG organizations through implementation of AFSA project; and (iii) quality control specialist of COrAA.

The successes of Trapaing Srange Agricultural community are soil fertility improvement; good rice with quality yield; increase of yield from 2.2 to 2.7 tons per hectare; organic rice price is higher than normal rice (because it use chemical fertilizers), help protect environment. However Agricultural community still faces some challenges with lack of water source; lack of organic fertilizer; more expense on labor forces. For the future, Trapaing Srange Agricultural community plans to increase number of members and expansion of land area; create pure rice variety enrichment team and create saving money team.

Comment on seminar and suggestion
I have known the territory of Siem Reap, and I am happy to see many organizations have paid their strong attentions on ecological agriculture, and it gives me more motivation in creating rice production team and another vegetable production team. Organizations with such ecological development project are requested to provide more help to Trapaing Srange community to become a community with good environment, healthy and safe products.

Open-pollinated & Agro-ecological Vegetable Seed Production

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Keywords: open pollinated seed, crop diversity, agroecological seed farms.

Extended abstract
Seed are the beginning of the food chain and are the most essential input for farmers to initiate agriculture production. What is an Open Pollinated Variety? To sow a new crop, seeds should be saved for the next season. However, not all seeds are suitable for saving. Varieties which can be saved include farmer's varieties, local varieties, traditional varieties, heirloom varieties, ancient varieties, cultivars. These are all open-pollinated varieties. Over 80 percent of the crops in developing countries are still planted with farmers' varieties and farm-saved seeds. *FAO-Promoting the Growth and Development of Smallholder Seed Enterprises for Food Security Crops- 2010 -Plant production and protection division.* Farmers have a role and right as conservators, breeders and producers. This role is being acknowledged and recognized by international aid agencies, civil societies, NGOs and UN bodies.

OPVs can be saved by farmers from generation to generation and for replanting over the following seasons. They are traditional varieties which have been grown and selected for their desirable traits for millennia. They are the foundation, parents' seeds and genetic base from which modern agriculture produce new varieties. Seed production does not require the use of sophisticated pollination control methodologies. They have a stability of traits over successive generations. OPV's are saved easily from year to year. They have a great capacity to adapt to changing conditions because of their wide genetic base. They grow well without high agricultural inputs because they have been selected under agro ecological or natural conditions. They genetic make-up allows them to mutate and adapt to the local ecosystem.

Advantages of seed self-reliance.
Seed obtain from the farmers field are cheap and depending on species can be produced at virtually no cost, being a byproduct and extension of their conventional vegetable production. Farmers can plan to save as much seed as they need without much constraint, it is as simple to save 4 to 6 fruits for a small home garden or to save the seeds of 10 -20 plants for sowing a commercial crops or for indulging in small scale seed trade. Having control over their own seed facilitates farmers coping mechanisms, autonomy and adaptability to agricultural and climate vagaries, enhance capacity of production, mitigate investment cost and open opportunity for additional incomes while diversifying products and trading seeds.

Agricultural systems that depend too heavily on a limited number of crop varieties and species lack stability and resilience and are prone to yield losses due to pests and diseases. New challenges to agriculture point to the need to introduce more crop and species diversity into production systems to support agricultural sustainability. The aim of this priority activity is to promote sustainable agriculture by increasing diversity of crops and varieties on farm so as to reduce genetic vulnerability and boost productivity. It will be critical to involve local breeders and farmers in this activity to ensure that the varieties are adapted to local conditions and requirements. *FAO- Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture- 2012*

Brief description of the NGO Anadana

Annadana is an Indian NGO involved in conservation, selection and dissemination of OPV of vegetable and agro ecological techniques of cultivation. It is located in South India at the Auroville International township Botanical Garden. Main actions and field of expertise encompasses: seed bank, agroecological seed farms, OPV adaptation, breeding and selection, seed fairs and seed distribution.

Some Agro Ecological components used in seed production

- Green manure :Green manure can be define as the practice of turning fresh green plant tissues - green biomass – from 10 to 20 tons per acre in 45 days- into the soil to develop the soil's physical structure, increasing soil fertility and organic matter and N content.
- Composting bio mass: Composting is the controlled decomposition or breakdown of organic matter, bio mass by a large number of mixed populations of microorganisms in a warm, moist, aerated environment. Composting is a process of transformation of raw organic materials into biologically – stable- humus substances, suitable as plant nutrients.

Example of Seed and bio-diversification interventions

- Strengthening the capacity of vegetable seed producer- Northern Chin State- Myanmar and recommendation on specific agro ecological technique- GRET

Training for Seed producers

Training module 1: The first module is dedicated on seed production of annuals species requiring simple seed production technique and selection process, principally species with perfect flower, self-pollinating, autogamous and allogamous species, but also species with unisexual flower and insect pollinated flowers (tomatoes, eggplant, lettuce, corn, capsicum, cucumber, pumpkin, beans and peas). An emphasize was put on diversification of cultivars and many varieties were presented to the farmers.

Training module 2: The second module is dedicated to more complex seed saving and selection process for biannual species having self –sterile flowers, protandrous flower, insect pollinated species, out-breeders and species propagated by vegetative multiplication (tubers and bulbs) such as potatoes, onion, garlic, cabbage, cauliflower, mustard, Chinese cabbage, broccoli and carrots.

When appropriate we integrated farmer to farmer training, where farmers shared their own knowledge with the group. The trainer added specifics points and details for quality seed production and reinforced certain aspects.

Consultancy developed for GRET Myanmar- Chin state- Mars 2014- Stephane Fayon

Introduce species with nutritional and cultivation advantages- Myanmar- North Rahine state- GRET

Basela alba/ rubra- Asian spinach- Malabar spinach- Climbing/vine spinach-
Basela was find in 2 garden only and was unknown from 90% of beneficiaries, only 3 or 4 women declared knowing it and having consumed it.
Perception: It is perceived as very good taste and as a Bengali vegetable. Mainly leaves but also young shoot can be consumed.
Hindrance: People don't know about this vegetable. They confuse its leaves for other unpalatable leaves or beetle leaves. No planting material available, no seed, no cutting. No knowledge about cultivation. No awareness of cultivation system and adaptability advantage of these vegetables (rainy, winter and summer season). No awareness about nutritional advantages.
Sensitization: During interview, focus was put on good taste, easy to grow in all season, various cultivation method (crawling, climbing, seeds and cuttings), and light feeder vegetable, not susceptible to pest. Value reinforced about easy to grow, good taste and good nutrition, popularity among South East Asia and South Asia. Pictures of several cooked dishes in different countries (boiled, steer fried, curry)
Recommendation: Basela is a tropical all season vegetable, easy to cultivate and of excellent nutritional value. It should be grown by more house hold as a leaf vegetable. Need of planting materials, seeds in particular, also small nursery can be established and cutting distributed. Need of nutrition awareness and cultivation, propagation technique. Vitamin c 102 mg-123%,manganes 35%,vitamin A 400ug, 50%- NDA- 100g).Also good as an antioxidant. *Consultancy developed for GRET Myanmar- North Rahine State- August 2013- Stephane Fayon*

To conclude, reinforcing local capacity on seed saving, building seed sovereignty and privileging biodiversity of cultivars and species could be part of regular programming and intervention in particular when agro ecological and sustainability is targeted by development agencies. Seed are the beginning of the food chain and farmers need access to quality, adaptable, replicable and resilient genetic resources, capable to perform with low input and changing climatic and biotic conditions, this are all encompassing qualities of open pollinated varieties.

This document was submitted by Stephane Fayon, consultant in agro-ecology, food security, seed & farming system. The views expressed in this document are those of the author and do not necessarily reflect the views of GRET.

ASEAN Sustainable Agrifood Systems (Biocontrol): Cambodia

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Keywords: Asean sustainable agrifood system, integrated pest management, biological control, Trichoderma.

Extended abstract

Agriculture is one of the main economic sectors in Cambodia. Despite consumers and traders are increasing their interest in food safety and quality, sustainable production techniques are rarely applied in food production. In addition, negative impact of climate change affect agricultural value chains and call for adopted production techniques. It is a reason that GIZ launch the project call Asean Sustainable Agrifood System which is working government, NGOs and private sectors to promote sustainable production technologies, market linkage and to set a policy framework.

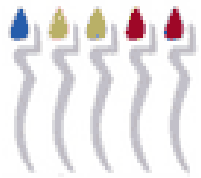
Biological control is a component of an integrated pest management strategy. It is defined as the reduction of pest populations by natural enemies and typically involves an active human role. Keep in mind that all insect species are also suppressed by naturally occurring organisms and environmental factors, with no human input. This is frequently referred to as natural control. Natural enemies of insect pests, also known as biological control agents, include predators, parasitoids, and pathogens.

The project introduces in Cambodia Trichoderma spp which is a very effective biological control agent for plant disease management especially the soil born diseases. It is a free-living fungus which is common in soil and root ecosystems. It is highly interactive with roots, soil and foliar environments. It reduces growth, survival or infections caused by pathogens by different mechanisms like competition, antibiosis, mycoparasitism, hypha interactions, and enzyme secretion. Presently there are many countries in the world using Trichoderma because it proved to be a profitable product for agriculture, health and no harm to the environment.

The Instruction to apply Trichoderma on compost is the following:

1 The place for treatment need to be in the shadow, not direct with sunlight and rainfall. Trichoderma grow well at 25^{o}C to 30^{o}C
2 Put Trichoderma into water in the watering can and stir till the powder is complete dissolved
3 Compost fertilizer has to be inoculated with liquid Trichoderma spp and thoroughly turning until completely blended
4 The Bio-compost need to have moderate moisture constantly (approx. 50% moisture)
5 Taken at least two weeks to treat covered by plastic
6 During treatment of the compost under the plastic cover, farmer should mingle the treatment once per week to make fungi well grown
7 Within 7-10 days of treatment, Trichoderma will successfully develop showing a white foam on the compost
8 For a good and pure organic fertilization of your rice field it is recommended to use 20 tons of compost per hectare (2 kg/1square meter), depending on soil quality, the use of additional fertilizer and variety (short term, long term, yield expectation).
9 Apply in evening time in humid condition. If conditions are dry, irrigate the land before application
10 Chemical fertilizer and insecticide should not be sprayed before or after 5-7days for best result.

Incorporation Trichoderma is especially important in sterilizes the soil to restore or establish a population of beneficial micro-organism. However Trichoderma will not be self-substance in sandy soils because of the limited supply to feed the fungus. Since there is relatively low amount of organic matter in sand, Trichoderma will suffer of missing cellular enzyme to work on. For seed coating mix directly 6g-10g of Trichoderma powder per kg of seed before sowing and later apply 10g-25g of Trichoderma powder per 100m^2 on the nursery bed against pathogenic fungus and ensure that the young root is colonizing early. Furthermore Trichoderma can be mixed with water to spray on the growing plant to prevent the crop and accelerate residues decomposition on the field.



Bio Inputs, natural stimulant and fertilizers

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Keywords: soil fertility improvement, natural fertilizer, Khmer Effective microorganisms.

Extended abstract
Researches
How to improve sandy soils of Siem Reap?
Sandy soils covered at least 60% of Cambodian territory. Many people believe that incorporating organic matter is sufficient to improve the sandy soil. Doing so, we cannot ensure the sustainability of the soil fertility: organic matter will disappear in 2-3 years by degradation (in tropical humid climate) and leaching. *The sustainable improvement imposes to incorporate to the sandy soil, clay and lime in addition to organic matter*. For that, we have experimented Tonle Sap sediments which is rich of fine particles (clay and silt) and lime in sandy soil of Tuk Vil organic farm. The results were promising in the rice field. Moreover the soil structure is improving, the yield crop is better. But we are facing the problem of profitability: digging out sediment in the bottom of the lake, transporting to on-shore warehouse, distributing it to the farmer is proven expensive! The huge amount of the Tonle Sap sediments accumulated since 5700 years, remain however one of potential solution of the Cambodian soil improvement in the future.

Bio-inputs
Our researches include natural stimulant and natural fertilizers
Khmer Effective microorganisms (KEM) as natural stimulant:
The word microorganisms invoke in the human spirit harmful microbes generating diseases. But others microbes, in particular Effective Microorganisms are beneficial to humans. Effective Microorganisms (EM) are well known in Cambodia. Most of them are imported from other countries, implying the introduction of alien microorganisms with unknown repercussions to Cambodian ecosystem in the future. The KEM is made by APSARA National Authority using local raw materials including indigenous microorganisms. HE Chan Sarun, former Minister of Agriculture strongly supports KEM. Some people thought that EM are fertilizers. In fact, our chemical analysis show very small rate of nutrients in it. So, EM are far to be fertilizers. They play the role of stimulant. Made from natural products found in Cambodia (sugar palm, *Moringa citrifolia* fruit) including microorganisms, KEM are natural stimulant.

Our experimentations from 2004 reveal the efficiency of KEM in the following fields:

1.1.1. Activation of Compost making.
KEM improve the yield of composting process, the qualities of compost.

1.1.2. Rice crop

Using KEM for reducing compost in the rice field is possible. On the other hand, KEM can play the role of natural pesticide against stem borers.

1.1.3. Vegetable

1.1.4. Mushroom

1.1.5. Poultry and pig raising

1.1.6. Fish raising

1.1.7. To cure Cow scarlet fever

Natural fertilizers

1.1.8. Compost

1.1.9. Green Manure

Following up the lettuce and green cabbage in 8 plots (8 treatments) from 16/01/2013 to 09/10/2014, comments:

a.T4 (Compost + KEM) and T3 (Compost + KEM + 15.15.15): on the whole, the results are the same

Conclusion: no need to use 15.15.15, Compost + KEM are sufficient

b. T4 (Compost + KEM) and T5 (40g 15.15.15)

T4>T5

15.15.15 used alone gives the lowest result

Conclusion: this treatment T5 has not to be recommended

c. T3 (Compost + KEM + 10g 15.15.15) and T6 (Compost + KEM + 20g 15.15.15).

Doubling15.15.15 input doesn't result in double yield

Conclusion: 10g of 15.15.15 is enough

d. T7 (Compost + KEM + 1kg Chromoleana) and T8 (Compost + KEM+ 2kg Chromoleana)

T7 is better than T8

Conclusion: 1kg of Chromoleana is enough

e. T7 (Compost + KEM + 1kg Chromoleana) and T3 **(Compost + KEM + 10g 15.15.15)**

T3 gives better result than T7

Conclusion: the use of natural fertilizer is preferable to chemical fertilizer

Development of Sustainable Agriculture for Smallholder Farmers in Siem Reap province

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Keywords: family farming, local collectors, market access, agroecology.

Extended abstract
In Cambodia, agriculture sector refers to family farming system, which is mainly based on subsistence crops. The low level of agricultural productivity can be explained by various causes: seasonal migration towards cities or outside country, lack of hydraulic infrastructures, poor soil fertility conditions etc. Since 2010, Gret and Cird have been promoting transition of conventional agriculture towards agro-ecology for small-scale farmers in Siem Reap province through Apici project funding by General Council of Hauts-de-Seine (CG92).

Gret and Cird are implementing conjointly Apici project in collaboration with the provincial department of agriculture of Siem reap. The project aims to improve and secure the living conditions of smallholder farmers through the development of sustainable agriculture and the strengthening of producers groups. Currently the project targets 2000 farmers in 50 villages located in two districts Sotr Nikum and Prasat Bakong in Siem Reap Province and there are 6 main components as following:

1) Promotion of System of Rice Intensification (SRI): to increase rice productivity and decreasing the use of inputs especially rice seeds and chemical fertilizers.
2) Promotion of Chicken Production: to develop small scale chicken production for self-consumption and incomes through better farming practices (breeding, feeding, etc.).
3) Promotion of Vegetable Diversification: to improving and increase production of vegetable growers and decreasing the use of inputs especially chemical fertilizers and pesticides.
4) Promotion of Peri Urban Market Linkage: to improve vegetable value chain and product price through support for creation and strengthening producer groups.
5) Improvement of water access for irrigation: to improve access to water for irrigating agricultural activities like dry season rice, home gardening and small livestock raising.
6) Promotion of village based saving group: to mobilize savings from group members and make the fund available for the provision of loans to group members especially poor farmers and to develop a culture of solidarity and mutual held among members.

At the beginning of the project, general and basic trainings on vegetable growing techniques were provided to farmers. GRET and CIRD have progressively introduced agroecological practices to basic vegetable growing courses such as soil fertility management using solid or liquid compost, green manure; biopesticides preparation based on neem leaves and more recently vegetable seed production storing. The dissemination of these new agroecology

practices was done through identification and collaboration with leaders' farmers known to be "good farmer" in their community (95 pilot farmers). They are key elements to demonstrate and show immediate results. In the same time, the capacity building of Gret-Cird team has been reinforced through agroecology trainings in order to built confident relationship between technicians and farmers. In addition, agroecology experimentations have been implemented in partnership with Apsara research station to built technical references on agroecology in Cambodia.

In Cambodia, smallholder farmers face difficulties in adapting their local production to the rapidly increasing population of Siem Reap province and recent consumer trends towards preferring healthy and safe food. Over the past ten years the population of Siem Reap has increased rapidly, but the local production has not been able to adapt to this change to a high market demand on a provincial scale. This situation has lead to the development of efficient supply chains mainly based on produce imported from other provinces and neighbouring countries such as Vietnam and Thailand and has had a strong impact on vegetable price fluctuations. In addition, consumers today have heightened awareness about the use of pesticides in vegetable production and the consequences on health thanks to media information. The position of GRET and CIRD is not be part of the vegetable value chain but much more to assist weak actors of the value chain. To reach this objective, the project team has facilitated the setting-up of 13 vegetable producers groups gathering more than 230 farmers and the emergence of 12 farmers to become "local collectors" referring as private traders. Within this system, collector play an important role in terms of (i) transport as the area of production is located 30 km from Siem Reap markets, (ii) sharing information on market prices and (iii) adviser on market vegetable demand. In total the 12 collectors are able to supply 40T of vegetables products every month to Siem Reap markets.

GRET and CIRD have been working on how to improve the coordination between production and market need with both of them. (i) With producers, to intensify and diversify their production to built a market orientation strategy and enlarge the period of production and with (ii) local collectors, on how to classify vegetable products and post-harvest techniques. GRET and CIRD encourage diversifying markets sources with domestic and touristic markets. After three years, most of producers are able to extend their period of growing up to 2/3 months more and diversify their products by including 1 or 2 news crops

Some constraints are still remaining:
1- The high instable prices
2- The local collectors met strong competition with imported products from outside
3- During dry season most of producers don't have enough products to sell to market
4- Producers capacity is limited related to pest and disease management
5- No market differentiation on agro-ecology products

In conclusion within this system based on the setting-up of farmers' organization to get larger production offer and the emergence of local collector among farmers, vegetable products are regularly supplied to Siem Reap markets. The relationship between local collectors and producers is the key of the success due to daily products' transport, providing advice on agroecology practices, sharing market information, and finally due to strong existing social contact by living in the same village.

Closing the Gap between the Supply and Demand of Vegetables in Tourism Industry Market

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Keywords: vegetable producer group, market analysis, group management, Siem Reap Healthy Agro-Products Ensemble.

Extended abstract
This lesson learn extracted from SHAPE (Siem Reap Healthy Agro-Products Ensemble), a vegetable producer group that formed by 11 vegetable growers in Kokdong and Popis village, Krabei Real commune, Siem Reap province in April, 2011. The key points illustrated the process of creation the supply chain for producer groups:
1. Technical Training: in 2011, the principle of agroecology best practices had been training to 40 pilot farmers of 8 villages, where are Agrisud target areas.
2. Producer Groups structuring: the idea of creation producer groups was introduced and facilitated by the project in order to improve the technical practices and production marketing. Eventually, the 11 voluntary vegetable producers in Kokdong and Popis village were willing to work together as the group.

a. How to facilitate to create the group?
--> Arrange a village meeting:
- ⇨ To discuss with the participants what do they think about working as the group.
- ⇨ To address what are the advantage and disadvantage of having the group. (List down pros and cons of group separately to make farmers understandable and easier to make decision)

--> Setup the criteria of being member of the group (member should be voluntary, possible to grow in both seasons...?)

b. The election of group leaders or group collector (for marketing) and setting up group role/regulation had also done in this step.

3. Market Analysis (select market channels that group wish to supply their products to for market information observation): this must be done in order to prepare planning in the group rightly. At the very inception we do market analysis soon after the creation of the group but after the first production cycle the analysis of market demand have to be done before the next production in order the supply match with the demand.
a. Main market information has to be collected from the potential clients:
- All vegetables ordered from markets
- Vegetables with high quantity ordered

- The period of high vegetable demanded
- The period of low vegetables demanded
- The average quantity needed in a month
- The average purchasing prices
- Any trading condition required

Then, make a comparison between the market needs and the productions of the group. The specific cash crops will have been addressed. For those have never been growing will be selected as experiment crops for the group.

b. Base on the previous year, some information related to the vegetable cultivation has to be asked to the group members:

- Productive vegetables
- Total quantity harvested
- Production land (in dry season, rainy season, and both) and average growing surface per cycle
- Average selling price of the year
- High and low production periods

4. Group Management and Group Strengthening, the summary of what we have to train to the group:

1. Agricultural Techniques: Agroecology best practices, Post harvest management for good quality products.

2. Economic:

- Financial Management: (invoicing, pricing, payment, revolving fund management)

3. Self Development (Capacity building)

- Cropping planning --> to ensure diversity and regularity
- Follow up planning (by creating ICC: Internal Control Committee) --> to ensure quality of products and the progress of the group.
- Group problem solving--> to ensure sustainability of the group
- Marketing skill strengthening to group collectors and members--> to have more clients
- Networking --> to obtain market information, to get support whenever insufficient supply, to sharing experiences...

Group Certification in Cambodia

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Keywords: farmers' cooperatives, organic crops production, organic standard and certification, internal control system, COrAA.

Extended abstract
The Cambodian Organic Agriculture Association (COrAA) is a business association working for the promotion of organic agriculture in Cambodia. Its membership is comprised of farmers' cooperatives and associations, NGOs, small enterprises as well as several individuals. COrAA is registered with the Ministry of Commerce. COrAA believes that an increased production and consumption of organic foods contributes to healthier people, healthier environment and poverty reduction. The association aims to be Cambodia's leader in defining organic standards, providing certification and increasing demand for organic foods. So far, COrAA has around 50 members consisting of cooperatives, NGOs, entrepreneurs, and individual farmers. Since 2011 COrAA is a member of IFOAM and has joined the Certification Alliance (CertAll) in 2013.

COrAA believes that an increased production and consumption of organic foods contributes to healthier people, healthier environment and poverty reduction. The association aims to be Cambodia's leader in defining organic standards, providing certification and increasing demand for organic foods.

COrAA's objectives:
- Introduce binding national standards for organic production based on Asian Regional Organic Standards (AROS) and Asian Standards for Organic Agriculture (ASOA).
- Support the establishment of certification for organic products.
- Build awareness in the public for organic products and 'organic certification mark'.
- Encourage the inclusion of more traders, retailers, input suppliers, processors, training institutions, etc. along value chains.

COrAA's Standards:
- Standards for Organic Crop Production
- Standards for Chemical free- Crop Production

Certification process:
a) Group Certification:
Farmer groups, associations or cooperatives of organic smallholder producers set up an Internal Control System (ICS) to assure that all members produce organically. Trained

internal inspectors check every farm at least two times during the growing season and verify the adherence to the standards. Then, COrAA inspectors examine the ICS records of every farmer-group and inspect a certain percentage of the farms.

Inspection of an organic rice field.

b) Individual operations

Other operations, such as larger farms, plantations and processors are inspected through regular scheduled reviews as well as unscheduled inspections. Annual crops such as fruit generally have fewer inspections than short-term varieties like vegetables.

During an audit, the inspector assesses what the producer understands about the basic rules. He or she will check the fields, all storage facilities (including the farmer's house) and review processes the farmer is using to manage insects and other pests, soil fertility and contamination risks. Documentation on crop production, sales volumes and inputs are also reviewed. The COrAA-assigned inspector discusses the findings with the farmer or operator.

After this, the inspector submits the inspection report to the Certification Committee. Based upon the review, the committee decides if certification can be granted. It can reject an application for certification if the respective standard are not met or violated. Certification is expressed to the public by a COrAA certification mark. It is a mark of conformity, not a normal trade mark. This mark can only be used on products that come from farms certified based on COrAA's 'Standards for Organic Crop Production' or 'Production Standards for Chemical-Free Agriculture.'

For a farmer to receive the organic certification, a conversion period of a year or more is required. During this time, organic processes must be used consistently allowing the farm ecology to adjust with the organic approach by breaking down old fertilizer residues, building up soil quality and restoring a healthy balance of insects and predators. During this conversion period, organically grown produce is certified as "Chemical-Free." While some producers choose to stay at the Chemical-Free level while others are using this level as a transitional status to Organic. Certification is expressed through these two certification marks:

III. ANNEXES: WORKSHOP PROGRAM

Agenda

1st Day: October 30th, 2014

Time	Activities	Speaker/Facilitator
08:00-8:30	Registration of the participants	
8:30 – 8:50	Workshop introduction Welcoming speech Opening session	Prak Sereyvath (Director of CIRD) Jean-François Kibler (Country representative of GRET Laos) Sao Chesda (Deputy Director of Department of Horticulture GDA-MAFF) H.E Sin Run, Deputy Governor of Siem Reap province
8:50 – 10:30	**Conditions required for developing agroecology** 1. Challenges of the agroecology transition in Southeast Asia 2. MAFF's experiences in disseminating agroecology 3. Metta dissemination approach 4. Farmer Association on organic rice cooperative	Facilitator : Jean-François Kibler (GRET) 1. Jean-Christophe Castella (CIRAD, Laos) 2. Sao Chesda (Deputy Director of Department of Horticulture GDA-MAFF) 3. Khin Maung Latt (National Agri. and Forestry Coordinator, Metta Foundation, Myanmar) 4. Hy Sothy (Member of FAEC BoD)
	Plenary discussion	All participants
10:30-10:45	Coffee break	
10:45- 12:30	**Alternative supply chain for agroecology** 1. Open pollinated vegetable seed production, Annadana 2. Bio Control Agent - Trichoderma 3. Natural fertilizers	Facilitator : Prak Sereyvath (CIRD) 1. Stéphane Fayon (Agroecology expert, India) 2. Channa Samorn (Rural development technical assistant, GIZ) 3. Dr. Tan Bun Suy (Apsara Authority)
	Plenary discussion	All participants
12:30-13:30	Lunch break provided at the hotel	
13:30- 17:30	**Field Visit of Gret-Cird project in Dom Deak, Sotr Nikum district**	Mr. Tuok Sokha (experimental farmer) Mr. Pao Prom (pilot farmer)

2nd Day: October 31st, 2014

Time	Activities	Speaker/Facilitator
08:00-8:30	Registration of the participants	
8:30 – 10:30	**Enhancing the value of agroecology products** 1. Market chain based on farmer groups and collectors 2. Vegetable short supply chain 3. Quality products certification	Facilitator : Martine François (GRET) 1. Touch Sokharith (Project coordinator, GRET) 2. Som Chanchhorvy (Marketing officer, Agrisud International) 3. Chhim Phallyboth (Program coordinator, COrAA association)
	Plenary discussion	All participants
10:30-10:45	Coffee break	
10:45- 12:00	**Working group discussion** – Key constraints facing agroecology development in Cambodia	Pierre Ferrand (GRET)
12:00-13:30	Lunch break provided at the hotel	
13:30- 15:00	**Summary of workshop -** Synthesis of agroecology development in Cambodia **Closing remarks** on key themes and action to strengthen the transition towards agroecology	Pierre Ferrand (GRET)

IV. ANNEXES: LIST OF PARTICIPANTS

No	Name	Position	Institution
1	U Pe Than	Project manager	GRET-Myanmar
2	Khin Maung Latt	Agri. & Forestry Sector Coordinator	METTA Foundation
3	Eng Sovannarith	Secretary to Rector	University of Battambang
4	Chun Barang	Facilitator	GVC Siem Reap
5	Kong Rady	CA Coordinator	GDA/DACPM/CASC
6	Jean Christophe Castella	Researcher	CIRAD
7	Chhim Phallyboth	Program coordinator	COrAA
8	Cheav Sunnary	Agricultural Technician	CIRD-PPH
9	Dr. Tan Boun Suy	Deputy Director of APSARA	APSARA
10	Seng Picheth	Project Coordinator	AGRISUD
11	Sip Pagasoley	Vice Rector	University of Battambang
12	Martine Francois	Resp. Program at HQ	GRET
13	Silvia Musi	Development Officer	GVC Siem Reap
14	Sao Chesda	GDA/MAFF	GDA
15	Sin Run	Vice Governor of Siem Reap	Governor-SR
16	Chheoun Voung	Officer	Siem Reap Provincial
17	Lucie Reynaud	Technical Advisor	GRET-APICI
18	Ly Phally	Manager of Teuk Vil station	APSARA
19	Khouert Veasna	Facilitator	CARITAS
20	Hy Sothy	President of cooperative	FAEC Federation
21	Stéphane Fayon	Consultant	
22	Pierre Ferrand	Gret HQ	GRET
23	Mam Sitha	Manager of Office	DHSC/GDA
24	Than Kimheng	Senior Agronomist	ADG
25	Yem Sivorn	Lecturer	Praek Leap University PHN
26	Pao Lina	Counterpart	APPA-JICA-BTB
27	Rous Ratha	Counterpart	APPA-JICA-BTB
28	Lam Boramey	Agriculture	IDE
29	Vincent Dhiver	Project Coordinator	French Red Cross
30	Seng Sophanna	Admin & Acc	GRET-APICI
31	Sok Sothea	Veg. Technician	GRET-APICI
32	Khiev Va	M&E Officer	GRET-APICI
33	Som Chanchhorvy	Marketing Officer	AGRISUD
34	Lam Heak	FEF	CEDAC
35	Moung Sakun	Manager of CBO-BS	Koul Pnov Village
36	Touk Ly	CBO (B.S)	Kouk Thmey
37	Try Eang Mean	RO	SOFDEC
38	Jean Francois Kibler	Country Representative	GRET- Laos
39	Samorn Channa	Junior Advisor	GIZ
40	Ros Hun	Manager of cooperative	PUAC cooperative
41	Florent Tivet	Agronomist	CIRAD

42	Nhoeng Kakada	Project Officer	SRER Khmer
43	Chinh Pheareak	Agricultural Coordinator	AGRISUD
44	Phom Pach	Farmer	Sambath village
45	Lunch San	Farmer	Chhrey Khang Tbong village
46	Phing Vuththa	Officer	Siem Reap Provincial
47	Rath Rathanan	Trainer	CIRD-PPH
48	Thy Sophorn	Saving Office	CIRD-SR
49	Koun Vun	Agriculture-PDA	PDA
50	Touch Sokharith	Project Manager	GRET-APICI
51	Prak Sereyvath	Director	CIRD
52	Christophe Goossens	Director	ADG
53	Ou Phichong	Project Coordinator	ADDA

Figure 1: Opening session of the workshop (Mr. Jean François Kibler, GRET Laos country representative, H.E Sin Run, Deputy Governor of Siem Reap province and Mr. Sao Chesda Deputy Director of Department of Horticulture GDA-MAFF)

Figure 2: Field visit of Mr. Tuok Sokha farm on 30th October 2014

Figure 3: Participants who joined the 2 days National Workshop on Agroecology (October 2014)