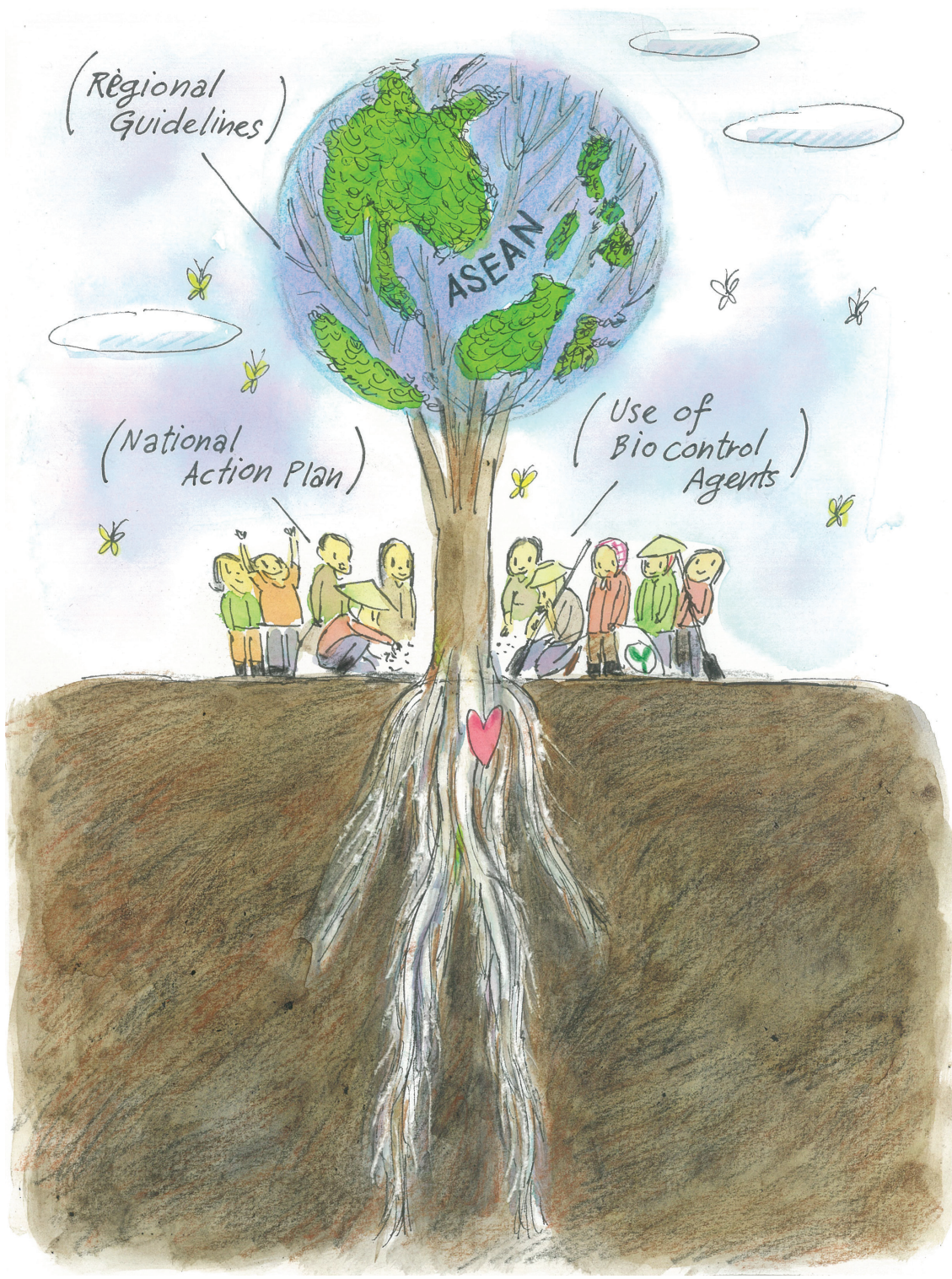




ASEAN SUSTAINABLE AGRIFOOD SYSTEMS



ASEAN Sustainable Agrifood Systems (2014–2017)

The project aims to enable ASEAN Member States to implement the ASEAN Integrated Food Security (AIFS) Framework and its Strategic Plan of Action on Food Security (SPA-FS) by focusing on the promotion of sustainable food production at the national level. Adopted by the ASEAN leaders in 2014, the AIFS Framework (2015–2020) was developed as a response to the need for an integrated approach and multi-stakeholder efforts towards long-term food security and nutrition in the ASEAN region.

Priority areas



**Policy
Framework**

Development of regionally-coordinated policies, strategies and dialogue concepts for a sustainable agrifood sector.

**Production
Technologies**

Promotion of the use of sustainable inputs and crop management practices through capacity development.

**Market
Linkages**

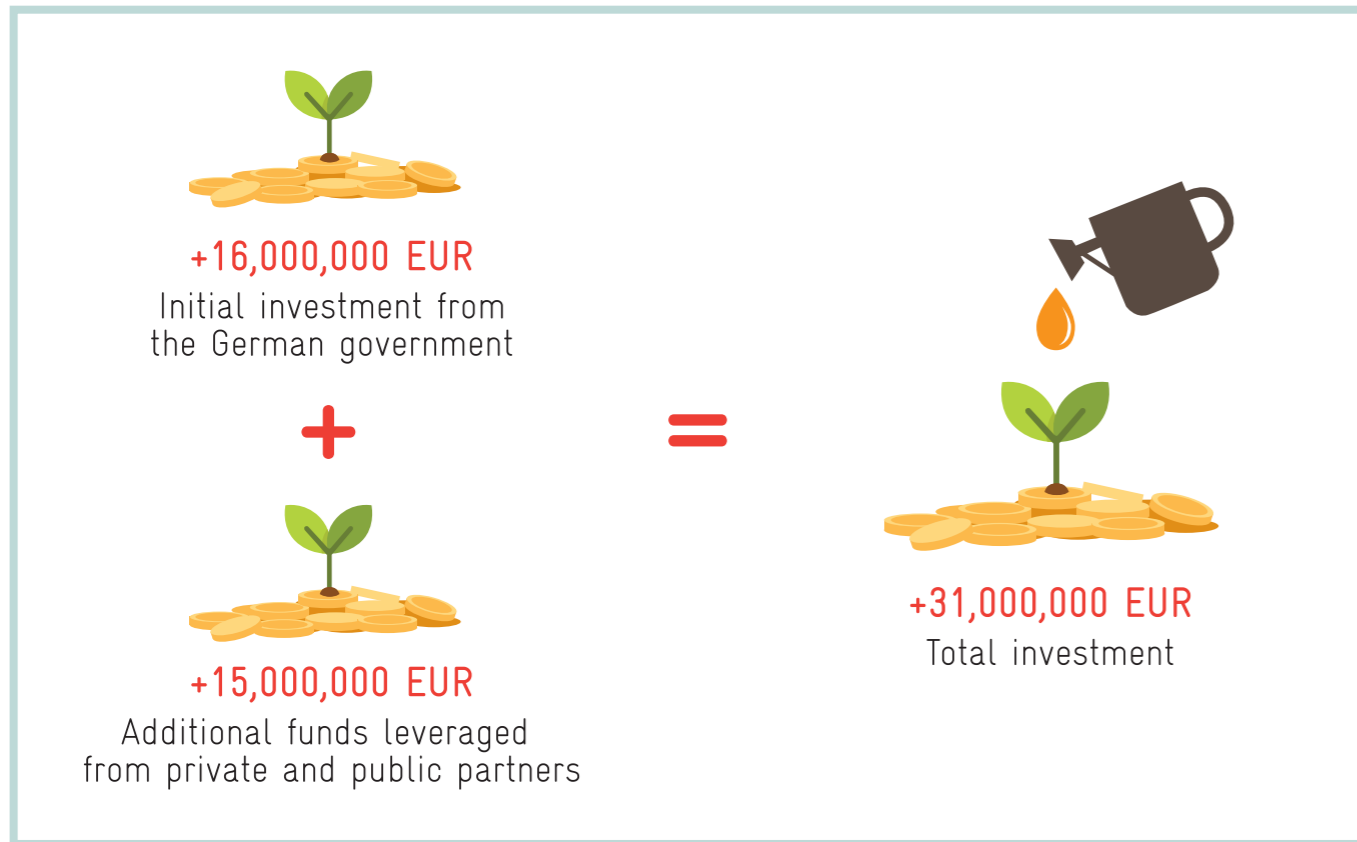
Promotion of sustainable cross-border value chains in collaboration with the private sector.

“ Sustainable Development

Sustainable development means to meet the needs of the present generation, without compromising future generations to meet their own needs. It focuses on the balance of environmental, economic, social, and cultural issues.

Definition from the World Commission on Environment and Development (WECD)

Results at a Glance (as of September 2017)
ASEAN Sustainable Agrifood Systems and Public-Private Partnerships (2011-2017)
 As part of ASEAN German programme on response to climate change (GAP-CC)



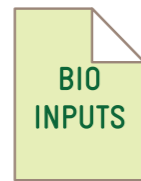
+98,000,000 EUR
Additional income generated for farmers



124,762
Smallholder farmers engaged (17% female)



16,993
Partner staff trained



2,500
Registered Bio-inputs for ASEAN trade



57
Partnerships with the private sector



4700 ha
Area under certified management



8
Guidelines and policy frameworks developed



286,000
Website visitors (2014-2017)



8
Countries implementing the guidelines and frameworks

“ Food Security

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Definition from 1996 World Food Summit

4 Principles towards sustainable agrifood systems in ASEAN

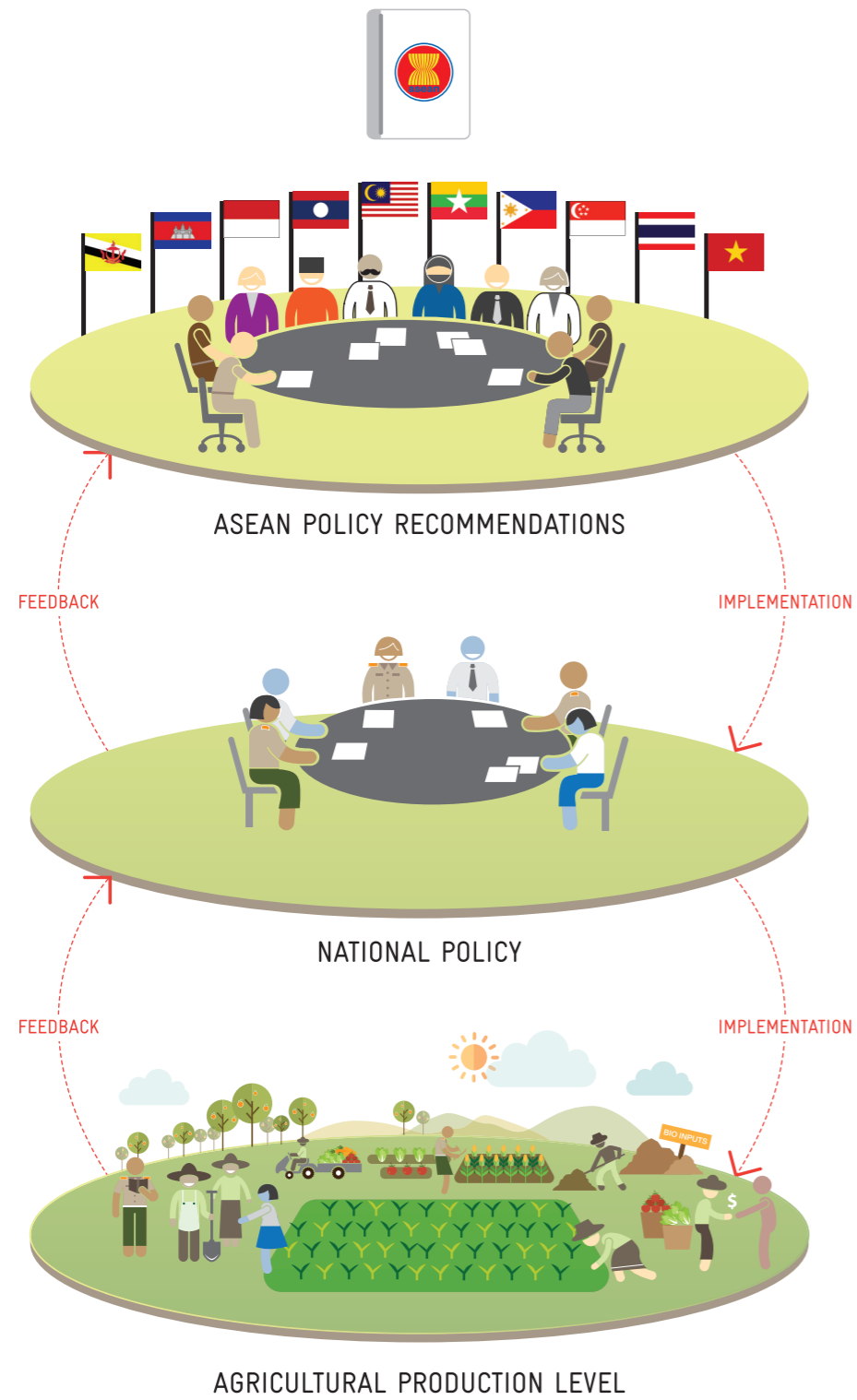
Principle 1: Multi-level Policy Linkages

Principle 2: Multi-stakeholder and Public-Private Partnerships

Principle 3: Farmer Inclusivity in the Value Chain

Principle 4: Leadership and Capacity Building

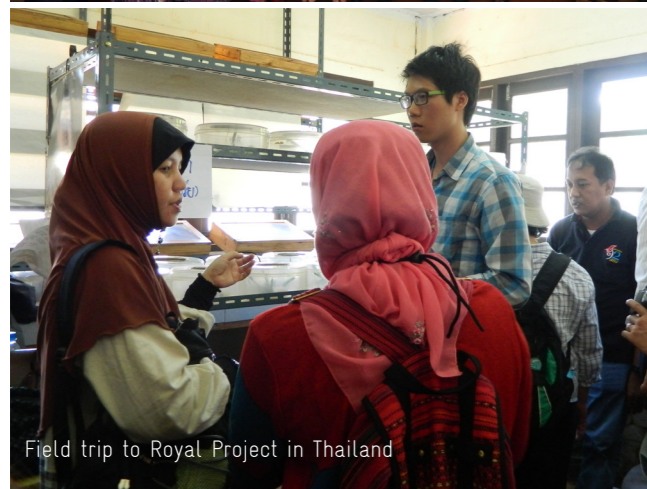
Principle 1: Multi-level Policy Linkages



National Action Plans and Regional Promotion on the Use of Biological Control Agents (BCA). A success story under Principle 1.



National Action Plans and Regional Promotion on the Use of Biological Control Agents (BCA)



Why did we initiate the project?

- Over- and misuse of synthetic pesticides threatens food safety and occupational health.
- Environmentally friendly substitutes for highly toxic synthetic pesticides are not sufficiently available in the market.
- Supporting ASEAN's mission of a more sustainable agriculture.
- Addressing gaps in regulatory policy on biocontrol in ASEAN Member States and supporting regional harmonization.

What did we do to improve the situation?

- ✓ Formation of national working groups, including representatives from relevant government agencies, universities, and private sector.
 - **Task:** To discuss and provide recommendations on how to support and expand the use of biocontrol agents on a national level.
- ✓ Establishment of a regional technical expert group on biocontrol, including continuous representation by at least 8 ASEAN Member States.
 - **Task:** To discuss and draft a regional level guidance document for the 'regulation, use and trade of biological control agents'.
- ✓ Science-based back-up of technical guidance with data and experiences from field demonstrations of BCA, and research on biocontrol in selected crops and countries.
- ✓ Endorsement of policy recommendations at regional and national levels.

Location Regional
Partner Department of Agriculture of ASEAN Member States
 Private Sector in Thailand, Cambodia, Indonesia, Vietnam, etc.

WHAT ARE THE RESULTS?

- ✓ ASEAN Guidelines on the Regulation, Use and Trade of Biological Control Agents endorsed by ASEAN Ministers on Agriculture and Forestry (AMAF) in 2015.
- ✓ National Action Plans developed or national legislation implemented in:
 - Brunei Darussalam (Promotion of BCA in horticulture).
 - Indonesia (Regulatory improvements, promotion of BCA in horticulture, etc.),
 - Lao PDR (Amendments to pesticide law),
 - Malaysia (Regulatory improvements),
 - Myanmar (National Action Plan on promotion of BCA)
 - Philippines (Regulatory improvements under Organic Act), Cambodia (Department of Agriculture Land) BCA registration form, private sector investment, e.g. EcoAgri Center),
 - Thailand (National Action Plan 2016), and
 - Vietnam (Circular 21, amendment to pesticide law)

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- › Bringing together representatives and experts from different ASEAN Member States and agencies to foster information exchange and mutual understanding towards a common goal; in this case, promotion of biocontrol and regional harmonization of a strategy (intervention at regulatory/legislative and field level).
- › High demand of guidance on sustainable agriculture among policy makers and private sector.
- › Availability of concept-proven technologies, practices, and interventions.

What could be done to improve the project?

- ✓ Project cycles are usually too short to sustain a regional effect: follow-up needed, in particular in support of implementation at national level.

What is the long-term outlook?

- ✓ Success of biocontrol in the region (more availability and use of BCA) will greatly depend on the engagement of the private sector, since they create markets and dictate inputs in the agricultural sector. Current trends in market expansion of BCA look promising.
- ✓ Better collaboration between governments and private sector is needed to make expansion of BCA possible, a major point outlined by the guidance document.



Ms. Sri Wijayanti Yusuf, Executive Secretary, Directorate General of Horticulture, Ministry of Agriculture, Indonesia: "There is a strong policy from the Government and the President to develop organic village. The Government concerns about this. We have to maintain healthier and better ecosystem. We have to start using the bio-fertiliser and encourage farmers to apply it, and encourage consumers and communities to become more and more aware about their health and the environment."



Ms. Amaniah Besar, Plant Entomologist, Brunei Darussalam: "It is important for Brunei Darussalam to start introducing the use of BCAs in the country. Farmers need to reduce the heavy reliance on synthetic pesticides as these are detrimental to their health and safety, environment and also the consumers. This issue has been raised in the recent Legislative Council, whereby the use of pesticide alternative is profoundly encouraged. Brunei Government through the Department of Agriculture and Agrifood recognized the importance of BCA introduction and its application into our agricultural system."



Mr. Peov Meas, Chief of Biotechnology Laboratory (Biofertiliser Quality Control) of National Agriculture Laboratory, General Directorate of Agriculture, Ministry of Agriculture, Forestry and Fisheries of Cambodia: "In Cambodia, farmers use a lot of chemical pesticides and fertilisers because they expect fast results, and the government is being aware of it and putting the promotion of biocontrol agents onto the table. However, the farmers complain about the low quality of the biocontrol agent products, and we find out that, first, there are a lot of counterfeit biocontrol agents products, particularly along the borders, and second, the registered biocontrol agent products do not match their claims on the labels. We need to improve our facility, and technical know-how to test the biocontrol agent products. We need advisory assistance."



Policy Dialogues to support the Implementation of Food Security and Nutrition Policy



Why did we initiate the initiative?

Food price crisis in 2007-2008 drove millions of vulnerable people into hunger and poverty. In response, ASEAN community pledged to permanently embrace food security policy as a top priority and adopted the ASEAN Integrated Food Security (AIFS) Framework and Strategic Plan of Action on Food Security in the ASEAN region (SPA-FS).

Despite these adopted policies, it has proven to be challenging to get the high level initiatives implemented by national and local governments. The policy dialogues, therefore, aim to support the implementation of the AIFS Framework and its SPA-FS at national level.

What did we do to improve the above mentioned situation?

Organized high-level policy dialogues on food security and nutrition in Cambodia, Lao PDR, Myanmar and Thailand with the objectives to:

- ✓ Raise awareness on AIFS Framework and SPA-FS, 2015-2020;
- ✓ Raise awareness on the national food security and nutrition policies and strategies;
- ✓ Discuss and identify issues and challenges to implement AIFS Framework as well as national policy and strategies relevant to food security and nutrition in respective countries. The issues and challenges can be overcome through the promotion and implementation of sustainable agrifood systems as part of national policies and strategies on food security and nutrition.
- ✓ Clarify collaborative mechanism to implement the AIFS Framework through national multi-stakeholder dialogue platforms.



U Naing Kyi Win, Deputy Director-General of the Department of Agriculture, Myanmar:

"Myanmar Government addresses food security at the regional level by engaging in the development process of the AIFS Framework and its Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS), 2015 - 2020 and by fulfilling an obligation in providing emergency food stocks to the ASEAN Plus Three Emergency Rice Reserve (APTERR). This Policy Dialogue plays a significant role in addressing long-term food security and improvement of the livelihood of farmers not only in Myanmar but also in ASEAN Member States."



Dr. Apichart Pongsrihadulchai, former Vice Minister of the Ministry of Agriculture and Cooperatives, Thailand:

"The government of Thailand has given priority to food security as highlighted in the Eleventh National Economic and Social Development Plan (2012-2016), which provided a Strategy for Strengthening the Agricultural Sector, Food and Energy Security. The importance of food security is as well emphasized in the Strategic Framework for Food Security of the Ministry of Agriculture and Cooperatives (2013-2016)".

Location Cambodia, Lao PDR, Myanmar and Thailand
Partner Agriculture Ministries of Cambodia, Lao PDR, Myanmar and Thailand

WHAT ARE THE RESULTS?

- ✓ The National Policy Dialogue on Food Security and Nutrition (FSN) was organized in Thailand in March 2015 with 65 participants.
- ✓ The National Policy Dialogue on Food Security and Nutrition (FSN) was organized in Lao PDR in July 2015 with 53 participants.
- ✓ The National Policy Dialogue on Food Security and Nutrition (FSN) was organized in Nay Pyi Taw, Myanmar in September 2015 with 42 participants.
- ✓ The National Policy Dialogue on Food Security and Nutrition (FSN) was organized in Phnom Penh, Cambodia in April 2017 with 73 participants.

The key results of the policy dialogues are as follows:

- 1) Fostered common understanding and awareness on the AIFS Framework and national policies and strategies on food security and nutrition;
- 2) Identified issues, challenges and activities in implementing the AIFS Framework through the promotion and contribution of sustainable agrifood systems at national level;
- 3) Enabled participating agencies to shape collaborative solutions reflecting their specific priorities and objectives in the context of food security and nutrition; and
- 4) Clarified national collaborative mechanism to implement AIFS Framework and national policies on food security and nutrition through improving sustainable food production. These include wider sharing of food security and nutrition information, awareness raising on healthy diet and lifestyles, particularly in young generation, better alignment of collaboration and partnership with development organizations and donors.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- > Relevant government agencies have awareness and understanding on the importance of the implementation of food security and nutrition policy at national level. Therefore, high-level representatives from related ministries and government agencies participated in the dialogue.
- > High-level representatives from related ministries and government agencies have shown their commitment in collaborating for the implementation of food security and nutrition policy at national level.

What could be done to improve the initiative?

- ✓ Representatives from farmer groups, consumer groups and Civil Society Organisations (CSOs) should be invited to participate in the policy dialogue in some countries to provide feedbacks to the implementation of food security and nutrition policy.
- ✓ The result of policy dialogue should be publicly available to receive and incorporate feedbacks from stakeholders. Therefore, this will make sure that the implementation of food security and nutrition policy will meet the interests of stakeholders.
- ✓ Capacity building to relevant government officials on food security and nutrition is required as the follow-up activities to facilitate them with knowledge in development of strategies, action plan and activities in implementing food security and nutrition at the national level.

What is the long-term outlook?

- ✓ A clear national policy on food security and nutrition has been converted into action plans at national and local levels.
- ✓ Outcomes and impacts from the implementation of national policy and strategies on food security and nutrition (FSN) at national level will contribute to progress and achievement in addressing FSN at regional and global levels.



Mr. Xaypladeth Choulamany, Director General of the Department of Planning and Cooperation, Lao PDR:

"Lao PDR has implemented policies and strategies relevant to food security and nutrition such as the Agricultural Development Strategy 2025 and Vision 2030, the National Rice Production for National Food Security Strategy, Development Strategy of the Crop Sector 2025 and Vision 2030, and the National Nutrition Strategy and Plan of Action for 2010-2015".

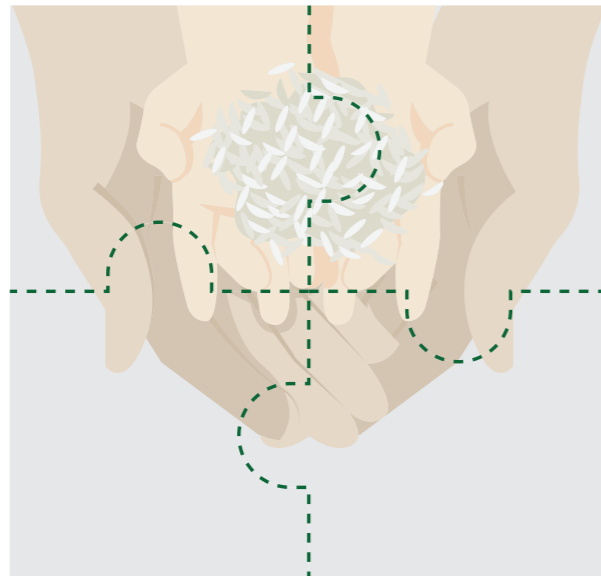
Principle 2: Multi-stakeholder and Public-Private Partnerships



PRODUCTION SECTOR
 • FARMERS
 • GROWERS



PRIVATE SECTOR
 • INPUT COMPANIES
 - PLANT PROTECTION
 - FERTILISERS
 - SEED
 • DISTRIBUTORS



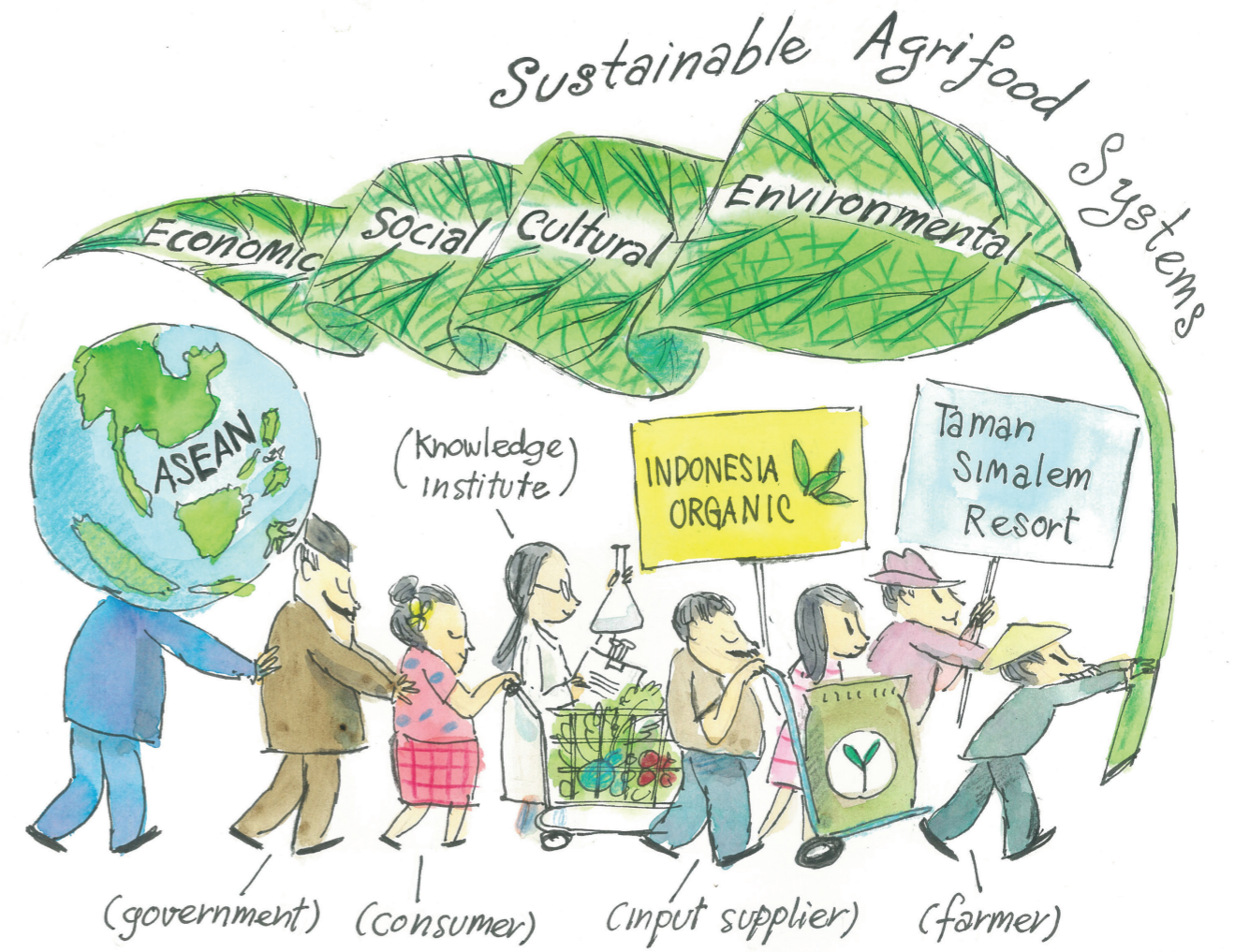
SUSTAINABLE AGRIFOOD SYSTEMS



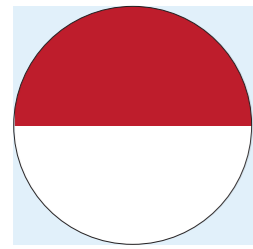
CIVIL SOCIETIES
 • UNIVERSITIES
 • NON-GOVERNMENTAL ORGANISATIONS (NGOs)
 • FARMERS ASSOCIATIONS



GOVERNMENT SECTOR
 • NATIONAL POLICY MAKERS
 • REGIONAL POLICY MAKERS
 • EXTENTION SERVICES



Multi-stakeholder cooperation for sustainable rice cultivation. A success story under Principle 2.



Seeking opportunities for actors in the value chain to cooperate and improve livelihoods through organic agriculture in North Sumatra



Why did we initiate the project?

The quick and dependable impacts of pesticides and fertilizers on controlling pests and boosting yields made the chemical products very popular amongst farmers in North Sumatra, Indonesia. However, over the years as the use of chemicals has increased, productivity has not risen at the same rate. Both Taman Semalem Resort (TSR) and its neighbor farms faced increasing yield losses, which directly affected their incomes, while pests became more resistant, and soil quality deteriorated.

What did we do to improve the situation?

- ✓ Established a multi-stakeholder partnership which included the Taman Semalem Resort (TSR), the surrounding farmers and GIZ with support from the Indonesian Government and knowledge institutes to make agricultural production sustainable.
- ✓ Trained the TSR team in organic agricultural cultivation for their own practice and train farmers in the same aspect to enhance their knowledge and skills.
- ✓ Assisted TSR in farmer trainings by providing:
 - Expertise;
 - Training materials.
- ✓ During the trainings, TSR offered the farmers
 - Plots of land to practice their cultivation practices;
 - Necessary agricultural inputs:
- ✓ Assisted TSR and farmers to get certified as organic farms.
- ✓ Assisted TSR and farmers to establish contract farming agreements in which:
 - TSR provides inputs, handles post-harvest activities and buys organic products;
 - Farmers provide labor and land to produce the products.

Location North Sumatra, Indonesia

Partner Taman Semalem Resort (TSR), Ministry of Agriculture Indonesia, Islamic University of North-Sumatra (UISU)

Implemented by ASEAN Sustainable Agrifood Systems Indonesia

WHAT ARE THE RESULTS?

- ✓ The average income of farmers increased by 37 %.
- ✓ There are 50 TSR contract farmers. Some plan to expand their farms due to their success.
- ✓ The "Indonesia Organic" certificate has been awarded to TSR contract farms for the 2nd cycle of certification.
- ✓ The number of cultivated plant species increased by 63 % improving biodiversity.
- ✓ Via TSR, farmers were linked to 22 wholesalers and 34 retailers.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- > A trustful collaboration between multiple stakeholders, in this case, the farmers, TSR and GIZ, supported by the Indonesian Government and knowledge institutes.
- > Each stakeholder in the value chain benefits in terms of stable and increased incomes, safer products, more variety of products and higher yields as well as better health and healthy food.

What could be done to improve the project?

- ✓ Finding various links to the private sector to secure and increase the market channels for customers and consumers.
- ✓ Seeking commitment of the private sector to invest in smallholder farms to secure sources of raw material inputs.

What is the long-term outlook?

Food security, safety and livelihoods of actors in the value chain from input supplier, smallholder farmers, processors, and consumers will be improved through the strength and collaboration of the different actors along the chain.



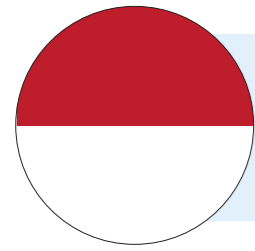
Ms. Nurida Girsang, Contract organic farmer who have been with TSR since 2014: "I was very happy with the contract farming scheme of organic farming production and market linkage that were developed under the TSR. In this way, the production and the market are secured. Through the support and service of TSR, farmers could make profit from their farming, our income is sustained, and we can contribute to the recovery of the soil conditions. With the technical assistance and supervisory support provided by TSR, my family has managed to increase our income from USD 47 to 173 per month on the average throughout the year, and we can consume domestically produced healthy vegetables without chemical residues. My children always requested me to cook the vegetables from our farm, and we can save money because I do not have to go to the market and buy vegetables. My children can have safe and healthy vegetables everyday and better nutrition from eating these home-grown vegetables."



Mr. Eddy Tanoto Sukardi, Managing Director of Taman Semalem Resort, Indonesia: "We decided to convert to organic farming with the support of the GIZ team in consideration of its long-term positive effects on production and soil fertility. GIZ encouraged us to work with the farmers, and, we continue to implement the initiative today. We still go with the farmers—we still supply them with seeds, fertilizer, organic fertilizer, liquid fertilizer, pesticides until we buy their products at higher prices than the market rate. This is how we convince the farmers to join us. From five types of crops we have increased our yield up to 55 crops. And thanks to the technical support of GIZ, all our commodities are certified organic."



Mr. Tommy Nugraha, Head, Division of Horticulture Marketing, Directorate General of Horticulture, Ministry of Agriculture Republic of Indonesia: "We have visited the resort, and met the farmers who partnered with the resort. We appreciated the business model in which different actors along the value chain collaborate to achieve sustainable production whilst also ensuring that all benefits are obtained. We will keep supporting organic production throughout Indonesia."



Fruit fly management in Indonesia



Why did we initiate the project?

The Karo highlands are one of Indonesia's main orange producing areas. Nonetheless, it still suffers from extremely low yields due to fruit fly infestations which ruin harvests. As a result of the fruit fly infestations:

- An estimated 63 million EUR is lost each year to 20,000 farmers in the highlands,
- And in some years, no production is even possible due to presence of fruit flies.

Not only farmers earn much less than they potentially could, but the national government also loses money on expensive orange imports.

What did we do to improve the situation?

- ✓ Multi-stakeholder workshops were organized to:
 - Quantify the actual damage that the fruit flies were causing.
 - Identify constraints in managing this pest on the part of farmers.
- ✓ Subsequently, farmer group discussions were held to decide with farmers on the type and kind of support they would need to manage the fruit flies. Government officials also participated in these discussions.
- ✓ Based on these workshops and discussions, technical support was provided in the form of:
 - Trainings of extension officers and farmers on the use of eco-friendly technologies, like fruit fly traps, to improve their tools in fruit fly management.
 - Actual installation of fruit fly traps in the farmers orchards.
 - Demonstrating the effectiveness and profitability of fruit fly management techniques to show its sustainability and to make it attractive for farmers to implement.
 - Supporting the development of a supply chain for ME blocks so that they can be supplied to farmers. Private sector entities were especially involved here.

Location Karo highlands, Indonesia

Partner Ministry of Agriculture, Indonesia, District-DOA (Department of Agriculture)

WHAT ARE THE RESULTS?

- ✓ An average reduction of 50% on damages was attained.
- ✓ Yields on 10,156 ha of land owned by 20,000 farmers increased 5 fold. From only 3 tons/ha to approximately 15 tons/ha.
- ✓ This has resulted in **additional income of 45 Million EUR** for the 20,000 farmers in this area.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- › The elaborate workshops and discussions that were done to identify what would be the best method to solve the fruit fly problems. By including both farmers and government officials, a broadly endorsed solution could be implemented.
- › The demonstration plots were an eye-opener for farmers and governmental officials that encouraged them to adopt the fruit fly management.

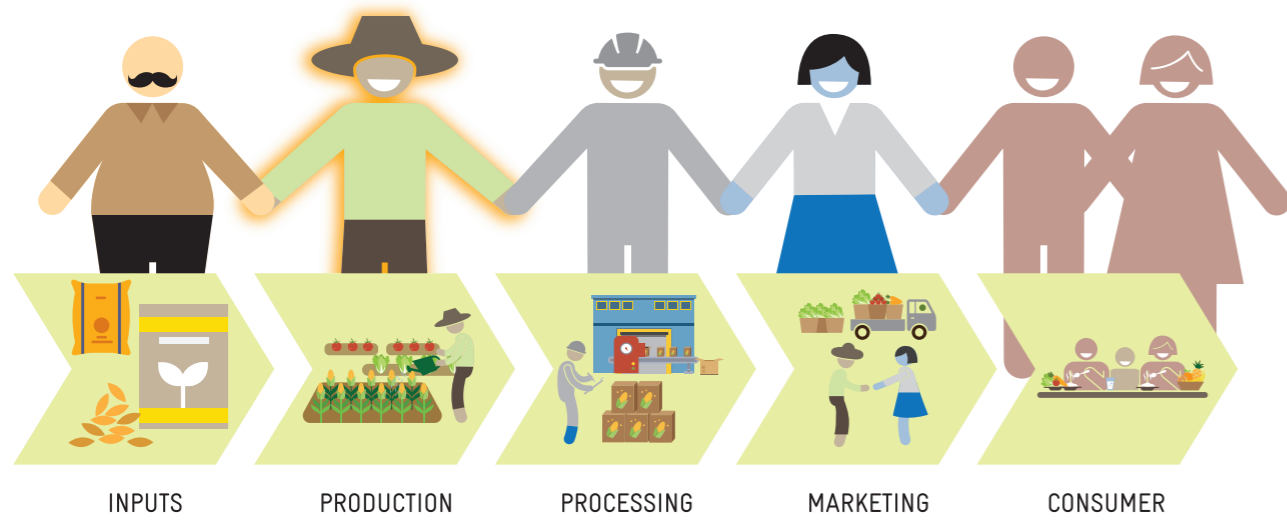
What could be done to improve the project?

- ✓ Better participation model for the different agencies involved to improve their cooperation and effective implementation of the project.
- ✓ A closer cooperation with farmers to further improve and refine the technological solutions that were implemented to deal with the fruit fly infestations.

What is the long-term outlook?

- ✓ The large increment in yield that caused significant income increases for farmers brings the Indonesian Government a step closer to its goal of food self-sufficiency.

Principle 3: Farmer Inclusivity in the Value Chain



Seeking opportunities for actors in the value chain to cooperate and improve livelihoods through organic agriculture in North Sumatra. A success story under Principle 3.



Multi-stakeholder cooperation for sustainable rice cultivation



Why did we initiate the project?

Farmers are crucial for sustainable rice production and food security in the Mekong Delta. Soil degradation endangers not only rice production but also the health of the farmers. One of the main issues is overuse of pesticides which reduces soil fertility and farmers' well-being. This is often caused by:

- Lack of knowledge amongst farmers.
- Lack of knowledge amongst retailers who often advise farmers to use pesticides.

What did we do to improve the above mentioned situation?

- ✓ Established a Public-Private Partnership (PPP) with CropLife International, the Vietnamese Plant Protection Department (PPD) and GIZ in which the expertise of each partner was bundled to support farmers to improve their traditional farming practices.
- ✓ Conducted a baseline survey to identify pesticide application practices and Integrated Pest Management (IPM) knowledge of rice farmers and retailers. IPM is a set of agricultural practices which reduce pesticide use and stimulate the use of biodiversity for pest control.
- ✓ Designed IPM training modules for farmers and retailers with support from the Southern Regional Plant Protection Center, the Cuu Long Delta Rice Research Institute and CropLife.
- ✓ Trained officers from the Sub-PPD's in the target provinces to become Master Trainers on IPM and to train groups of small-holder farmers and chemical retailers.
- ✓ Trained farmers and retailers in IPM and the appropriate and responsible use of pesticides.
- ✓ Raised awareness for IPM and responsible pesticide use amongst farmers, retailers and students.

Location Viet Nam

- Partner
- **Public:** Plant Protection Department (PPD), Ministry of Agriculture & Rural Development (MARD), Southern Regional Plant Protection Center (SRPPC), and the Department of Agriculture and Rural Development (DARD)
 - **Private:** CropLife International
 - **Farmers**

WHAT ARE THE RESULTS?

- ✓ 15% production cost reduction for farmers was achieved while yields remained stable. Thus resulting in a net income increase of 7.6 million EUR for the entire group of farmers.
- ✓ 39 government officials, over 24,000 small-holder farmers and 500 pesticide retailers were trained in IPM.
- ✓ 18.000 IPM booklets and 1.000 IPM posters have been delivered to farmers and retailers in the three target provinces.
- ✓ Over 400 students and technicians at four agricultural universities were introduced to IPM.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- ✓ The Public-Private Partnership enabled each partner to contribute based on their own expertise to a sustainable rice cultivation.
- ✓ Strengthening key actors (farmers, pesticide retailers and government extension staff) to make mindful decisions for the safe and responsible use of pesticides.

What could be done to improve the project?

- ✓ The availability of environmentally friendly products should be improved for small-holder farmers and local retailers.
- ✓ Farmer-to-farmer and retailer-to-retailer trainings should be strengthened to ensure knowledge is passed on from the direct beneficiaries to the indirect beneficiaries.

What is the long-term outlook?

- ✓ Small-holders can produce rice using sustainable practices (IPM) and have the financial confidence to continue the approach.
- ✓ Retailers can provide useful advice to their clients (often farmers) to make their businesses more sustainable.



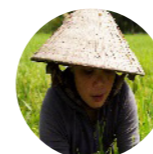
Mr. Ung Van Tu, Farmer, Thanh My village, Thap Muoi District, Dong Thap Province:

"A planthopper outbreak affected my whole crop, and my family suffered serious deprivation as a result because of the complete loss. With the IPM training, I understand how to apply IPM practices and have thus protected my crop from pests. Now, I can also spread the knowledge that I learnt to other farmers"



Mr. Phan Anh Tu, Key Master Trainer, Sub Plant Protection Department, Dong Thap Province:

"From the trainings, pesticides should only be used when necessary and in a responsible manner. I recommend to only spray pesticides once the pest density threshold is passed, instead of preventive spraying. One of the focuses in the training is the 'Rules of Four Rights', which are very useful, that are right pesticide, right time, right dose and concentration, and do it right."



Farmer, Ms. Nguyen Thi My Trang, Tan Kieu village, Thap Muoi District, Dong Thap Province:

"Our lives depend on rice. That's why I was so happy with IPM training course which allowed me to reduce production losses."



Promoting environmentally sound agriculture and food safety in partnership with the Eco- Agri Center (EAC)



Why did we initiate the project?

Organic agriculture and its products are becoming more popular in Cambodia due to the increased awareness of the importance of food safety and the negative environmental impacts of agriculture among consumers. However, for farmers themselves, it still remains difficult to switch to organic agricultural practices due to the following challenges:

- Limited knowledge amongst farmers on organic agriculture.
- Limited market access for organic farmers to sell their produces.
- Lack of suppliers for organic inputs to farmers like Biocontrol Agents (BCAs).

What did we do to improve the situation?

- ✓ Established a partnership between the Eco-Agri Centers (EAC), an organic input supplier, the Khmer Organic Cooperative (KOC), an organic produce retailer and GIZ.
- ✓ Trained EAC staff in organic agricultural practices with a focus on BCA, training material development and teaching skills.
- ✓ Advised the EAC and KOC Management in business strategy and supply chain management.
- ✓ Assisted the EAC to establish contracts with farmers including the following provisions:
 - EAC provides organic inputs such as seeds, fertilizers and biocontrol agents to farmers,
 - EAC provides expertise, including technical support and training, on organic agricultural practices to assist farmers in achieving organic certification,
 - Farmers produce goods according to the organic standard, and the agreed amounts,
 - Farmers are subject to audits for organic certification,
 - KOC buys organic produce from farmers,
 - KOC performs farm audits to check whether farmers are following standard organic practices,
 - KOC defines quality criteria for each kind of vegetable or fruit.
- ✓ Facilitated field visits to ASEAN neighboring countries for the EAC management and technical staff to learn and exchange ideas about the production and trade of BCA products and the possibility to import these materials to Cambodia.
- ✓ Facilitated trainings for BCA suppliers (private sector) in Cambodia to enable them to produce a diverse array of more efficient BCA agents to reduce expensive BCA imports.
- ✓ Facilitated trainings for government officials to enable them to develop national regulations on the use and trade of biocontrol agents for Cambodian agriculture. This facilitated the registration of BCA products.

Location Cambodia
Partner Eco-Agri Center (EAC), Khmer Organic Cooperative (KOC)

WHAT ARE THE RESULTS?

- ✓ Initially, 20 farmers (12 women, and 8 men) in the Kampot province participated in contract farming. Currently, there are 50 KOC contracted farming farmers from five provinces in Cambodia. Some plan to expand their farms due to their success.
- ✓ The average income of farmers has increased by 30%.
- ✓ Khmer Organic Cooperative (KOC) has been successfully certified as the first company in Cambodia supplying EU organic vegetable certification in cooperation with the Standards in the Southeast Asian Food Trade (SAFT) project.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- › Creating opportunities for smallholder farmers to play an active role in the value chain by cultivating and producing agricultural goods while not having to worry about agricultural inputs, finances, and markets.
- › Strengthening the role of smallholder farmers in making the decision to convert to organic agriculture, and developing their capacity to carry out organic farming practices.
- › Providing necessary inputs to farmers such as seeds, biocontrol inputs, and technical advice.
- › Connecting farmers to new markets (for organic produce).
- › Reinforcing the supply of BCAs through both the public and private sector.
- › Cooperation between key actors in the value chain including the public and private sectors, and farmers as the producers of quality products who drive organic agriculture in the country.
- › Strong will of the private partner, in this case, EAC and KOC.

What could be done to improve the project?

- ✓ Strengthen the capacity of BCA producers further in terms of regulation, production and marketing of their products, for a diverse and cost efficient supply of BCAs.
- ✓ Equip input retailers with the necessary knowledge on the responsible use of agricultural inputs. Trainings are needed so they can best give appropriate advice to farmers in using the input products.
- ✓ Raise awareness among smallholder farmers on their responsibility for producing safe food which benefits not only their own health, but also the health of their families, consumers' and the environment.
- ✓ Implement awareness raising campaigns among consumers on the benefits of safe locally produced food, and their responsibility for environmental protection.

What is the long-term outlook?

- ✓ Improved livelihoods for farmers due to the reduced production costs and healthier and safer agriculture approach.
- ✓ Cambodian consumers pay more attention to the quality of the food they eat.



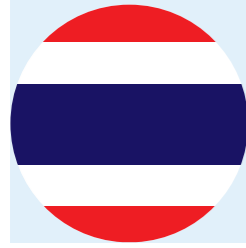
Ms. Thlang Sovann Pisey, Director of Eco-Agri Co. Ltd.: "The vision of Eco-Agri Co. Ltd is providing safe food to Cambodian people while at the same time helping the farmer community. Mr. Ieng Sothea, the founder, sees that chemical retailers in Cambodia try to gain more profits by encouraging farmers to overuse chemical pesticide and fertilizer. In Cambodia, most farmers use chemical pesticide inappropriately which harms their health and environment. So, he founded the EAC to change the way farmers practice agriculture and provide safe and clean food for the consumers. What we need to do is to re-educate both farmers and chemical retailers on environmental friendly agriculture practices to produce safe food for Cambodian consumers while promoting the organic products among them."



Mr. Kong Sina, Shop Manager of Khmer Organic Cooperative (KOC): "The sales volume of vegetables and fruits in our shop has increased from 100 kg a day to 300kg a day. Most buyers come here to buy organic vegetables even though the vegetables do not look good from the outer appearance and have a higher price."



Ms. Ing Sarun, Contract Farmer with EAC and KOC: "I am very happy with the price and technical support from EAC. I improved my knowledge and vegetable growing. I have learned that growing organic vegetables does not only benefit me but also consumers and environment."



Improved Thai fruit juice quality for international markets



Why did we initiate the project?

Thailand is one of the leading exporters of pineapple juice to the global market. However, a few major challenges exist:

- Juice quality does not meet the recognized global standard;
- Factories lack knowledge in proper raw material selection, hygiene awareness, production techniques, and lab analysis methods.

What did we do to improve the situation?

- ✓ Selected the pilot factories that are willing to improve their fruit juice safety and quality.
- ✓ Used SGF quality standard measures to audit the factories.
- ✓ Visited the factories for pre-audits to identify the problems that each factory faces.
- ✓ Provided onsite guidance of how each problem can be solved.
- ✓ Provided consultation by phone (where necessary).
- ✓ Monitored improvements.
- ✓ Collected fruit juice samples to check product hygiene and safety.
- ✓ Shared experiences among the pilot factories.

Location Thailand
Partner SGF International e. V.

WHAT ARE THE RESULTS?

- ✓ 100% acceptance of products in foreign markets
- ✓ Reduction of production costs
- ✓ Reduction of maintenance costs
- ✓ Pleasant working environment
- ✓ Confidence gained due to improved production quality
- ✓ Local SGF auditor trained on the job

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- > Factories saw the benefits of improving the quality and standard of their fruit juice products.
- > Factories were willing to comply with the advice given to improve the quality and standard of their production.
- > SGF provided comprehensive information including guidance and consultation.
- > Through on-the-job training practices, factories experienced the identified problems first-hand, and learned precisely what to improve, where to improve, and how to improve their quality and safety.

What could be done to improve the project?

- ✓ Involve the government authorities to be one of the partners in the project to work with the private sector in finding solutions on the issues and challenges the farmers and manufactures had and develop the project activities together.

What is the long-term outlook?

Fruit juice from Thailand is internationally recognized for its quality and safety.



Ms. Lookjieb Yimnoi and Mr. Amornthep Phummun, Pineapple Farmer Couple

"The factory asks if we are interested in learning about good agricultural practices, and we are. So, my wife goes back to school and enrolls in a local agriculture college for three years with financial support from the factory. Since then, we have experimented in applying what she learns from her classes to the knowledge passed down to us from our parents and grandparents. On the same plot of land we produce more pineapples but at lower costs. We get better quality fruits and reduce unnecessary chemical inputs. The soil quality has improved and we do not have to worry too much about the chemical exposure"



Ms. Napaporn Rattanamettha, SGF auditor

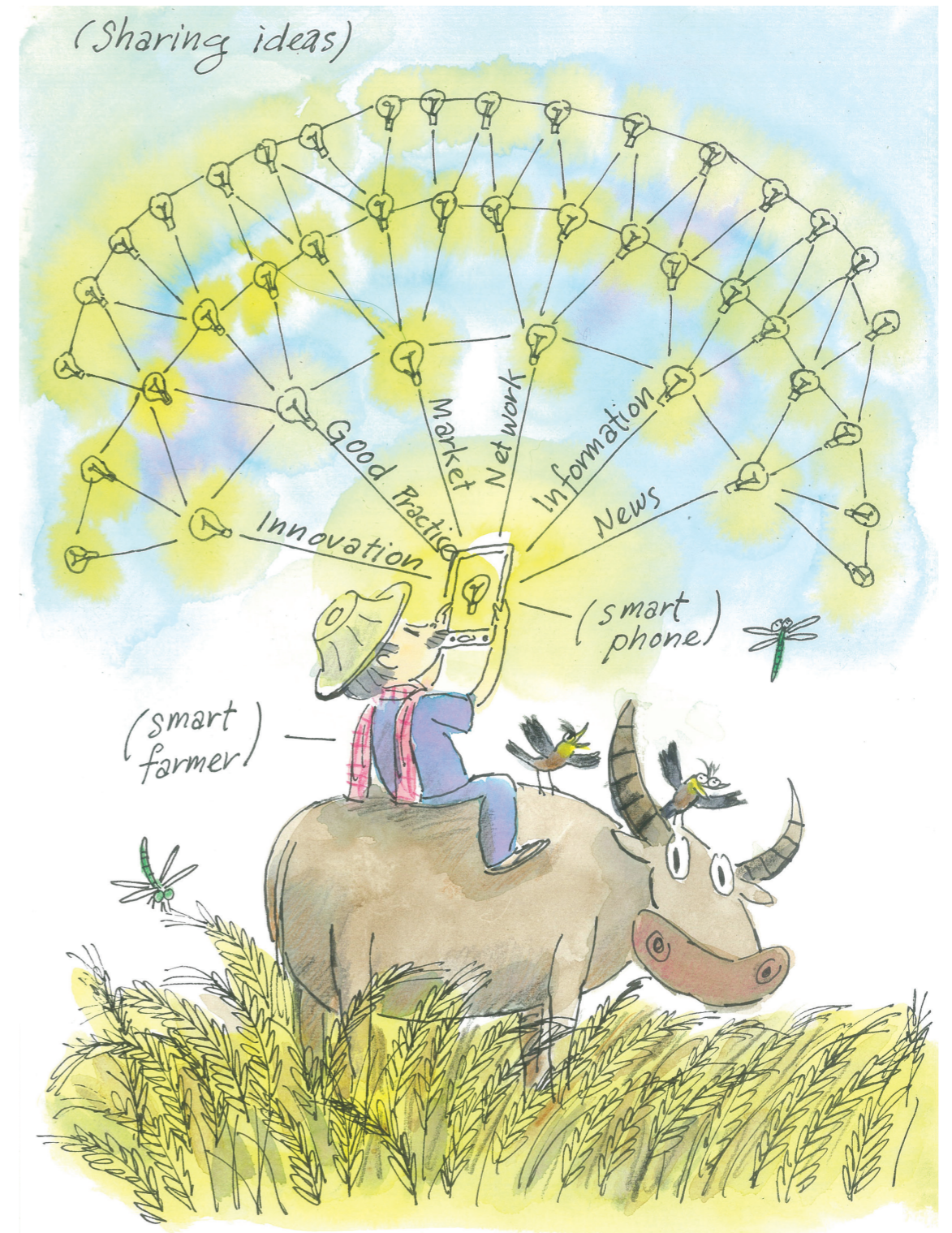
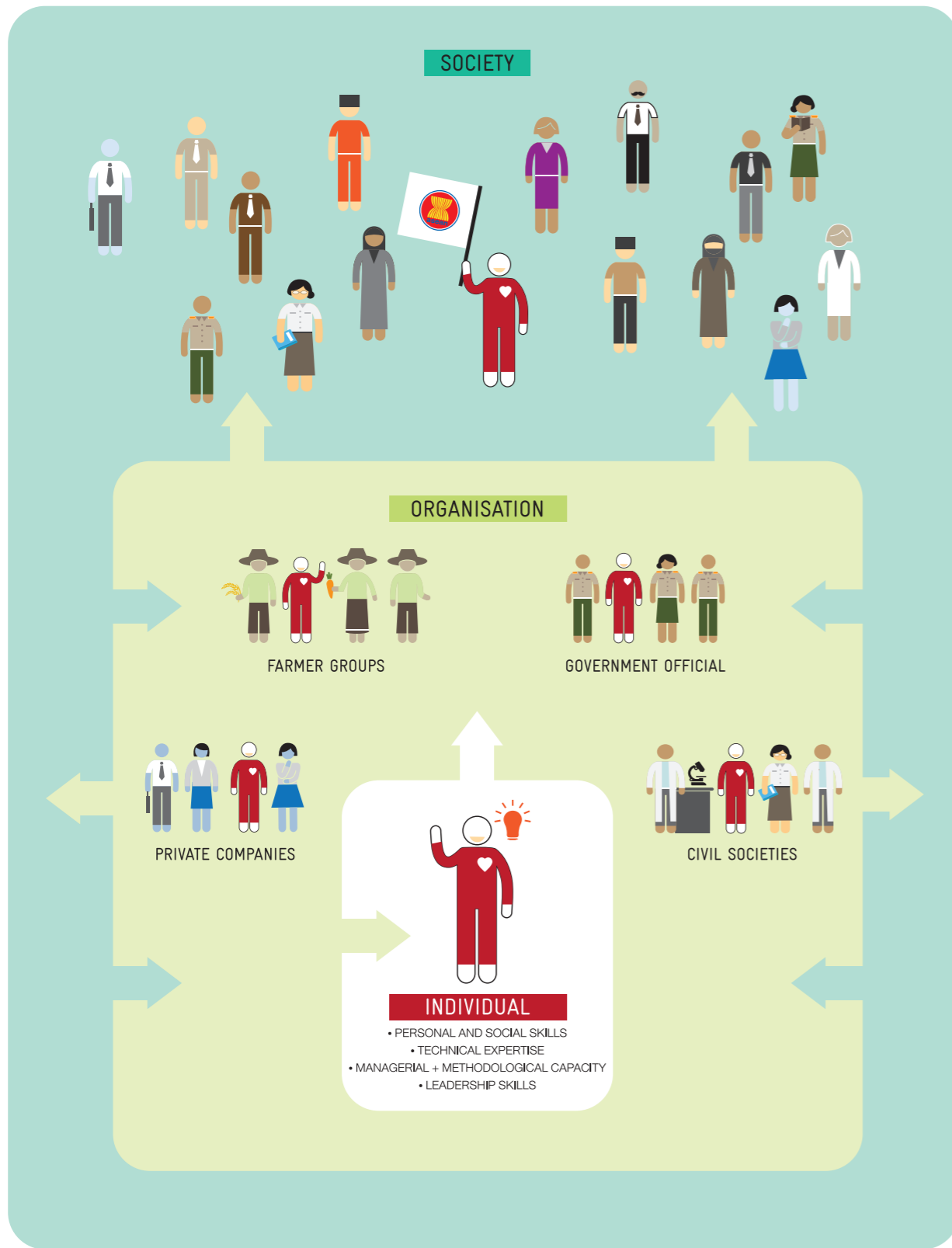
"I'm happy and proud that I can take part in improving the Thai fruit juice industry and help the Thai factories who are looking to find solutions for their production problems in getting the answers in improving their products. My answers make me sound like a beauty queen, but I am not. I am just the fruit juice auditor."



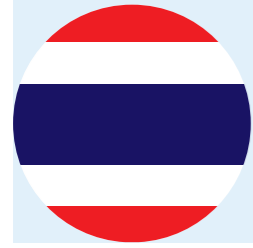
Mr. Jirawat Lotharuckpong, Managing Director of Takerng Pineapple Industrial Co., Ltd.

"This SGF standard requires all every minor details from the selection of raw materials to production and quality control and assurance to be thoroughly checked, fixed and treated. At start it was very exhausting, but it is all worth it as our customers are happy with our products."

Principle 4: Leadership and Capacity Building



New learning concept strengthens farmer groups and improves their livelihoods. A success story under Principle 4.



New learning concept strengthens farmer groups and improves their livelihoods



Why did we initiate the project?

Majority of Thai Rice farmers are below the poverty line, especially northeastern rice farmers who depend on rain are facing low yields. The Thai Rice Department has developed Community Rice Centers (CRCs) to support rice farmer groups. These groups are led by a 'smart farmer' who is trained in general agricultural practices to coach and support the farmer group. Despite this useful initiative, some challenges still persist.

To support and leverage the situation, the Better Rice Initiative Asia (BRIA) engaged farmers to use new cultivation techniques and new learning concepts to improve the income and living condition of Thai Rice Farmers in northeast Thailand.

What did we do to improve the above-mentioned situation?

- ✓ The Better Rice Initiative (BRIA), the public private partnership cooperation between GIZ, the Thai Rice Department, Bayer, BASF and Olam selected approximately 10,000 farmers from 200 Community Rice Centers (CRC) from 4 provinces in northeast of Thailand.
- ✓ BRIA trained selected (Smart) Farmers (Representatives of each CRC) for the Training Transfer Model. This teaches farmers how to analyze the strengths and weaknesses of their groups, proper rice cultivation knowledge, and how to improve their existing activities.
- ✓ A **"Smart Farmer training concept"** was developed by BRIA which places the learners at the centre. They are mostly farmers aged 50+. The training approach was thus tailored to the participants' learning needs, taking into account in particular the aspects of adult learning.
- ✓ BRIA has established and extended the CRC network, which enables farmers to exchange information in real time via Information and Communication Technology (ICT).



Mr. Vadsana Aphaikot, President of Bua-Ngam CRC, Bua Ngam Community Rice Center:

Before we joined the project, we only produced rice day by day. We didn't actually expect anyone to help. Today, we gather, we help each other, and we learn from mistakes. Aside from farming techniques, what we need now is to do accounting so that we know how to make profits and cover the loss.



Mr. Danai Ay-tobutr, Vice President of Klang CRC, Klang Community Rice Center

I was able to apply knowledge received from BRIA training to my rice field. BRIA intervention assured me that I have a guaranteed market. When we apply an appropriate fertilizer formula, I can see the result better than before.



Mrs. Lampai Na-Ngam, Member of Bua-Ngam CRC, Bua-Ngam Community Rice Center

After joining the programme, I applied my knowledge received from BRIA and RD experts to my rice field. I could notice the differences. In the past, I had zero knowledge on how to put fertilizer properly and never knew how to deal with diseases.

Location Northeast of Thailand
Partner Thai Rice Department, Bayer, BASF, OLAM

WHAT ARE THE RESULTS?

- ✓ Almost 10,000 farmers from 200 different CRCs were trained through smart farmers. This led to a transformation of their agricultural practices which are now more sustainable in terms of environmental, economic and social issues.
- ✓ Farmers were encouraged to share information via Information Communication Technologies (ICT) such as Line, which enables them to exchange ideas and share farming techniques as well as consult experts from the Rice Department.
- ✓ Smart farmers support their group members regarding fertilizer and nutrient management, planting methods, quality seed management, etc. As a result, farmers successfully applied their knowledge gained from the BRIA Training to improve their crops, production and livelihoods.
- ✓ The implementation of demonstration plots by the CRCs showed that by applying the new techniques, the income of farmers could be increased by 20%. Seeing which cultivation techniques are more productive and likely to increase their yields was an eye opener for the farmers and stimulated the application of these techniques.
- ✓ Through the organizational consult of BRIA, the CRCs could set-up well-organized organizational structures within their CRCs. For example, chairpersons are being elected within each CRC which allows farmers to vote and voice their concerns.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- › A strong network and a tight cooperation between the key stakeholders (Rice Department, BAYER, BASF, and Olam) and the farmers has allowed BRIA Thailand to effectively organize the smart farmer training courses and adapt the training process. This was made possible thanks to the expertise and commitment contributed by the stakeholders as well as farmers.
- › The traditional training concept was adapted to the needs of farmers. This was supplemented by new learning methods.
- › Selected smart farmers were trained as know-how multipliers to pass on the gained knowledge and findings to the other farmers.
- › The trust between stakeholders was built due to the positive results of the project like the improved rice quality, better yields and higher incomes of trained Smart Farmers. Interest from other farmers was caught by word-of-mouth. They then became eager to participate in the trainings and joined the project.
- › CRCs with improved organizational structures are thus enabled to support farmers with important information and foster the exchange of knowledge and experience.

What could be done to improve the project?

- ✓ A better use of new technologies, i.e. the Database Management System, would make it easier to collect each farmer's data. Users could then use existing data to analyse what they need for their farms, which would also help farmers to locate and identify issues and solutions. However, privacy law would restrict access to other farmers' data. Only authorized government officers would be able to access, analyze and provide advice to farmers. BRIA Thailand, RD and Olam are developing a new mobile application to collect data based on the Sustainable Rice Standard, developed by IRRI and UNEP, Data Collection Sheet. This application will enable authorized government and BRIA staffs to easily assess and monitor the standards for farmers.
- ✓ The local government's engagement in the training process should be promoted, i.e. we should better involve them in the process as key stakeholders. As to the new extension model for smart farmer training, this involvement should take place from the very beginning to allow local governments to participate in disseminating the modules and feel ownership of the extension model.

What is the long-term outlook?

- ✓ By applying the newly learned farming techniques, awareness and acceptance of these techniques will be raised amongst farmers. The increasing confidence thus created will lead to more and more farmers deciding to integrate this knowledge into their traditional agricultural systems – which will ultimately help them to improve their own living conditions on a lasting basis.



MOSA as a capacity development tool for sustainable agriculture in ASEAN



Why did we initiate the project?

- Agricultural production and agriculture-based value chains are facing a multitude of challenges to satisfy the populations' growing need for food and raw materials in a resource-conserving, efficient manner while respecting animal welfare and biodiversity in the context of climate change. All this calls for sustainability.
- Farms are economic enterprises where people work and live. Hence, good working conditions, a high quality of life and good economic performance are the pillars of successful farm operations. Sustainable agriculture must fulfil all these criteria in the long term.
- Sustainable Agriculture requires a common understanding and awareness on the part of both the decision-makers and the practitioners.
- The big challenge is to disseminate the knowledge associated with this approach and above all to promote its practical application to the broadest possible spectrum of people.

What did we do to improve the above-mentioned situation?

- ✓ "Modules on Sustainable Agriculture" (MOSA) is a modular training system developed by GIZ to provide an answer to the challenge of understanding the concept of Sustainable Agriculture. MOSA shows the interlinkages between nutrition and food security and the farming system and the environment.
- ✓ In order to be able to apply and disseminate MOSA in the ASEAN region the existing global training modules and materials were adapted specifically to the requirements of the ASEAN context, now called MOSA for ASEAN. This was done with selected experts who were supported and guided by the ASEAN Working Group on Agricultural Training and Extension (AWGATE).
- ✓ A preparation workshop took place with a regional expert team who did the revisions, followed by a pilot training to test the adapted materials. Participants came from six ASEAN Member States (AMS) and were trained to become know-how multipliers.
- ✓ Following the pilot training, individual country activities were planned with the selected experts, which will ensure the further dissemination and implementation of the MOSA concept.



USA THONGJANG, Chief of Foreign Relations Group, Planning Division, Department of Agricultural Extension:

"Participation in the TOT on MOSA in the Philippines was one of my most excellent experiences ever. Using MOSA as a subject in the training courses hosted by my Department for AMS, I can touch confirm that it really creates awareness of the significance of sustainable agriculture. It will be most useful and widely disseminated once it has been translated into the national language of each AMS and built on with the supplement conveying the knowledge of how to practice agriculture in a sustainable manner with the appropriate modern technology such as Climate Smart Agriculture, Precision Farming and Green Technology, including demonstrative example cases."

Location ASEAN - regional
Partner ASEAN Working Group on Agricultural Training and Extension (AWGATE)
 GIZ Sector Project Sustainable Agriculture (SV NAREN)
 ASEAN Regional projects (Standards in the South East Asian Food Trade (SAFT) and FOR CC (Forestry and Climate Change))

WHAT ARE THE RESULTS?

- ✓ 17 adapted MOSA for ASEAN modules, a training course curricula and a reader have been developed and are ready to be used and available on ASEAN SAS Website (www.asean-agrifood.org/resources)
- ✓ 14 experts from 6 different AMS have been trained as regional Know-how Multipliers, who are able to spread the MOSA concept in provide advice on the topics as well as implement workshops in their respective local language.
- ✓ AWGATE has recognized MOSA for ASEAN as one of the informative sources for capacity development in the ASEAN region. To enhance and promote its implementation, AWGATE has actively supported its dissemination via national training institutes and will continue its support for further efforts in effectively disseminating knowledge regarding sustainable agriculture and underline the continuation of capacity development according to the PoA (Plan of Action) of AWGATE (2017-2020).
- ✓ The AMS have taken action: Enquiries from participants show that they have already started to implement the planned follow-up activities in their countries, including conducting workshops, supporting policy advice/development activities, applying the specific MOSA concept and/or sharing the concept/material.
- ✓ Examples for successful dissemination:
 - Philippines: A national multiplier-training course was conducted on October 2016, and the modules on Sustainability and Climate Change Adaptation have been integrated into the training of the Climate Smart Farm Business School.
 - Thailand: The MOSA modules were included in the training courses organized for AMS by the Department of Agricultural Extension, e.g. IPM in Vegetables, Organic Vegetables for Production and Marketing and Sufficiency Economic Philosophy (SEP).
 - Indonesia: The Sustainability module was included in the Sustainable Coffee programme.
- ✓ A platform to discuss concepts and exchange experiences of sustainable agriculture among the AMS is being created and will soon be available

WHICH FACTORS MADE THE PROJECT A SUCCESS?

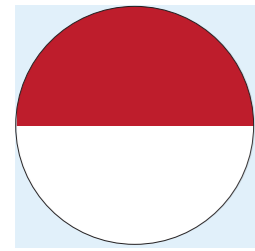
- › Topics like Sustainability and Sustainable Agriculture are in strong demand, especially since the definitions and the understanding of this concept have often varied widely on the part of stakeholders. The MOSA tool thus now enjoys high interest.
- › The involvement of the ASEAN Secretariat along with AWGATE, the sectoral working group in charge has allowed access to regional experts and the national governmental training institutes of all 10 AMS.
- › The transformation process from MOSA to MOSA for ASEAN is a joint initiative of several GIZ ASEAN regional projects and AWGATE, with a clear distribution of responsibilities and activities between the various parties involved. There is a strong ownership of the ASEAN Member States and a strong willingness to apply MOSA for ASEAN.
- › Capacity development with regard to Sustainable Agriculture aspects is required from the member states.

What could be done to improve the project?

- ✓ Enhance the integration of MOSA in further Regional and National Action Plans in order to disseminate the approach on an ever broader basis
- ✓ Strengthen and support the national training institutes to ensure a continuous knowledge transfer (e.g. further adaptation to local contexts, translation into further local languages, etc.)
- ✓ To bring the theoretical knowledge into practical application, professional support is required to introduce tools to measure the sustainability on farm level.
- ✓ Organize large-scale multi-stakeholder meetings to ensure a well-functioning knowledge exchange involving policy-makers, extensionists, administrators, researchers, private sectors, farmer leaders, SMEs, etc.
- ✓ Anchor MOSA in the private sector to make knowledge-transfer and awareness-raising activities affordable and available to a larger audience.
- ✓ Enhance the leadership skills of all stakeholders to ensure an effective knowledge-transfer and an efficient transfer of theory into practice.

What is the long-term outlook?

Solid integration of MOSA for ASEAN in different institutions of the ASEAN Member States, as well as a strong awareness and understanding of the practical application of Sustainable Agriculture throughout the ASEAN region.



Emergency aid assistance project



Why did we initiate the project?

In 2015, Sinabung Volcano erupted in Northern Sumatra. As a result, hundreds of farmers were displaced and much of their farm lands were destroyed.

- In the short term, the displacement resulted in numerous homeless families and not all basic needs were being met.
- In the long term, their livelihoods were endangered since their farming lands had been destroyed, making it impossible to secure their income from farming.

What did we do to improve the situation?

- ✓ In the short term, relief aid was given through the distribution of basic needs like food and water.
- ✓ To secure their income and ensure long-term livelihood security, the farmer-evacuees were given a choice:
 - To return to their lands and receive trainings and agricultural inputs to continue farming, or
 - To be relocated to different areas and learn new skills to earn their livelihoods.
- ✓ For those who returned to farming:
 - Agricultural inputs, like fertilizers and pesticides, were distributed to the farmer-evacuees. A study was conducted to identify what inputs were necessary for each individual farmer-evacuee.
 - Trainings were provided to farmer-evacuees focusing on:
 - Improvement of soil fertility after volcanic damage.
 - Sustainable farming practices which support the recovery of the soil like Integrated Pest Management (IPM).
 - Reduction of production costs by learning how to produce and use compost for healthy soil.
- ✓ The farmer-evacuees that were relocated received the following skills training:
 - Handicraft making
 - Duck farming or fish farming (instead of crops)
 - Cassava or potato chips production

Location North Sumatra, Indonesia

Partner Government District of Karo, Ministry of Agriculture Indonesia, University of North Sumatra, Maricena, Local NGO

Implemented by ASEAN Sustainable Agrifood Systems Indonesia

WHAT ARE THE RESULTS?

- ✓ 86.6 ha have been recovered from the volcano's damage.
- ✓ 209 farmers were supported with organic fertilizers, 3 times more than initially intended.
- ✓ 596 farmer households were trained.

WHICH FACTORS MADE THE PROJECT A SUCCESS?

- › The combination of short and long term aid. This secured short term support in terms of basic needs that provided farmer-evacuees with necessary skills to adopt alternative livelihood.
- › The choice that the farmer-evacuees had between farming and other skills like handicraft making. This provided them with an opportunity to rebuild their livelihoods, and created ownership of their own future since they could choose which opportunity to pursue.

What could be done to improve the project?

- ✓ A clearer identification of the type of stakeholders falling victims to the volcano eruption. This will allow a project to better support the victims of such a disaster in the future.

What is the long-term outlook?

The refugees were enabled to rebuild their livelihoods though the new skills and support that they received from the project.



Mr. Tarkelin Brahmana, The Major of Karo District: "Implementation of the SARP program by providing support to our communities that were affected by the Sinabung Volcano eruption was very helpful and valuable. At all levels of project implementation, goals were reached and often exceeded. I am thankful to GIZ and BMZ for their visit to the field in person during the implementation of the program, and for their cooperation and support".



Mr. Juandra Ginting, Director of Maricena, Local NGO who partnered with GIZ for SARP field intervention: "The SARP Project provided a series of field interventions that provided farmer-evacuees with shelter and support to recover from the disaster. Beneficiaries were very satisfied with the intervention and support."



Mr. Surya, Farmer at Perbaji Village, District of Karo: "I have 1 Ha of land and was given 28 sacks of organic fertilizer from SARP. Fertilizers helped me to restore soil fertility and establish an income. The support and trainings were very useful and have increased our passion as farmers getting back to farming"



The political will of every leader in the country will be able to put all stakeholders to participate.

Ms. Wilima Cuaterno

Chief of Crop Pest Management Division, Department of Agriculture, Philippines

One of our biggest challenge is that we in the agrifood systems and the chain we are strong in some components but not as strong in other components. Step back, look at the chain, and begin to approach that as across of the chain rather than one individual component of the chain.

Dr. George Kotch

Head of Plant Breeding Division, International Rice Research Institute

When we talk about sustainability, everybody believes sustainability comes with the premium. But, sustainability should be part of what we do. Sustainability should come at the cost of reducing the cost of people who are operating in the sustainability. At the end of the day, if the farmer is not there, in the future our business existences will certainly collapse.

Mr. Satish Thampy

Managing Director, OLAM Thailand Ltd.

There is a say: if you want to go fast, go alone; if you want to go far, go together. We need the right players in the system supporting the endeavor of jointly moving towards more sustainable agrifood systems in ASEAN and globally.

Dr. Matthias Bickel

Project Director of ASEAN Sustainable Agrifood Systems,
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Effort is part of the success factor on the organic production and life as much as determination to overcome the challenges. I believe woman can play an active role in building sustainable agriculture and living conditions of the family.

Ms. Nurida Girsang

Contract Farmer of Taman Simalem Resort, Indonesia

I make my parents proud studying agriculture. My family does farming and every time when our neighbors want to know anything about agriculture, my parents will say 'Let's ask my daughter'.

Ms. Rattana Kachayut

Plan and Policy Analyst, Kanchanaburi Agriculture Research and Development Centre,
Department of Agriculture, Thailand

ASEAN Sustainable Agrifood Systems is part of the ASEAN-German Programme on Response to Climate Change in Agriculture and Forestry (GAP-CC).



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ASEAN Sustainable Agrifood Systems (ASEAN SAS)

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