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# The FFTC Strategic Action Plan for 2017-2018

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## 1. INTRODUCTION

Most countries in the Asia-Pacific region have witnessed significant economic transformation over the past few decades driven by industrialization, urbanization, modernization, and commercialization of their agriculture sectors. Rapid economic growth, especially in Asia (but much less so in the Pacific) has resulted in the declining share of agriculture in the gross domestic product. Nonetheless, the region remains home to the world's largest number of malnourished people, most of whom live in rural areas and are dependent on a greater or lesser extent on agriculture (including both on-farm and off-farm activities) for their livelihoods. Of the world's 795 million people chronically undernourished in 2014-2016, two-thirds (i.e., an eighth of the developing regions' population) reside in the Asia-Pacific region.

The Asia-Pacific region as a whole needs to improve food production systems and delivery system to consumers or will face significant food security problems within the next generation. Indeed some developing countries in Asia and the Pacific will need to increase their agri-food production by up to 77% to feed their people by 2050, when the world's population is expected to top nine billion.

Agricultural production in the Asia-Pacific region is characterized by smallholders cultivating small plots of land. Small-scale farms (SSFs) have been defined by the International Fund for Agricultural Development as those with less than two hectares of land area, and those depending on household members for most of the labor. SSFs share a comparatively big portion of the country's agricultural output, are an important part of the country's development equation, and have been increasing in number but rapidly decreasing in size over time. It is estimated that about 87% of the world's 500 million SSFs are in the Asia-Pacific region.

Although SSFs have an advantage in terms of best use of local labor and knowledge and efficient farm management, SSFs are facing a number of challenges in producing food in a sustainable manner. SSF usually have limited access to new technologies dictated by a circumstance where national agricultural research systems (NARS) often do not pay adequate attention to develop and introduce SSF-friendly technologies. When new technologies are available, they usually require higher capital inputs, thus SSFs may be at a disadvantage unless they are helped in reducing their transaction costs to access inputs, credit and marketing facilities. Also increasing globalization and trade liberalization of agri-food products are introducing increasingly specific and strict quality standards that many SSF find difficulties to comply. Moreover, many SSFs have not been able to effectively participate in agri-food value chains because they cannot access marketing information, and meet high volume requirements and logistic specifications.

Furthermore, an emerging challenge such as climate change is likely to increase risks and vulnerability to many SSFs. Given their existing weak resource base and less adaptive capacity, SSFs are especially sensitive to global warming, changing precipitation patterns, increasing threat of pests and diseases in crops and livestock, and more frequent extreme weather events. All of which will add stress and uncertainty to SSF' production systems, and can jeopardize their livelihoods. Besides, climate change is likely to aggravate existing non-climatic stress factors for SSFs, such as marginal land use and limited access to insurance and financial services.

Overcoming those challenges mentioned above, a greater emphasis needs to be placed on improving SSF's productivity through stronger links to agri-food value chains; better access to productivity- and quality-enhancing technologies; improving rural infrastructure and extension services; access to capital and capacity building especially for rural young farmers; land policies that help efficient SSF to expand their operations by acquiring or renting land from less efficient neighbors who find employments in emerging industry and service sectors; and innovative coordination among SSF, such as producing and marketing cooperatives.

Since its inception in the 1970s, FFTC upholds its vision of serving the small-scale farmers in the Asia-Pacific region with the following three main endeavors:

1. To spearhead the transfer of mature technologies and information generated by scientists to SSFs;
2. To promote the sharing and exchange of agricultural information among countries toward enabling SSFs to benefit from scientific and technological advancements and the up-to-dated information on agricultural policy and marketing in the region; and
3. To bridge the agricultural technology gap between developed and developing countries.

As information clearing house and facilitator of access and flow of information, the Center is to collect and disseminate practical and technical information in agriculture, contributing to the achievement of increased output and higher incomes for SSF in the Asian and Pacific region. Towards this end, FFTC, in association with its NARS stakeholders in the region, organizes seminars, workshops, training courses, and field demonstrations. It also manages and maintains a website and produce publications where thousands of scientists, administrators, policymakers and extension workers in the region are given not only the chance to share and exchange technological innovations in the field of agriculture, but also the opportunity to strengthen international technical cooperation with their neighboring countries.

To effectively further outcomes and impact from the Center's endeavors, FFTC's recent external review devoted considerable attention to the role of information and knowledge in FFTCs current and future mission. The external review team made a compelling case that the Center fully exploits its comparative advantages as multidisciplinary integrator and convener to facilitate greater access to and flow of knowledge, and takes the intermediary steps from data of priority subject matters to information, from information to knowledge, and from knowledge to application in the smallholder ecosystem in the Asia-Pacific region.

## **2. REVIEW OF 2015-2016 ACTIVITIES**

In consultation with its Technical Advisory Committee (TAC) in 2014, FFTC has identified a number of priority program themes which need to be addressed if the Center is to make a significant contribution to the SSFs in the Asia-Pacific region. Closely aligned with these program themes, the Center has conducted and will conduct a range of project activities in 2015-2016 in partnerships with the key NARS institutions in the region, and several regional and international organizations as shown in Table 1. And Table 2 summarizes the Center's project activities and their outputs for 2015 and 2016.

Table 1: Key partners for FFTC project activities in 2015 and 2016

Country	Institutions
Japan	Japan International Research Center for Agricultural Sciences (JIRCAS) National Agriculture and Food Research Organization (NARO) National Institute for Agro-Environmental Sciences (NIAES)
Korea	Rural Development Administration (RDA) National Agriculture Cooperatives Federation (NACF)
Malaysia	Malaysian Agricultural Research and Development Institute (MARDI)
Philippines	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) Philippine Carabao Center (PCC) Department of Agriculture (DA)
Taiwan	Animal Health Research Institute (AHRI) of COA Council of Agriculture (COA) Taichung District Agricultural Research and Extension System (Taichung DARES) Tainan District Agricultural Research and Extension Services (Tainan DARES) Taiwan Agricultural Research Institute (TARI)
Thailand	Kasetsart University (KU)
Vietnam	Southern Horticultural Research Institute (SOFRI) Vietnam Academy of Agricultural Sciences (VAAS)
International & Regional Organizations	Asia Pacific Association of Agricultural Research Institutes (APAARI) International Federation of Beekeepers' Associations (APIMONDIA) Mekong Institute (MI) Monsoon Asia Agro- Environmental Research Consortium (MARCO)

The significant outputs of these project activities for 2015 and 2016 are highlighted as follows:

1. Seventeen national agricultural research and development institutions and four international and regional organizations have partnered with FFTC to improve agricultural information sharing in the Asia-Pacific region;
2. Twenty-two countries were represented at eight of our workshops;
3. In 2015, there were 179 researchers and extension agents who have taken part in FFTC workshops and seminars, of which 33 are women.
4. There have been 280,828 internet users from 50 countries who have visited our general website from January 1, 2016 to May 30, 2016.
5. There have been 143,445 internet users from 50 countries who have visited our agricultural policy website from January 1, 2016 to May 30, 2016.
6. Since 2015, all FFTC publications (except for the Annual Report) have been published electronically and are uploaded in the FFTC general website. These e-publications are being read and downloaded in at least 50 countries.

### **3. STRATEGIC POSITIONING FOR 2017-2018**

The strengthening of various NARS institutions and emergence of several regional organizations in the Asia-Pacific region, whose endeavors include information gathering, networking, knowledge-sharing and capacity-building, have prompted FFTC to review its strategic action plan. FFTC will continue to deliver targeted agricultural information and knowledge to its stakeholders, building on its experience over the past four decades.

The status and function of agriculture have greatly changed in the last decade, and more changes are expected in the future because of three vital factors – technological innovation, climate change and globalization. These changes along with government policy adjustments have undoubtedly affected SSFs in the Asian and Pacific region, and have forced them to adapt to the new environment. In other words, these changes provide a golden opportunity for some countries and sectors, but they are also considered challenges by others. Furthermore, from the point of view of sustainable development forced by adaptation to climate change we should consider three important variables: production, quality of life, and the environment. Agriculture in the 21st century is very likely to be characterized by:

1. Greater global competition with further liberalization of markets;
2. Expansion of industrialized agriculture, making SSFs, particularly those in developing countries, more vulnerable;
3. Combined effects of population growth, strong income growth, and urbanization resulting in greater demand for staple- and high-value foods without increasing suitable arable land;
4. Climate change manifested by increased carbon emissions and extreme weather elements threatens the stability, quality and amount of agricultural products;
5. Scarcity of relevant resources for agriculture such as fertile soils and quality water, and labor shortage;
6. Consumer demand for stricter food safety standards and higher quality products; and
7. Contamination of agricultural resources and the surrounding environment with industrial discharged pollutants and an urgent need for relevant techniques to remediate them for sustainable environment.

FFTC's mission is continuously evolving. Hence, this FFTC Strategic Action Plan for 2017-2018 is a renewal of the Center's commitment to respond to the technological needs of SSF amid the changing global environment. In addressing current agricultural development issues in the Asian and Pacific region, the Strategic Action Plan outlines the focus of FFTC's work programs for 2017-2018, toward ensuring higher standards of farming, thereby, improving SSF's incomes and increasing farm stability.

Based on FFTC's Strategic Action Plan for 2015-2016 endorsed by members of the 22nd TAC meeting and comments of reviewers at External Review conducted in 2015 on how the massive knowledge built up from information and technology collected through the activities can be effectively transferred to SSF, FFTC comes up with this Strategic Action Plan for 2017-2018, underpinning the five program themes as follows:

1. Upholding Small-scale Farming under Climate Change
2. Promoting Food Safety with Green Agriculture
3. Empowering Small-scale Farmers through Market-led Agriculture
4. Enhancing Farmers Activities Using Modern Technology
5. Encouraging Young Generation to Engage in Farming

Under each program theme, FFTC raises several issues, which should be addressed in FFTC's future activities. And the design of these future activities calls for interaction among FFTC partners to meet their needs and preferences. Thus, hereby we solicit FFTC partners to fill up the tables in the "Proposed Activities Section" after each program theme.

## **Program Theme 1: Upholding Small-scale Farming under Climate Change**

Climate change poses unprecedented challenges to agriculture due to the fact that agriculture is both a culprit and a casualty of climate change. The Climate Institute recently reported that the agriculture sector has become one of the main driving forces in greenhouse gas (GHG) emissions all contributing to climate change and global warming. While fossil-fuel consumption is the primary cause of global GHG emissions, agricultural activities, including crop and livestock production, forestry and associated land use practices, are also responsible for a significant fraction of emissions, up to 30% according to the Intergovernmental Panel on Climate Change (IPCC). On the other hand, climate variability, particularly with respect to increasing temperatures and changing rainfall patterns, is a major concern for SSF in the developing world. Climate change-related crop failures, fishery collapses and livestock deaths are already causing economic losses and undermining food security. These are likely to become more severe as global warming continues and frequency of extreme climate events increases, together with increases in outbreaks of animal and crop pests and diseases.

FFTC seeks to help vulnerable SSFs in the Asian and Pacific region to become more resilient to global climate changes while mitigating GHG emissions. Toward this end, the Center will hold a series of regional workshops and seminars for researchers and trainers to accelerate the sharing of success stories and lessons on practices and technologies for adaptation and mitigation measures to cope with climate changes, with serious commitment to addressing the appropriate options, working in strong partnership, and enhancing capacity to solve issues. The issues urgently needed to be addressed are as follows:

1. Adjustment of food crop planting patterns, and soil and water management practices in response to variable weather patterns.
2. Development and utilization of food crop varieties resistant/tolerant to high temperature, drought, flooding, and emerging diseases and pests.
3. Crop management practices and systems with high GHG sequestration capacity.
4. Animal production and aquaculture under high temperature conditions.
5. Greener pastures to reduce carbon hoofprint in livestock production systems.
6. Impact of climate change on emergence of zoonotic diseases.
7. Tools/best practices for reducing vulnerability and increasing resilience in aquaculture and fisheries.
8. Monitoring and surveillance of plant pests and diseases
9. Application of protective culture (or controlled environment agriculture)

## **Program Theme 2: Promoting Food Safety with Green Agriculture**

Food safety involves the primary production and processing of raw agricultural products. This includes activities on farms, during transportation, and at the facilities involved in processing and handling of raw products. Recently the issue has been exacerbated by the unsafe farm practices involving the improper use of manure, chemical fertilizers, pesticides, and contaminated water; the livestock production practices that increase antibiotic-resistant bacteria and zoonotic pathogens in resultant animal products; the influence of global warming on internationally traded products such as fresh produce, meat and seafood; the contamination of processed food by microorganisms and mycotoxins; etc.

Given the intimate relationship between agricultural practices and food safety, and the fact that many breaches of food safety have their origins at the very beginning of the food chain, FFTC plans to mobilize the stakeholders in the Asian-Pacific region to share their

experience on the following issues and to provide the training opportunities that could help identify and quantify risks and finally generate solutions:

1. Integrated Pest Management (IPM), a broad-based approach that integrates practices for economic control of pests including the management of insects, plant pathogens and weeds.
2. Filling the GAP: A set of GAPs (good agricultural practices) needs to be applied to on-farm production and post-production processes to minimize food safety risks, while taking into account the economic viability for SSF, environmental sustainability and social acceptability.
3. Focusing on organic agriculture: Organic farming is a holistic system to promote the sustainable health and productivity of the agro-ecosystem. It makes a unique contribution to improve food safety and quality for the consumer in addition to offering SSF a wide range of economic and social benefits.
4. Following traceability: Traceability improves supply management, facilitates trace back for food safety and quality, and differentiates and markets agri-foods with subtle quality attributes such as credence attributes. And it needs to be effectively implemented in order to enhance the trust of consumers.
5. Harmonizing standards: For the assurance of food safety and quality, the standards and certification procedures for monitoring compliance of the aforementioned issues need to be harmonized based on the experiences of some developed countries and existing international and regional trade agreements.

### **Program Theme 3: Empowering Small-scale Farmers through Market-led Agriculture**

SSFs in the region lack management skills and knowledge of markets. Most farmers are only focused on agricultural production and rely on extension workers for technology transfer. FAO recently declared that rapid population growth, urbanization and market liberalization impact directly on farming. This means agriculture is more market oriented and competitive. If the vision is to empower the SSFs, it is imperative that they acquire the proper management and marketing skills in order to earn more profits and run their own businesses like the professional entrepreneurs.

Empowered farmers, like those in developed countries efficiently plant crops and raise animals based on what the market dictates. They are very well-informed on the significance and roles that market forces play in their respective businesses and are updated about prices, market demand, product specifications, quality standards, trends, etc. They know the importance of value-adding in agricultural business. They go out of their way to seek, establish and forge linkages and even develop skills to promote their own products. It is the market that drives them to produce and not the other way around. In most developed countries where farmers engage in contract growing, the signed contract between the processors and farmers become the collateral in the application of bank loans because the contract guarantees that the processors will buy what the farmers will sell. Both the private and public sectors in the Asian Pacific region envision this kind of market-led agriculture for their small-scale farmers. Below are the issues that need to be addressed:

1. Dissemination of pertinent market information to increase the farmers' knowledge of markets. This includes prices, market demands, product specifications, etc.;
2. Establishment of market linkages to efficiently connect the farmers to buyers of agricultural goods;

3. Enhancement of market promotions to include traditional and innovative ways to entice consumers to patronize farmers' goods;
4. Encouragement of farmers to engage in value-adding activities to further enhance and improve their products in order to fetch a higher price in the market; and
5. Intervention of government and cooperatives in the provision of market access and capacity building for SSFs.

#### **Program Theme 4: Enhancing Farmers Activity Using Modern Technology**

Small-scale farmers in the Asia-Pacific region must both respond to the challenges of food security and climate change, and compete in regional and international markets. They need to adopt best practices and modern technologies, access extension services and market information, and fully engage in agri-food value chains. In this light, access to timely information and knowledge are critical in enabling SSFs to improve productivity and income gains from their activities. Towards this, the effective management of knowledge is imperative. In this connection, knowledge management encompasses processes and practices of sourcing, creating, digesting, storing, sharing and using know-how (including know-what, know-why, know-who and know-when) through networks. And the three recent developments in information and communication technologies (ICTs) – the proliferation of mobile phone technologies and supporting wireless infrastructure; the continued penetration of the internet (with the increasing availability of ICT access points); and the rise of Web 2.0, the participatory web, have created an opportunity for effective knowledge management and sharing. Furthermore, vibrant knowledge-sharing in agricultural technologies and policies extends to capacities for in-house knowledge harvesting, storage and dissemination. In an increasingly globalized and digitized information society, access to external knowledge sources is indispensable for enriching the knowledge base. Thus in implementing this program theme, FFTC will enter into partnerships with key partners and information networks; and make intensive use of ICTs. Emphasis will be on the following.

1. Develop a strong in-house ICT-based knowledge management component to support the NARS, and raise the profile of FFTC's work in the region.
2. Create an interactive knowledge bank on soil management systems that promote best practices, technologies and standards to improve productivity and safety of selected food crops.
3. Improve capacity of NARS to package appropriate agricultural technology information for SSFs.
4. Facilitate knowledge-sharing and narrow communication gaps among different stakeholders in the region.

#### **Program Theme 5: Encouraging Young Generation to Engage in Farming**

Over the past decade in the Asian and Pacific region, there has been a considerable decrease in the number of young people who were engaged in farming. By contrast, their outbound flow to urban cities has considerably increased. Consequently, in the agriculture sector, aging populations of over 65-years old are successively increasing. In Japan, Korea and Taiwan, for instance, the ratio of aging farmers to the total farm household population are 34.3%, 31.8% and 31.2%, respectively, in 2010. There are a couple of serious bottlenecks that hinder the young generation's entry into farming; with nearly 80% of Asian farmers belonging to the small-scale group. In spite of the latest technologies and expertise guaranteed for remunerative farming, there are also a number of financial, legal and

economic constraints which make it difficult for agriculture to attract young generation to engage in farming.

If these problems are not addressed properly, countries in the Asian and Pacific region may face serious problems in food production and overall agriculture 10 to 20 years from now. Therefore, issues such as the following need to be addressed:

1. Appropriate farmland and capital policies to attract new recruits into farming.
2. Viable programs for housing, farm inputs and equipment support for youngsters' entry into farming.
3. Technological consultation and backup for young generation entry into farming.
4. Incentives such as income subsidies to attract the young generation to engage in agriculture.
5. Encourage U-turn and I-turn of young graduates to rural areas for farming and other related activities.
6. Develop training programs that emphasize on the application of ICT, knowledge management in agriculture for young entrepreneurs

#### **4. PLANNED ACTIVITIES FOR 2017-2018**

For the next two years, the FFTC management has drafted a list of its planned activities based on the five-program themes in its strategic action plan. One of the aims of this list is to solicit the feedback and commitment of the TAC members regarding their comments and suggestions, nominations of potential partners and leads for possible funding support.

#### **5. MAKING THEM HAPPEN**

FFTC's five-program themes are supposed to be the pillars or anchor points from which the Center will chart its direction in the coming years. For this to happen though, the FFTC management, under the guidance of the TAC, should focus on several key points in order to steer the wheels and keep the Center's motors running.

**Partnerships:** FFTC's current modus operandi of seeking to collaborate with the key NARS institutions in its sphere of operation remains viable. By establishing partnerships such as those of both nationally and regionally we will be in a better position to achieve our missions of advancing agricultural technologies and policies, strengthening smallholder value chains and building the Center's knowledge management capacities. Following the recommendations from the FFTC External Review Team and the TAC 2016, FFTC will explore opportunities in the coming two years to catalyze linkages with a wider range of stakeholders to advance the interest of SSF in the Asia-Pacific region.

**Resource mobilization:** FFTC will adopt a more systematic approach by employing the Center's current core support to prime the pump for its financial diversification and sustainability.

**IT systems:** Up-to-date and well integrated IT infrastructure and systems are critical for improving the Center's operational efficiency and effectiveness. They also offer a new paradigm for knowledge management.

Monitoring and evaluation: Evaluation enhances the relevance, effectiveness and efficiency of operational and corporate processes, projects and programs.

Through strengthening partnerships and linkages, seeking support from both international and national donors, adapting IT systems and constant reassessments and evaluation, FFTC's Strategic Action Plan for 2017-2018 becomes a more relevant blueprint to carry out the Center's annual action programs for the next two years.

