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**WORKSHOP ON DEVELOPMENT OF AQUACULTURE INSURANCE  
SYSTEM FOR SMALL-SCALE FARMERS**

**Bangkok, Thailand, 20–21 September 2016**



Report of the  
WORKSHOP ON DEVELOPMENT OF AQUACULTURE INSURANCE SYSTEM  
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## **PREPARATION OF THIS DOCUMENT**

This document is one of the outputs of a two-day workshop under a collaboration between FAO Rome and Kasetsart University (KU) in Bangkok. It was implemented through a Letter of Agreement with the Center for Applied Economics Research (CAER), Faculty of Economics of KU. Dr Ayut Nissapa and Ms Rungrat Saeyang of the Prince of Songkla University in Thailand, Mr Pedro Bueno, language editor, and Dr Tipparat Pongthanapanich of FAO Rome prepared this report. CAER assembled the workshop materials and information provided by the experts and participants.

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*Report of the workshop on development of aquaculture insurance system for small-scale farmers, Bangkok, Thailand, 20–21 September 2016.* FAO Fisheries and Aquaculture Report No. 1177. Rome, Italy.

### **ABSTRACT**

The workshop aimed to identify policy and technical measures that would make insurance available and accessible to small-scale aquaculture farmers. Three commissioned papers and seven supplementary papers and presentations informed the discussions, which led to a set of recommendations addressed to the participating countries as well as to other developing countries and a specific follow-up activity in Thailand with a possible FAO collaborative assistance.

The workshop was a collaboration between FAO and Kasetsart University (KU) in Bangkok implemented through a Letter of Agreement with the Center for Applied Economics Research, KU. It was held at the Faculty of Economics of which comprised two days of meetings. The first, on 20 September 2016, had a regional scope that discussed the experiences in and challenges to aquaculture insurance. The participants were experts from China, the Philippines, Singapore, Thailand and Viet Nam. The second workshop, on 21 September 2016, focused on the prospects of a viable and sustainable aquaculture insurance for the shrimp aquaculture industry of Thailand. The deliberations were informed by a field study of the demand for insurance by the sector. It was joined by officers and members of shrimp farmers' cooperatives from five provinces of Thailand and the participants of the first workshop.

The workshop attained its objectives. It also facilitated these results: (i) made farmers, farmer advisers, researchers and academics more familiar with the insurance business and technical requirements of insurers, (ii) made insurers become more familiar with the circumstances and the needs of aquaculture farmers, (iii) confirmed that insurers continue to view aquaculture as a high-risk industry, (iv) highlighted the need to incorporate risk assessment and management in the development of better farm management practices in line with the requirements of insurance, and (v) confirmed the usefulness of bundling credit and insurance in the development of institutional services for farmers.

## CONTENTS

	<i>Page</i>
PREPARATION OF THIS DOCUMENT	iii
ABSTRACT	iv
ABBREVIATIONS AND ACRONYMS	vi
BACKGROUND	1
RATIONALE	1
OBJECTIVE	1
PROGRAMME	1
PARTICIPATION	2
OUTPUTS	2
FIRST WORKSHOP	3
Procedural matters	3
Session one: national policies	3
Session two: country cases	4
Session three: working group discussions and plenary	6
SECOND WORKSHOP	7
Procedural matters	7
Session one: presentations	8
Session two: roundtable discussion	11
CONCLUSIONS AND RECOMMENDATIONS	13
CLOSING OF THE WORKSHOP	14
 ANNEXES	
1. First workshop programme	15
2. Second workshop programme	18
3. List of participants	20
4. Opening address	28
5. Overview of national policies and programmes on aquaculture insurance in Viet Nam: opportunities and challenges	30
6. Overview of national policies and programmes on aquaculture insurance in China: opportunities and challenges	33
7. Overview of national policies and programmes on aquaculture insurance in the Philippines: opportunities and challenges	34
8. Experience from aquaculture insurance pilot programme in Viet Nam	36
9. Experience from aquaculture insurance pilot programmes in China	37
10. Climate resilient tilapia farming in the Philippines: role and prospects of insurance	38
11. National pilot programme on agricultural insurance in Viet Nam: successes, failures and lessons	40

**ABBREVIATIONS AND ACRONYMS**

ACFS	Agricultural Commodities and Food Standard
AHPND	Acute hepatopancreatic necrosis disease
BAAC	Bank of Agriculture and Agricultural Cooperatives
CAER	Center for Applied Economics Research
CFMI	China Fishery Mutual Insurance
CoC	Code of conduct
DOF	Department of Fisheries
EMS	Early mortality syndrome
GAP	Good aquaculture practice
IPSARD	Institute of Policy and Strategy for Agriculture and Rural Development
KU	Kasetsart University
NACA	Network of Aquaculture Centres in Asia-Pacific
OIC	Office of Insurance Commission
PCIC	Philippine Crop Insurance Corporation
TCP	Technical Cooperation Programme
TGIA	Thai General Insurance Association
WFS	White feces syndrome
WSSV	White spot syndrome virus
YHV	Yellow head virus



## BACKGROUND

Two workshops on aquaculture insurance supported by FAO and held in Asia had preceded this workshop. In May 2007, the regional workshop on ‘promotion of aquaculture insurance in the Asian region’ that FAO organized in collaboration with the Indonesian Directorate General for Aquaculture, the Network of Aquaculture Centres in Asia-Pacific (NACA), and the Asia-Pacific Rural and Agricultural Credit Association (APRACA), in Bali, put forward guidelines to address insurance and other risk management needs in developing aquaculture in Asia. In September 2009, the workshop on ‘options for a potential insurance scheme for aquaculture in Thailand’ stimulated awareness and interest in aquaculture insurance in the country. That workshop was organized in Bangkok by FAO and the Department of Fisheries (DOF) of Thailand. The resurgence of interest and expression of concrete steps by the government and the shrimp farmers has been made possible by this current technical assistance of FAO of which the major activity was the workshop through a Letter of Agreement (LoA) with the Center for Applied Economics Research (CAER) of Kasetsart University (KU) in Bangkok.

## RATIONALE

The world’s aquaculture output in 2014 was about 74 million tonnes; Asia contributed 89 percent. There were almost 19 million farmers, 96 percent of whom are in Asia.<sup>1</sup>

The continuing ability of aquaculture to provide livelihoods for millions of people in Asia and food and nutrition for millions more around the world is threatened by numerous risks. Disease, pollution, extreme events such as typhoons, floods, drought, very high or very low temperature, and other hazards could damage, and indeed have damaged, an entire crop or wipe out the investments and assets of farmers. Insurance and the accumulation of savings and other assets could reduce the impacts of such losses and improve the ability of farmers, especially the small-scale, to recover from damages, cope with impacts of or adapt to risks. However, if at all available, insurance is accessible mainly to large-scale farms because of, among others, the high-risk profile of the sector and the cost of providing the service to small-scale farmers.

More than 80 percent of aquaculture farmers in Asia are small-scale. The workshop addressed this issue of access to insurance by small-scale farmers. The countries that took part in the workshop, China, the Philippines, Thailand and Viet Nam, are among the top aquaculture producers in the world.

## OBJECTIVE

The workshop sought to recommend guidelines for policy and programmes to facilitate the development of aquaculture insurance for small-scale farmers. It addressed two questions: (i) How insurance can be made available and accessible to small-scale farmers?, and (ii) What policy and technical support is needed to move the aquaculture insurance agenda forward? The activity is in line with two FAO strategic programmes, namely, SP4 – enable more inclusive and efficient agricultural and food systems, output 40301 – public and private sector institutions are supported to design and implement financial instruments and services that improve access to capital for efficient and inclusive agrifood systems, and SP5 – increase the resilience of livelihoods to threats and crises, output 50102 – enhancing coordination and improved investment programming and resource mobilization strategies for risk reduction and crises management.

## PROGRAMME

The programme comprises two workshop days. The first, held on 20 September 2016, was regional in scope in which experiences and lessons from aquaculture insurance programmes in China, Viet Nam and the Philippines were presented and discussed. The second, held on 21 September, was focused on the prospects of insurance

<sup>1</sup> FAO. 2016. *The State of World Fisheries and Aquaculture 2016*. Contributing to food security and nutrition for all. Rome. Available at [www.fao.org/3/a-i5555e.pdf](http://www.fao.org/3/a-i5555e.pdf)

for the shrimp aquaculture industry of Thailand informed by the proceedings of the first day and a field study of the demand for insurance by shrimp farmers in Thailand. The first and second workshop programmes are Annex 1 and Annex 2.

## **PARTICIPATION**

There were 59 and 62 participants joined the first day and the second day of the workshop. They included:

- officers of government agriculture, fishery and aquaculture agencies from Viet Nam and Thailand;
- researchers and practitioners in crop, fishery and aquaculture insurance from China, the Philippines, Thailand and Viet Nam;
- researchers and teachers in agricultural and resource economics in the Philippines, Thailand and Viet Nam;
- graduate students in economics in Thailand;
- underwriters of the global reinsurer Swiss Re and the Thai Reinsurance Public Company Ltd;
- officers and members of shrimp farmers' cooperatives from 5 provinces in Thailand;
- representatives of the Thai General Insurance Association (TGIA) and the Office of Insurance Commission (OIC) of Thailand;
- representatives of the Bank of Agriculture and Agricultural Cooperatives (BAAC) of Thailand, and the Ministry of Finance of Thailand;
- the Chair of the Advisory Board (Fisheries) of the National Farmers Council of Thailand;
- the current and a former director general of NACA; and
- fishery and aquaculture officers of FAO Rome and FAO Regional Office for Asia and the Pacific (RAP).

The list of participants is Annex 3.

## **OUTPUTS**

The workshop generated several outputs. Many of the information products were drafted before the workshop to inform the discussions and are being revised and readied for publication (one of these, the review of Viet Nam's aquaculture pilot insurance, has been published). The outputs include:

- workshop highlights containing the draft conclusions and recommendations provided to the participants on 13 October 2015 for their comments;
- this workshop report, which will be published online and copies distributed to participants and other interested personnel;
- results of the field study on demand for aquaculture insurance among shrimp aquaculture in Thailand, also to be published; and
- written notes and powerpoint presentations on these topics:
  - overview of national policies and programmes on aquaculture insurance in China: opportunities and challenges (China Fishery Mutual Insurance Association, CFMI);
  - overview of national policies and programmes on aquaculture insurance in the Philippines: opportunities and challenges (Philippine Crop Insurance Corporation, PCIC);
  - overview of national policies and programmes on aquaculture insurance in Viet Nam: opportunities and challenges (Soc Trang Province Department of Agriculture and Rural Development);
  - experience from aquaculture insurance pilot programme in Viet Nam (Faculty of Economics, Nha Trang University);
  - experience from aquaculture insurance pilot programmes in China (Freshwater Fisheries Research Center, Chinese Academy of Fishery Sciences);
  - climate resilient tilapia farming in the Philippines: role of and prospects for insurance (provisional results from an ongoing FAO Technical Cooperation Programme, TCP);
  - national pilot programme on agriculture insurance in Viet Nam: success, failures and lessons (Center for Agricultural Policy, Institute of Policy and Strategy for Agriculture and Rural Development, IPSARD);

- overview of the Thai shrimp industry and policy, and development of insurance system (DOF and NACA); and
- shrimp cluster establishment and mobilization in Thailand (National Farmers Council of Thailand)

## **FIRST WORKSHOP**

The key result of this first workshop comprises the recommendations for policy action and technical support mechanisms that would make insurance available and accessible to small-scale farmers.

### **Procedural matters**

Dr Kampanat Pensupar, Vice President for Academic Services of KU welcomed and thanked the participants, appreciated their organizations for facilitating their participation, and FAO for enlisting the cooperation of KU in the LoA project.

Dr Susana Siar, Fisheries Industry Officer, Fisheries and Aquaculture Department, FAO Rome, thanked CAER of KU for their valuable contribution to the workshop particularly the study of the demand for shrimp insurance in Thailand and organization of the workshop, and extended FAO's appreciation to the resource speakers and participants. She placed insurance in the context of the Sustainable Development Goals of the United Nations and the strategic programmes of FAO. She recalled that in September 2009, DOF Thailand and FAO organized the workshop on the options for a potential insurance scheme for aquaculture in Thailand. The workshop introduced mutual insurance but further action was stalled by the absence of a legal framework under which a mutual can operate. She hoped that this workshop would result in a concrete action. The opening speech is Annex 4.

The workshop rationale, objectives, expected outputs and the workshop programme were explained by Dr Penporn Janekarnkij, Assistant Professor of the Faculty of Economics, KU, and leader of the research team that studied the demand for aquaculture insurance by shrimp farmers in Thailand. There were two sessions in which the resource papers were presented and discussed. These were followed by a working group session; three working groups were formed to identify policy, technical and other types of support that would enable small farmers' better access to aquaculture insurance.

### **Session one: national policies**

The session focused on national policies and programmes on aquaculture insurance and the opportunities and challenges. Session chair was Dr Ruangrai Tokrisna, Associate Professor and Former Chair of the Department of Agricultural and Resource Economics, Faculty of Economics of KU. She noted the relevance of the various presentations to the current situation marked by the increasing frequency, number and severity of risks faced by the fisheries sector especially the small fishers and fish farmers.

*Overview of national policies and programmes on aquaculture insurance in Viet Nam: opportunities and challenges* by Dr Tran Dinh Luan, Soc Trang Provincial Department for Agriculture and Rural Development, Ministry of Agriculture and Rural Development, Viet Nam. The main outcomes of the pilot programme were described. The major recommendation was to continue and scale up the programme but that aquaculture insurance be on voluntary basis, the premium support for poor farmers be retained but part of the premium should be borne by the farmers as a way to enhance their responsibility in following technical guideline and insurance contract conditions. The summary of the presentation is Annex 5.

*Overview of national policies and programmes on aquaculture insurance in China: opportunities and challenges* by Mr Zhang Weiguang, Division of Aquaculture Insurance, CFMI, Beijing, China. China is now the second largest agricultural insurance market in the world. That said the development of China's aquaculture insurance has experienced a tortuous process. However, after 2013, benefiting from the fiscal subsidy policy, aquaculture insurance expanded. It still faces many challenges foremost among which is that aquaculture is a

high-risk industry. This makes it difficult to match the farmers' premium payment ability. The paper describes many other issues and cites the solutions that are being tried. The summary of the presentation is Annex 6.

*Overview of national policies and programmes on aquaculture insurance in the Philippines: opportunities and challenges* by Ms Rodelia A. Pagaddu, Business Development and Marketing Department, PCIC. Established 37 years ago, PCIC, provides insurance coverage of fishponds, fish cages and fish pens, seaweed farms and other aquaculture projects and assets, such as ice plants, cold storage and other post-harvest facilities eligible for coverage. The Philippine Development Plan supports the strengthening of the agriculture and fisheries sectors through risk sharing mechanisms that include: (i) improving risk-reducing mechanisms (i.e. guarantee, insurance) to encourage more banks and other lending conduits such as cooperatives and NGOs to lend to agriculturists and fishers, and (ii) introducing innovative risk-transfer mechanisms such as weather index insurance systems. To accelerate the adoption of the agricultural insurance programme as a risk reduction and transfer mechanism, several policy measures have been promulgated. The summary of the presentation is Annex 7.

## **Session two: country cases**

The session was chaired by Dr Yu Deng, Senior Underwriter of Swiss Re and based in Singapore. He introduced the session by highlighting the critical importance of a well-designed insurance programme that fulfills the needs of the insured and the objectives of the insurance providers. He acknowledged the persistent perception among insurers of the expanding aquaculture industry as a high-risk enterprise. This, he said, underscores the importance of the reviews and cases that describe and analyse the experiences and lessons from China, Viet Nam and the Philippines.

*Experience from the aquaculture insurance pilot programme in Viet Nam* by Dr Kim Anh Nguyen, Associate Professor of the Faculty of Economics, Nha Trang University, Viet Nam. The presentation is based on the review of the pilot programme on agriculture insurance which covers rice, livestock and aquaculture. The review focused on the aquaculture component that covered whiteleg shrimp, black tiger shrimp and pangasius culture.<sup>2</sup> The summary of the presentation is Annex 8. The key points are as follows:

- Aquaculture contributes 3.2 percent to GDP and 5.1 percent to export value, and accounts for 4.5 million workers.
- Aquaculture insurance was piloted in five provinces in the south, most in the Mekong River Delta.
- Small-scale farmers suffer most from impacts of climate change and disease outbreaks.
- Pilot aquaculture insurance was implemented in 2011–2013, financing came from central government and local governments. Different rates of support for premium subsidy were given to farmers, with 100 percent given to poor households.
- Insurance pilot suffered from some shortcomings in the control mechanism and moral hazard.
- In the pilot programme, rice insurance and livestock insurance had premiums greater than indemnity paid, implying a low and acceptable loss ratio. Aquaculture insurance covered 2 percent of households but accounted for 95 percent of total compensation (compared with crop and livestock). A high loss ratio was incurred by the aquaculture insurance, largely because of shrimp disease epidemic.
- Among the problems encountered were insufficient awareness and information; complicated procedures; poor farmers' lack of capital; limited experience of insurance field operatives and staff in aquaculture; weak relationship between officers in government and insurance companies; high transaction cost abetted by farms scattered over wide areas as well as fragmented plots; lack of competent diagnostic laboratories and insufficient veterinary services in rural areas.
- Lessons are: (i) technical guidelines needed for insurance actors, (ii) need to connect with farmers' cooperatives and different players in the value chain, and (iii) awareness of need for aquaculture insurance and understanding of the requirements of insurance have to be raised.

*Experience from aquaculture insurance pilot programmes in China* by Dr Ming Junchao, Freshwater Fisheries Research Center, Wuxi, Jiangsu Province, China. The presentation was based on the review of China's fishery and aquaculture insurance commissioned by FAO. The summary is Annex 9. The major points are as follows:

<sup>2</sup> The study was published by FAO in December 2016. Available at [www.fao.org/3/a-i6559e.pdf](http://www.fao.org/3/a-i6559e.pdf)

- There have been three phases of aquaculture insurance: (i) 1982–1995, pilots were conducted in some provinces and the development of aquaculture insurance was slow because of shrimp diseases in the 1990s, (ii) 2004–2012, a few insurance companies started individual projects in some local areas and local government started providing premium subsidy, and (iii) after 2013, with the fiscal subsidy policy, but only 1 percent of China’s aquaculture areas is insured.
- China’s fishery mutual insurance programme has provided valuable experiences in operating a mutual insurance, particularly on legal and policy support, programme organization, premium subsidy, development of new insurance products, and mechanism for post-catastrophe relief. Government policy and legal support is vital to the operation of a mutual insurance programme.
- After 25 years of operation, the China Insurance Regulatory Commission in 2015 defined the legal status of mutual insurance organization in China. This legal support has guaranteed the mutual insurance organizations the legal license to operate and stimulated central, provincial and local government support to fishery and aquaculture development.
- The mutual insurance programme is underlined by the concept of mutual help and support. In China, the CFMI and provincial associations are in close cooperation. The arrangement enabled the build-up of membership, premium income and a better capability to provide compensation.
- The vital role of the national association for mutual insurance can be illustrated as follows. First, the large number of fishers and fishing vessels enables the accumulation of a sizable amount of premium, which the association can allocate for compensating heavy economic loss in the long term. Second, individually and operating without the national infrastructure, local associations have a limited financial capacity to provide compensation.
- Awareness of insurance as a risk management measure and the capacity to purchase insurance are still poor. The premium subsidy played an important role in encouraging more fishers and farmers to join mutual associations and purchase insurance. In China, the subsidy support is from the central government as well as the provincial and local governments.
- Mutual insurance lacks the capacity for compensation for catastrophic events. CFMI has come up with ways to surmount this limitation. One is reinsurance for the commercial insurance company. Another is cede insurance, which is the sharing of insurance premium and responsibility with the company. CFMI also provides a disaster alert and forecasting system, rescue and safety facilities, and disaster prevention service.
- Weather index insurance covering certain species and systems have encouraging results, among which are reducing moral hazard and attracting a wider pool of farmers. It does require a reliable meteorological service.
- Lessons are: (i) diversified types of insurance programme need to be developed to cater for the regional differences in the aquaculture industry and diverse risks, (ii) policy and financial support are needed from government especially to start the programme, and (iii) ‘commercial + cooperative’ model is considered a good practice, which is equivalent to group insurance.

*Climate resilient tilapia farming in the Philippines: role and prospects of insurance* by Dr Gay D. Defiesta, Assistant Professor of the University of the Philippines in the Visayas, and FAO National Consultant. The presentation is based on the FAO-BFAR TCP (2015–2016) on ‘building capacities for climate resilient tilapia farming systems in the Philippines’. The summary of the presentation is Annex 10. The main points are as follows:

- The country is prone to disasters and calamities, with 20 typhoons annually on average, and vulnerable to the impacts of climate change.
- Fisheries and aquaculture insurance is mandated under Republic Act 8550 or Fisheries Code of 1998, which provides for the inclusion of fisheries and aquaculture in agriculture insurance.
- PCIC is the implementing agency of the government’s crop insurance programme; it is an attached agency of the Department of Agriculture and directed by a Board of Directors, three of whom are from the farmers’ group; present chair of the board is from the farmers’ group.
- Government provides free insurance coverage for agrarian reform beneficiaries.
- Government provides full premium subsidy to subsistence farmers and fisherfolk listed in the Registry System for Basic Sectors in Agriculture started in 2014.
- Under Republic Act 10654, which is an amendment of the Philippine Fisheries Code, PCIC is mandated to include fish pens, fish cages, seaweed farms and other culture systems.

- Some local government units have begun providing budget allocation for insurance.
- The ongoing FAO-BFAR TCP is exploring the possibility of weather index insurance for tilapia.
- In the Philippines, small-scale farms of 5 hectares and below are dominant but much of the output comes from the large-scale farms.
- Lack of awareness among farmers of the availability of aquaculture insurance; fish farmers are skeptical about insurance, even consider it a sunk cost, and would rather invest in technology.
- Complete, accurate and secure weather data and recording systems are important for weather index insurance.

*Viet Nam pilot programme on agriculture insurance: successes, failures and lessons*, a paper written by Dr Dang Kim Khoi and Mr Thai Van Tinh of the Center for Agricultural Policy, IPSARD is Annex 11. The paper was not presented but served as the source of information and comments by Dr Dang Kim Khoi during the workshop discussions. The Vietnamese government's view of the pilot programme on agricultural insurance in 2011–2013 was that agricultural insurance is a social policy. It aims to assist farmers to overcome and compensate financial losses from natural disasters and diseases. It contributes to ensuring the stability of rural social security and promoting agricultural production. The rice and livestock components of the national agriculture insurance pilot programme have been generally a success; the aquaculture component incurred high loss ratio. The lessons from the pilot programme and recommendations are as follows:

- Diversify the insurance packages to meet the needs of farmers and in accordance with the conditions of production and the agro-climatic conditions.
- State support is needed to open the market for insurance.
- The policy framework for agricultural insurance system is crucial.
- Close monitoring of the implementation and timely adjustments are needed.
- There is need to set up the appropriate management processes to monitor and optimize the public and private investment of insurance companies.
- Close monitoring of production practices, and timely loss assessment and compensation are needed.
- Appropriate reinsurance system is necessary to limit losses of the insurers.
- Premium subsidy should be reduced.
- It is essential to build a good database system for agricultural insurance.
- There is need to organize multidisciplinary teams to conduct policy research and design insurance products.

### **Session three: working group discussions and plenary**

The afternoon session consisted of a two-hour working group discussion followed by a plenary session. The working groups addressed the question: What policy, technical and other types of support would make insurance available and accessible to small aquaculture farmers? The plenary session in which each group reported its results followed by a discussion was chaired by Dr Penporn Janekarnkij. The working groups' recommendations are summarized below.

Policy support needed includes:

- Support from the government to start an insurance programme for small-scale aquaculture, as shown by the experiences of China, the Philippines and Viet Nam. There must be a clear national policy on aquaculture insurance.
- There is need for an aggregator such as the BAAC of Thailand, Land Bank and PCIC of the Philippines and CFMI of China to encourage wider and large-scale participation.
- Insurance programme must be a business rather than a political decision. The rice insurance of BAAC, which is bundled with credit, and the Land Bank-PCIP programme of the Philippines exemplify this desirable condition.
- The establishment of farmer organizations, cooperatives or clusters should be encouraged and supported. Being well-organized increases small farmers' readiness for participation in an insurance programme.
- The adoption of successful culture technologies to reduce risk should be promoted; insurance should be a condition for loan and linked with the adoption of better management practices.
- Insurance along the value chain should be explored and promoted.

- Commercial reinsurers and insurance companies should be involved at the outset, in policy development, programme development and pilot project planning.
- Subsidy premium for small-scale farmers should be contingent on the farmers' capacity to recover from a risk impact.

Technical support needed includes:

- risk management at farm level, area level, sector level and along the value chain;
- standardization of good practices and products;
- certification for good farm management and environmental sustainability;
- production innovation to increase or stabilize shrimp yields, i.e. good aquaculture practices;
- support for insurance product design;
- independent demand and supply assessment by a competent research and development institutions;
- design of insurance products to involve government, farmer groups and insurers;
- distribution channel, i.e. cooperatives, network of associations;
- loss assessment mechanism that avoids moral hazard and facilitates damage assessment and claims;
- competent laboratories and technical personnel;
- meteorological stations, internet access and monitoring facilities; and
- information campaign for farmers to sensitize community's leaders and encourage farmers' understanding and acceptance.

Other types of support include:

- insurance industry's cooperation with government in insurance programme design and implementation;
- government support for institutional infrastructure, services, information;
- database on the operation of farmer cooperatives, associations or clusters, and their production performance;
- mass and social media for information dissemination.

## **SECOND WORKSHOP**

The second workshop focused on the prospects for insurance development in the shrimp sector of Thailand. The participants were officers and members of shrimp farmers' cooperatives from five provinces of Thailand (Chantaburi, Nakhon Sri Thammarat, Prachuap Khiri Khan, Trang and Surat Thani) that were covered by the field study on demand for shrimp insurance. They were joined by the participants of the first workshop.

The highlight of this workshop is the expressed readiness of the Thai shrimp farmers to participate in an aquaculture insurance programme, that readiness being attained through the 'shrimp cluster' mechanism that has been developed under the guidance of the DOF and National Farmers Council. The cluster concept and procedures essentially make the farmers insurance worthy: the cluster closely links organized farmers with the other stakeholders of the industry, enabling them to access the services including credit and insurance, linking them to the market, and adhering to better management practices and certification standards. A pilot insurance programme was recommended.

### **Procedural matters**

Dr Nuchananta Mungkung, Dean of the Faculty of Economics, welcomed and thanked the participants and their organizations for their time and contribution to the workshop. She was grateful to the farmers for providing the information to the study that KU conducted on the demand for insurance and now for taking time out from their farm work to take part in the workshop. She thanked FAO for its collaborative assistance with the university and wished the workshop success.

Dr Varin Tanasomwang, Senior Expert (Fisheries Management), DOF, Thailand, was the guest speaker. She described the recent adversities faced by the shrimp aquaculture industry of Thailand putting emphasis on the

impacts of disease and climate variabilities. Risk management mechanisms that include insurance are urgently needed, she stressed. The speech was in Thai. Key points are summarized as follows:

- Thailand has been one of the leaders in aquaculture especially shrimp farming, accumulating a valuable body of knowledge and technology from more than 30 years of experience.
- Annual production of shrimp ranged from 250 000 to 500 000 tonnes. The export value was in the top rank among agricultural commodities of Thailand.
- Shrimp farming is affected by risks associated with the climatic variations. The repeated outbreaks of shrimp disease, the latest of which is the early mortality syndrome (EMS) or now known as acute hepatopancreatic necrosis disease (AHPND) that started in 2012 has resulted in a dramatic fall in Thailand's shrimp output. More than 2 000 farms have ceased their shrimp farming operations.
- Aquaculture insurance is new in Thailand.
- The development of an aquaculture insurance system could be one of the risk management options for small-scale farmers. This would benefit shrimp farming enterprises and other businesses along the value chain.

She looked forward to the recommendations and a synthesis of lessons from the workshop to guide the policy and programmes of the government. She thanked FAO for the current as well as the previous activity (in 2009) that initiated awareness and interest in aquaculture insurance in Thailand. She looked forward to further collaboration on any follow up activity recommended by the workshop. She expressed appreciation to the experts for bringing into the workshop their experiences, which DOF strongly believes will be useful to Thailand.

The agenda of the second workshop was explained by Dr Tipparat Pongthanapanich, Aquaculture Officer, Fisheries and Aquaculture Department, FAO Rome. A review of the key points from the first workshop was presented by Dr Penporn Janekarnkij mainly for the benefit of the farmer participants. This was followed by presentations and roundtable discussion. The presentations and discussions were in Thai or English with simultaneous translation.

### **Session one: presentations**

The chair of the session was Dr Penporn Janekarnkij. The three presentations are in Thai. The key points are summarized as follows:

*Overview of Thai shrimp industry and policy, and development of insurance system* by Mr Pongpat Boonchuwong, former Senior Expert (Fisheries Economics) of Thai DOF and currently adviser of Thai DOF and NACA.

- At the beginning of marine shrimp culture in Thailand, the main culture species was black tiger shrimp. The yellow head virus (YHV) and white spot syndrome virus (WSSV) outbreaks caused heavy losses and a dramatic decrease in black tiger shrimp production. The whiteleg shrimp, since 2003, has essentially replaced the black tiger shrimp as the major cultured species.
- Currently, there are 305 shrimp hatcheries of which 295 have good aquaculture practice (GAP) certification and 10 with code of conduct (CoC) certification. As well, 145 primary processing plants have sanitary certification from DOF. The issues of using migrant and child labour, and the outbreak of EMS that started since 2012, combined to push down shrimp production. Before the outbreak, there were 316 frozen shrimp processing factories. Today only 40–50 are operating.
- Thailand was the world's top producer of farmed shrimp during 2009–2012, but in 2013 China took over, then India and, in 2014, Viet Nam.
- The European Union ceased the generalized system of preference or GSP privilege to Thai shrimp export in 1999. The United State of America accused Thai shrimp export of anti-dumping and causing its 'hamburger crisis' in 2003 and 2007, respectively. From 2010 to the present (2016), the Thai shrimp industry has witnessed various trade crises such as the Eurozone incidence, labour violation issues, and the tsunami in Japan.
- The Thai government issued the Royal Ordinance on Fisheries (2015) because the old Fisheries Act (1947) had no provision to deal with the issues of illegal, unreported and unregulated or IUU fishing. The



government through a cabinet resolution the constituted the National Fisheries Committee which is now included under the Royal Ordinance on Fisheries (2015). The committee can nominate sub-committees for inland, coastal, offshore and high sea fisheries, and aquaculture.

- The first national strategy on shrimp aquaculture covered the period 2006–2009. Currently, the fourth (2016–2020) is being finalized. Its emphasis is on shrimp quality improvement, sustainable shrimp aquaculture management, value addition of shrimp products, and relocation of shrimp production sites. In addition, the government has promoted the amalgamation of small-scale farms into larger scale production units by encouraging the formation of farmers' groups or clusters.
- The government has relief measures in case of crop failures caused by natural disasters. Compensation is categorized into three groups: (i) THB 10 920 per rai with a maximum of 5 rai per household for marine shrimp, freshwater prawn, mud crab and shellfish culture<sup>3</sup>, (ii) THB 4 225 per rai with a maximum of 5 rai per household for finfish and other species in earthen pond, paddy field and ditch, and (iii) THB 315 per square meter with a maximum of 80 square meters for aquaculture in cage and tank.
- In response to the EMS outbreak, the government provides assistance as follows: (i) importation of whiteleg shrimp broodstock in order to produce quality shrimp seeds, (ii) improving efficiency of the screening services for nurseries and farms, and (iii) increasing production by using micro-organism concentrates or probiotics to rehabilitate the productive capacity of shrimp ponds.
- Disease risk management includes disease surveillance carried out by DOF officers in the provinces who collect shrimp samples for laboratory analysis and farmers themselves bringing the samples for inspection or diagnosis, and inspection for pathogens, parasites and contaminants of exported and imported products.
- In 2008, the government developed a policy on risk management and insurance system for agricultural commodities. In 2009, the FAO-DOF organized a workshop on options for a potential insurance scheme for aquaculture in Thailand. In 2010, the National Fisheries Committee came up with a policy to support the development of aquaculture insurance system. A shrimp insurance policy was developed, patented with the Department of Intellectual Property, and submitted to OIC. However, the process was not continued. Recently, the National Farmers Council has developed the concept of a 'shrimp cluster' and has initiated work to put it into practice. Shrimp insurance is part of the cluster development mechanism. The proposal has been submitted to the government.
- Final remarks are: (i) supporting policy and continuing process for the development of shrimp insurance system are needed, (ii) farmers organizations are ready and willing to participate in the shrimp insurance programme, (iii) close and continuing consultation among the government offices and private sector is necessary, (iv) inspection mechanism and databases of GAP, CoC, and traceability systems in line with national and international standards are well established for shrimp industry which will contribute to minimizing risks, and (v) there should be a pilot study programme of shrimp insurance, involving a few shrimp farmers' cooperatives; it could subsequently be scaled out.

*Shrimp cluster establishment and mobilization in Thailand* by Mr Pinyo Kiatpinyo, Chairman of the Advisory Board (Fisheries) of Thailand's National Farmers Council.

- The National Farmers Council in collaboration with the Thai Chamber of Commerce has been developing the 'shrimp cluster' concept and formed the first cluster. The concept of the cluster is that the buyers from overseas would create a trade dialogue with exporters and processing factories. The buyers' requirements for production standard and product quality will be delivered to farmers through the exporters. The buyers may inspect intensively the processing factories and farms. In addition, the participating producers in the cluster must be able to comply with other requirements such as the Agricultural Commodities and Food Standard (ACFS) 7401 along with the best aquaculture practice standard or the standard of the Aquaculture Certification Council.
- For the initial phase, the members (40 small-scale farms with around 2 000 tonnes of annual production who apply 'biomimicry' technology) of the Sam Roi Yod Shrimp Farmers' Cooperative in Prachuap Khiri Khan were selected.
- The 'shrimp cluster' committee includes BAAC, DOF, National Farmers Council, Office of Agricultural Economics, OIC and representatives of the hatchery, feed, processing and export industries.
- The cluster would facilitate farmer members in accessing financial support. In the past, shrimp farmers' cooperatives obtained loans from BAAC by using the guarantee from the cooperatives' committees, i.e. no

<sup>3</sup> THB 35 = USD 1; 6.25 rai = 1 hectare

asset collateral required. However, the burden was borne by the cooperatives in case of loan defaults caused by crop failure. In the cluster concept, it is proposed that insurance is bundled with credit to minimize or avoid such problem. The strategy and operational process of the shrimp cluster coincide with the requirements of the insurance and broker companies.

*Main findings from field study of the demand for aquaculture insurance among shrimp farmers in Thailand* by Dr Santi Sanglertsawai, Lecturer, Faculty of Economics of KU.

- The field study is part of the Letter of Agreement between FAO and CAER. The survey was conducted in the main shrimp farming provinces, namely Chanthaburi, Prachuap Khiri Khan, Surat Thani, Nakhon Si Thammarat, Trang and Songkhla. The sample size is 309 farmers. The respondents are members and non-members of shrimp farmers' cooperatives.
- The main contents of the survey results presented were as follows: general information of the farm structure and systems, farm management and practices, certifications obtained, risks and losses especially from disease outbreaks, management strategies, and demand for insurance.
- The survey found that the most frequent diseases encountered were white feces syndrome (WFS), EMS and WSSV. EMS caused the highest income losses to farmers, followed by WSSV, while flood and drought were the main natural perils that affected farmers' income. However, more than 80 percent of the respondents expected that their production will be higher next year.
- The main sources of loans for shrimp farming were BAAC and cooperatives. A few farmers received credits from commercial banks or feed dealers.
- The strategies used when some farmers experienced disease outbreaks were: a better pond preparation, use of micro-organism (probiotics), reducing the number of grow-out ponds and the stocking density, change from whiteleg shrimp to black tiger shrimp or tilapia.
- The study covers six aspects of the insurance scheme options as follows:
  - types of perils covered;
  - culturing days covered: day 11 to 50 or day 11 to 60;
  - loss insured rates varying by culturing days: from 20 to 60 percent of sum insured;
  - two cost-based compensation schemes: partial or total cash cost of production;
  - premium rates: 3, 4.5 or 5 percent of sum insured;
  - deductible rates: 10, 20 or 30 percent of sum insured.
- The farmers were asked to express their preferences among a number of insurance scheme options based on various combinations of the above set of options. EMS and WSSV are the perils that most of the respondents prefer to be covered. They did not consider direct climate-associated perils such as flood, storm and drought as major perils. Around half of the respondents preferred the product that covers the culturing day 10 to day 60 and applies sum insured calculated based on the total cash cost with 5 percent premium rate and 10 percent deductible rate. The majority preferred DOF to be the inspector for insurance claims and expressed interest in buying shrimp insurance in the next crop year (2017).

The participants' views and opinions on the findings of the study are summarized as follows:

- The issue of adverse selection (or anti-selection) and premium rates charged were raised. Historical data of the frequency of risk and risk-mitigation (or lack of it) behavior by farming areas and the farming practices should be collected. The information would help avoid the insurers' pitfall of adverse selection and assist in the setting of reasonable premium rates.
- At present Thai farmers can manage the EMS with the technology introduced under the shrimp cluster initiative. However, weather variations that consequently generate disease risk should be considered.
- The purpose of the waiting period, i.e. 10 days in the study, is to prevent anti-selection. A possible solution is that all members of a cooperative buy insurance. This eliminates the waiting period as an issue. This would also reduce moral hazard as the members are expected to police each other so that not no one abuses the payout limit. In any case, insurance companies do not have the resources or would find it very expensive to monitor on a daily basis. The company therefore has to provide insurance service based on an arrangement that does not give rise to anti-selection and moral hazard.
- Regarding the shrimp production cycle, an insurance policy cannot be renewed every 60 days as the cost to the insurer would be high. A continuing policy for 12 months was suggested and a starting date of any new crop has to be declared by policy holders.

## Session two: roundtable discussion

A roundtable discussion followed, moderated by Dr Penporn Janekarnkij. The discussion highlighted a proposed direction and plan of action to make shrimp insurance programme and mechanism available for and accessible to Thai farmer groups. The background information presented by Dr Isriya Bunyasiri, Faculty of Economics of KU was the main basis for the discussion. The important issues discussed and the key recommendations to address the issues are summarized as follows.

Identification of risks and farmers' needs to have insurance coverage:

- It was suggested that the period of coverage should start from the first day until 60 days. The cost is high even during the preparation of a new crop. The cost items include labor for pond preparation, chemicals for water treatment, energy and seed. And the risk is high during the first 30 days of shrimp farming, mainly associated with the quality of seed. Insurance coverage from the first day of stocking would greatly benefit small-scale farmers because they have limited fund to start a new crop in case the current crop is lost. In addition, the insurance policy should be on a yearly rather than a crop basis so that the incurred risks can be distributed.
- Participants raised the need for an all-risk coverage. During the survey, farmers reported four main diseases (i.e. EMS, WSSV, YHV and WFS). However, the meeting raised the concern that there could be some other diseases as yet unidentified that could cause big losses in the future. They are also aware of the effect of non-biological risks such as sudden freshwater runoff, power cutoff, and farm workers' failure. The risks are higher at the initial stages of shrimp farming than in later stages. The loss insured rates should follow this risk pattern, i.e. higher for the first 30 days and lower thereafter.
- Shrimp insurance products should offer various options to farmers. The farmers will choose the insurance products that suits best their ability to manage risks throughout the crop. They must discuss and clarify their needs with the insurance company to come up with an agreement on the insurance policy.
- Shrimp clusters would support the development of shrimp insurance programme. The members can mutually agree on a better inspection system to fulfill the requirements of the insurance companies. Should an insurance pilot be initiated, it was suggested to utilize the shrimp cluster mechanism.

Necessary technical conditions for the development of shrimp insurance:

- Obtaining farm standard is a prerequisite. There are several certification schemes being implemented such as GAP of Thai DOF, GAP of the National Bureau for Agricultural Commodity and Food Standards (GAP-ACFS), and CoC. The insurance companies expressed more confidence to offer their products to the certified farms.
- From the insurer's perspective, the insurance agreement is set when the risk is certain and the person does her best to manage the risk. If the risk persists, then the insurance company plays its roles in risk sharing. In this case, good farm practices such as those prescribed under the CoC, GAP and many other best practice standards must be adopted as a precondition. Farmers must do their best in managing their shrimp farm for the insurance company to assist in risk bearing.
- Being organized is seen as an important requisite as well as leverage for obtaining insurance. The information on compliance by members of a farmers' group, cluster or association with good farm practices and traceability system should be formulated in the way that the insurance companies can access it online. The farmers' organization can provide the link between the farmers and the insurance company.
- Shrimp disease laboratories in Thailand are available countrywide at both provincial and central levels. These laboratories enable the rapid inspection and assessment of damages caused by shrimp diseases. The insurance companies can rely on these laboratories.
- Should a pilot programme be implemented in Thailand, it has to be carried out in a small area that has a good monitoring system and laboratory servicing the farmers in the area. Viet Nam raised the key problem of lack of good laboratory in the implementation areas, which induced moral hazard and gave rise to disagreements during the claim settlement.
- The insurance companies expressed the need for a neutral, technically competent and reliable agent to conduct shrimp risk survey, damage inspection and loss assessment. The insurance companies in Thailand do not have experts for these tasks. The experts may be recruited from other countries.

- There should be a shrimp insurance pilot in different farming areas. The diversification of farm practices, specific risk prone areas and farming innovation are significant factors to be observed in the design of insurance programme and products. The first pilot project should be implemented in farms with good management practices and diversified locations and areas. However, the initial insurance products designed for the pilot project should be simple, easy to understand by farmers and cover their essential needs. This should be done along with awareness raising and insurance training for farmers.
- The insurance companies have limited knowledge about shrimp farming. It is advised that the insurance companies join with the proposed pilot projects for a comprehensive understanding of the shrimp farming practices and the difficulties faced by and needs of farmers.
- Insurance pricing is calculated based on the probable maximum loss; the calculation requires reliable historical data of losses, severity of perils, and frequencies of the perils. If there is an innovation that helps reducing the loss and its severity, the premium can be reduced.
- There are many insurance products in the world. But few insurance companies venture into shrimp insurance because of the perceived high-risk nature of shrimp aquaculture. In addition, it involves high administration costs such as for inspection and assessment of damages. Shrimp insurance could be made possible if all stakeholders in the shrimp cluster are actively involved and dedicated, especially for their joint monitoring.

#### Institutional structure and arrangements:

- Damages in a pond of shrimp are usually not visible for easy inspection and assessment, unlike those in crop or livestock. This would thus entail high cost to insurers, which could make them raise the insurance premium and deductible.
- The government may subsidize insurance premium (as in the case of Viet Nam) or encourage the development of mutual insurance or insurance pool. The FAO-Thai DOF workshop in 2009 recommended mutual insurance for aquaculture but a legal framework to support mutual does not exist in Thailand. In this regard, the legal framework on aquaculture insurance that has a provision for mutuals has to be developed. The establishment of an 'aqua-insurance foundation' was also suggested.
- OIC of Thailand used to encourage insurance companies to provide aquaculture insurance service. There were a few that issued named perils products. If there is a request for re-issuing the products, the OIC and TGIA should first discuss the conditions and involve fronting companies, reinsurance companies and other concerned parties in the discussion. The appropriate government regulations and enabling mechanisms can follow.
- Aquaculture insurance should be established as part of national policy and be supported by a government commitment to develop a sustainable shrimp sector. The responsible institution must guarantee that the whole insurance system is transparent and verifiable.
- Further technical support from FAO was requested. Through the FAO TCP, the project proposal may be submitted.
- The Philippines' experience, specifically the cooperation between the PCIC and Land Bank of the Philippines exemplifies the close link between an aquaculture insurance provider and a credit institution. BAAC may provide credit to shrimp farmers on condition that the farmers buy an shrimp insurance policy. This can help reduce the incidence of loan default from crop failure.
- Overseas reinsurance and insurance companies should be encouraged to cater for the shrimp sector; shrimp is a strategic export commodity of Thailand and several other countries in Asia and could open some opportunities for creating new insurance markets.

## CONCLUSIONS AND RECOMMENDATIONS

Understanding and addressing the issues that affect the viability and sustainability of aquaculture insurance for small farmers remain a major challenge that should be met resolutely. In line with this proposition, the workshop agreed that:

- The increasing seriousness of biological, natural and economic risks to aquaculture underline the urgency of insurance for aquaculture. It is important for the entire sector but even more urgent for small farmers whose capacity to cope with risks needs considerable strengthening.
- Insurance can lighten for governments and donor agencies the heavy financial burden of disaster relief, rehabilitation and recovery.
- The lack of well-designed insurance products that suit the needs and circumstances of the small and poor farmers remain a barrier but there are cases in China that provide good examples.
- Farmers usually see the process of loss adjustment, claim processing and compensation disbursement as complex, difficult to comprehend and not in their favour.
- Weather index insurance can mitigate moral hazard and reduce transaction costs but the adequate technical support and reliable historical climate data are still lacking in many developing countries.
- Disease is a very important insurable peril to farmers but the technical support and personnel capacity for identification and loss assessment are crucial and need strengthening in the region.
- The Chinese models of mutual and commercial-cooperative insurance provide good lessons for providing insurance, cost effectively, to a wide pool of farmer clients. The same models show that appropriate incentives – provided to a mutual or a cooperative – encourage members' adoption of practices that reduce production risks as well as the farm's environmental impacts.
- An enabling policy framework for the insurance industry, as China's, encourages the expansion of a national insurance industry which then improves and lowers the cost of insurance.
- Co-financing from government particularly for premium subsidy is needed to start up aquaculture insurance for small farmers. A subsidy scheme should be appropriate and well targeted to prevent perverse incentive.
- Reinsurance as a mechanism for risk spread and transfer is well recognized but reinsurers need to be assured that aquaculture is a viable business opportunity. It is desirable to involve reinsurers in the design of insurance products.
- A study of the demand for insurance from a specific market provides useful information for insurers, reinsurers, technical agencies and representatives of the target client to design an insurance programme. An earlier study on oil palm and the current study on shrimp insurance demand by KU support this contention.
- It is ideal to insure a wide range of perils under a single policy but practical to insure only one or two perils.
- As a principle, insurance is not a silver bullet.

On the shrimp industry of Thailand, the workshop agreed that:

- The shrimp farming industry in Thailand has gone through many cycles of success and failure. It is beset periodically by disease outbreaks and natural calamities. The Royal Thai Government, R&D institutions, and shrimp farmers and their organizations have worked together in various projects to develop shrimp culture innovations to combat various old and new diseases.
- There exist extensive laboratory and database systems, and inspection mechanisms for shrimp farming to support the good aquaculture practices and shrimp product traceability and certification.
- Shrimp farmers organizations are ready for the shrimp insurance programme; the shrimp farmers' cooperatives and the shrimp cluster initiative have prepared farmers for participation in an insurance programme.
- The insurance and reinsurance companies need to be more familiar with shrimp farming practices and associated risks, disease damages and severity, and potential factors that give rise to adverse selection and moral hazard. Implementation details must be developed in a collaborative way among the relevant parties.
- The stakeholders of the Thai shrimp aquaculture industry agreed to initiate a pilot insurance project in different locations with shrimp farmers practicing diversified management practices under different settings, such as farms with the GAP and CoC certification schemes.
- The shrimp insurance programme may include all risks, be at least a one-year coverage and linked with credit institutions such as the BAAC.
- Reinsurance will be required from both domestic and overseas sources.

- Weather index insurance should be developed with real-time information provision capability.
- A collaboration among representatives in the 'shrimp cluster' will formulate the shrimp insurance pilot project and develop an enabling policy framework.
- DOF was suggested as a neutral technical agency for the inspection and assessment of damages and loss in cooperation with the farmer groups and insurers.

There was unanimous agreement on the need to bring this renewed and concrete interest forward to a successful initiation and implementation. In this regard, the Asia-Pacific Regional Aquaculture Officer of FAO suggested to the Thai shrimp aquaculture industry stakeholders to submit a specific request and a concept proposal to FAO for consideration. A collaboration among key agencies in the 'shrimp cluster' initiative shall draft the request and a concept proposal.

## **CLOSING OF THE WORKSHOP**

Dr Susana Siar reiterated FAO's appreciation to all the participants and their organizations. She made a brief synthesis of the outcomes of the workshop and concluded that the workshop succeeded in achieving its objectives. She looked forward to the initiation and successful implementation of the recommended follow up actions and assured the organizations and farmers' associations of FAO's collaboration. She declared the activity officially closed and wished everyone a safe journey home.

## **First workshop programme**

**Regional Workshop on  
Development of Aquaculture Insurance System for Small-Scale Farmers**  
*with the technical support of Kasetsart University*  
20–21 September 2016  
Faculty of Economics, Kasetsart University, Bangkok, Thailand

**Day 1: Policy and Technical Support Needed for the Development of  
Aquaculture Insurance System for Small-scale Farmers**

### **Background**

Aquaculture insurance has been developed in many countries but mostly in large-scale farms with high capital investment, sophisticated management and risk management capabilities, and paying high premiums to cover the risks. In these markets, premium rates typically range between 3 percent and 10 percent of the sum insured. Coinsurance range between 15 percent and 30 percent of the loss, depending on the species, locations and the conditions in which the stocks are kept.

In most parts of Asia underwriters are reluctant to grant aquaculture insurance cover to small-scale producers. The stringent standards demanded by aquaculture insurance markets, the high costs of meeting them and high underwriting costs work directly against small, individual, household based aquaculture farmers obtaining insurance. They are too small scale to generate significant premium and are viewed as likely to produce high levels of losses that are expensive to adjust and pay.

FAO has been involved in the promotion of agricultural insurance in Asia and the Pacific region, dating as far back as 1986. Involvement in aquaculture insurance however started only in 2006 when FAO conducted 'A review of the state of world aquaculture insurance'. In 2007, a workshop on the promotion of aquaculture insurance in the Asian region was organized in Bali, Indonesia by FAO in collaboration with the Indonesian Directorate General for Aquaculture, the Network of Aquaculture Centres in Asia-Pacific (NACA), and the Asia-Pacific Rural and Agricultural Credit Association (APRACA). The workshop put forward guidelines for actions aiming at addressing insurance and other risk management needs in developing aquaculture in Asia. The workshop recognized the need for FAO, intergovernmental organizations, relevant international or regional agencies and development banks to continue to support, participate and invest in the development of insurance for small-scale aquaculture in Asia. In 2009, FAO and the Department of Fisheries (DOF) of Thailand jointly supported a workshop in Bangkok on the 'options for a potential insurance scheme for aquaculture in Thailand' where mutual or cooperative insurance was introduced.

In 2015, two case studies on aquaculture insurance pilot programmes in China and Viet Nam were commissioned by FAO. The knowledge and experiences in the past strongly suggest that government support to the development of insurance programmes is needed. It should focus on developing conditions that favour the emergence of an insurance market that addresses the needs of small-scale farmers. In particular, the support should concentrate on developing appropriate policy and regulation.

### About the Workshop

The workshop will be followed by another one-day meeting. This first workshop has a multi-country participation and will aim at answering the question: What would make insurance available for and accessible to small-scale farmers? The second meeting is more focused on exploring potential shrimp insurance schemes. It aims to facilitate the policy discussion among the key stakeholders in Thailand on the development of a shrimp insurance programme. The agenda for the second meeting is provided separately.

**Objectives:** This workshop will highlight policy and technical issues in support of the development of aquaculture insurance programmes. The key question for the discussion will be: What would make aquaculture insurance available for and accessible to small-scale aquaculture farmers?

**Expected outputs:** Knowledge, experiences and lessons from some Asian countries about aquaculture insurance are shared; and policy and technical support needed for the development of aquaculture insurance are identified and discussed. Its results will form part of the workshop report. The output of this first workshop and the second one will then be the inputs to a synthesis report describing the policy and technical support needed, and outlining the process, to develop an insurance programme for shrimp aquaculture in Thailand. The synthesis includes lessons and experiences as well as recommendations relevant to other developing countries.

**Participation:** Participants to the workshop include resource persons from China, the Philippines, Thailand and Viet Nam, insurance business players, government officers and representatives of Thai farmer groups. Around 30-35 participants are expected.

**Language:** The workshop will be conducted in English.

**Contact:**

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### Workshop Programme

Tuesday 20 September 2016

08.30	Registration
09.00–09.10	Welcome address Dr Kampanat Pensupar, Vice President for Academic Service, KU
09.10–09.20	Opening address Dr Susanna Siar, Fishery Industry Officer, Fisheries and Aquaculture Department, FAO Rome
09.20–09.30	Workshop objectives and programme Dr Penporn Janekarnkij, Faculty staff, Department of Agricultural and Resource Economics, Faculty of Economics, KU



09.30–10.30	<p>Overview of national policies and programmes on aquaculture insurance: opportunities and challenges</p> <p>Chair: Dr Ruangrai Tokrisna, Former Head, Department of Agricultural and Resource Economics, Faculty of Economics, KU</p> <ul style="list-style-type: none"> <li>Presented by Dr Tran Dinh Luan, Deputy Director, Soc Trang Provincial Department for Agriculture and Rural Development, Ministry of Agriculture and Rural Development, Viet Nam (15 mins)</li> <li>Presented by Mr Zhang Weiguang, Deputy Chief, Division of aquaculture insurance, China Fishery Mutual Insurance Association (CFMI), China (15 mins)</li> <li>Presented by Ms Rodelia A. Pagaddu, Department Manager, Business Development and Marketing Department, Philippine Crop Insurance Corporation (PCIC), the Philippines (15 mins)</li> <li>Q&amp;A</li> </ul>
10.30–11.00	Group photo and coffee break
11.00–12.15	<p>Case countries: National experiences and lessons</p> <p>Chair: Dr Yu Deng, Senior Underwriter, Swiss Re, Singapore</p> <ul style="list-style-type: none"> <li>Experience from aquaculture insurance pilot programme in Viet Nam (20 mins) Dr Kim Anh Nguyen, Faculty staff, Nha Trang University, Viet Nam</li> <li>Experience from aquaculture insurance pilot programmes in China (20 mins) Dr Ming Junchao, Freshwater Fisheries Research Center, Wuxi, Jiansu, China</li> <li>Climate resilient tilapia farming in the Philippines: Role and prospects of insurance (20 mins) Dr Gay D. Defiesta, Faculty staff, University of the Philippines, Visayas, and National Consultant, FAO-BFAR project ‘building capacities for climate resilient tilapia farming systems in the Philippines’</li> <li>Q&amp;A</li> </ul>
12.15–13.30	Lunch break
13.30–15.30	<p>Group discussion on: What would make aquaculture insurance available for and accessible to small-scale farmers?</p> <ul style="list-style-type: none"> <li>policy support and mechanism needed for the establishment of insurance system</li> <li>technical support needed: what, how and from whom?</li> <li>other support needed: what, how and from whom?</li> </ul> <p>Facilitators: KU research team</p> <p>Expected output: Checklists of policy, technical and other support needed.</p>
15.30–16.30	<p>Presentation and feedback</p> <p>Chair: Dr Penporn Janekarnkij, KU</p> <p>Expected output: An agreed list of policy and support needed for developing aquaculture insurance system for small-scale farmers</p>

## Second workshop programme

### Regional Workshop on Development of Aquaculture Insurance System for Small-Scale Farmers *with the technical support of Kasetsart University*

20–21 September 2016

Faculty of Economics, Kasetsart University, Bangkok, Thailand

## Day 2: Development of Shrimp Insurance System for Thai Farmer Groups

### About the Workshop

This workshop is the second of a two-day meeting. The first meeting, on 20 September 2016, has a multi-country participation and aims at answering the question: What would make insurance available for and accessible to small-scale farmers? This second meeting will summarize the results of the first workshop and then will explore the potential development of shrimp insurance system for Thai farmer groups. The discussion will be based on a study being conducted by KU commissioned by FAO. This aims to facilitate discussion among the key stakeholders on the development of a shrimp insurance programme.

**Objectives:** This workshop will explore the potential development of shrimp insurance system for Thai farmer groups. The field survey results aiming to assess the farmers' demand for insurance and develop insurance schemes will be presented. Further, it will identify stakeholders' roles on policy and technical support for the development of the insurance system.

**Expected outputs:** The result would be recommendations that will be used for the development of insurance system. Its result will form part of the workshop report. The output of this workshop and the first meeting will then be the inputs to a synthesis report.

**Participation:** Participants to the workshop include resource persons from China, the Philippines, Thailand and Viet Nam, insurance business players, government officers, representatives of Thai farmer groups, resource persons involved in Thai shrimp industry and academia. Around 50–60 participants are expected.

**Language:** The workshop will be conducted in Thai. Translation to English will be provided.

### Contact:

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- Dr Penporn Janekarnkij, Faculty of Economics, Kasetsart University (KU), Bangkok, Thailand, E-mail: [penporn.j@ku.ac.th](mailto:penporn.j@ku.ac.th), Tel: +6629428649 to 51

**Workshop Programme**  
Wednesday 21 September 2016

08.30	Registration
09.00–09.10	Welcome address Dr Nuchanata Mungkung, Dean, Faculty of Economics, KU
09.10–09.20	Opening address Dr Varin Tanasomwang, Senoir Expert in Fisheries Management, Department of Fisheries, Thailand
09.20–09.30	Workshop objectives Dr Tipparat Pongthanapanich, Aquaculture Officer, Fisheries and Aquaculture Department, FAO Rome, Italy
09.30–09.40	Summary of the key points from Day 1 (20 September 2016) Dr Penporn Janekarnkij, Faculty staff, Faculty of Economics, KU
09.40–10.00	Overview of Thai shrimp industry and policy Mr Pongpat Boonchuwong, Adviser (Fisheies Economics), Department of Fisheries, Thailand <ul style="list-style-type: none"> <li>• Production and market status and trend</li> <li>• National policy, strategies and plan for the sector</li> <li>• Policy and direction on risk management and issues related to insurance</li> </ul>
10.00–10.20	Shrimp Cluster Establishment and Mobilization Mr Pinyo Kiatpinyo, Chair of the Advisory Board (Fisheries) of the National Farmers Council of Thailand
10.20–10.40	Group photo and coffee break
10.40–12.00	Aqauculture insurance: background and findings from field survey KU research team <ul style="list-style-type: none"> <li>• A survey of risk, and loss of Thai shrimp farmers</li> <li>• Demand assessment and proposed scheme of Thai shrimp insurance</li> <li>• Q&amp;A</li> </ul>
12.00–13.00	Lunch
13.00–15.00	Roundtable discussion on ‘proposed direction and plan for actions to make shrimp insurance programme and mechanism available for and accessible to Thai farmer groups’ <ul style="list-style-type: none"> <li>• Recommendations on how to develop a shrimp insurance system and programme</li> <li>• Identify actors and their key roles</li> <li>• Possible actions and next steps</li> </ul> Facilitator: KU research team
15.00–16.00	Conclusions Chair: Dr Penporn Janekarnkij, Faculty staff, Faculty of Economics, KU
16.00–16.30	Closing remark by Dr Susanna Siar, FAO Rome

## List of participants

Name	Organization	Phone	E-mail	20 Sep	21 Sep
<b>AGRICULTURE/AQUACULTURE AGENCIES</b>					
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## Opening address

### Regional Workshop on Development of Aquaculture Insurance System for Small-scale Farmers

Tuesday 20 September 2016  
Kasetsart University, Bangkok, Thailand

Distinguished participants, colleagues, ladies and gentlemen, good morning!

We are very pleased to collaborate with the Faculty of Economics of Kasetsart University in this Regional workshop on development of aquaculture insurance system for small-scale farmers which promises to be an exciting two days of presentations, discussion, exchange of experiences, and networking.

One of the roles of the Food and Agriculture Organization of the United Nations or FAO is to bring together different stakeholders in a platform like this, to discuss and find resolutions to pertinent issues. For our meeting, the big question is how we can make aquaculture insurance accessible to small-scale farmers.

The State of World Fisheries and Aquaculture or SOFIA 2016<sup>4</sup> published by FAO reports that fish<sup>5</sup> harvested from aquaculture in 2014 amounted to 73.8 million tonnes, 47.1 million tonnes of this from inland aquaculture and 26.7 million tonnes from marine and coastal aquaculture. Asia contributed 89 percent to the total aquaculture production for human consumption. The countries, from which some of you come from – China, the Philippines, Thailand, and Viet Nam – are among the top 25 aquaculture producers in the world.

SOFIA 2016 also reports that there were 18.7 million fish farmers in 2014, 96 percent of whom are in Asia. In this regard, it is very appropriate that we are holding this workshop in the region that has the biggest contribution to aquaculture in terms of production and number of fish farmers, but also beset with numerous risks.

While aquaculture provides livelihoods for millions of people in Asia and food and nutrition for millions more around the world, such ability to provide food and livelihoods in a sustainable manner is threatened by pollution, diseases, conflict with other sectors, and extreme events such as typhoons, flooding, and drought, among others.

Governments, the private sector, fish farmers and their organizations, academe, and civil society organizations each have a role to play in ensuring the sustainability of livelihoods dependent on aquaculture. Among the actions that could be taken include timely weather information, improving extension services, appropriate site selection, zoning, and the promotion of good farm practices such as adherence to preventive veterinary procedures, attention to stocking densities, appropriate design, construction and maintenance of structures and equipment, and regular monitoring of fish health. Organizing fish farmers and strengthening their organizations are also needed for them to have a better access to goods, services and markets, and participate more effectively in policy dialogues.

We have seen how extreme events such as flooding or disease outbreaks can wipe out the investment and assets of fish farmers in an instant, pushing small-scale farmers who are particularly vulnerable to poverty and debt. Insurance and the accumulation of savings and other assets could reduce the impacts of such losses. However, if at all available, insurance is accessible mainly to large-scale farms owing to, among others, the high-risk profile of the sector and the cost of providing the service to small-scale fish farmers.

<sup>4</sup> FAO. 2016. *The State of World Fisheries and Aquaculture 2016*. Contributing to food security and nutrition for all. Rome. Available at [www.fao.org/3/a-i5555e.pdf](http://www.fao.org/3/a-i5555e.pdf)

<sup>5</sup> The term 'fish' includes finfish, crustaceans, molluscs, frogs, turtles and other edible aquatic animals (such as sea cucumbers, sea urchins, sea squirts and jellyfish).

Insurance is an important tool that fish farmers can use to become resilient – to gain the ability to bounce back from the impact of shocks. It should be used in combination with other tools such as savings accumulation and actions such as good on-farm management practices.

In September 2015, 193 member states of the United Nations adopted the Sustainable Development Goals or SDGs.<sup>6</sup> These are a set of 17 aspirational objectives with 169 targets expected to guide actions of governments, international agencies, civil society and other institutions over the next 15 years, from 2016 to 2030. Fisheries, aquaculture, crops, livestock, and forestry play a central role in ending poverty and hunger, in bringing about sustainable development, and in combating climate change.<sup>7</sup>

Goal 1.4 is particularly relevant to developing aquaculture insurance system for small-scale farmers, and states: “By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.” FAO’s strategic framework is broadly aligned with the SDGs, promoting an integrated approach to poverty and hunger eradication, and sustainable management of natural resources.

Seven years ago, the Department of Fisheries of Thailand and FAO co-organized the Workshop on the options for a potential insurance scheme for aquaculture in Thailand, where mutual insurance was introduced. However, at that time, the issue was raised regarding the absence of a legal framework under which a mutual can operate. Some of the participants of that workshop are also here with us today and we appreciate their continued interest and support.

In today’s workshop, we look forward to learning about the experiences from China, the Philippines, Thailand and Viet Nam, engaging in lively discussions, and reflecting on how we can move forward with developing aquaculture insurance that is cost effective, beneficial and accessible to small-scale farmers.

Thank you for your attention and for your contributions towards making this workshop a success.

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<sup>6</sup> Transforming our world: the 2030 Agenda for Sustainable Development. Available at [www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E)

<sup>7</sup> FAO. 2016. Food and Agriculture. Key to achieving the 2030 Agenda for Sustainable Development. Rome. Available at [www.fao.org/3/a-i5499e.pdf](http://www.fao.org/3/a-i5499e.pdf)

## **Overview of national policies and programmes on aquaculture insurance in Viet Nam: opportunities and challenges**

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### **Background**

Viet Nam has a coastline of 3 260 km and an exclusive economic zone (EEZ) of more than one million square kilometers. Aquaculture and fisheries are important sectors of the economy. Since the 1990s the government has been promoting shrimp and pangasius farming in the Mekong Delta. Currently, shrimp is the largest export product in value followed by pangasius. With intensification of shrimp and pangasius farming input costs have gone up and risk of crop failure has increased. For example, vast areas of shrimp farming were affected by acute hepatopancreatic necrosis disease (AHPND) or early mortality syndrome (EMS) in 2011 that caused huge losses. To support aquaculture farmers, who are increasingly beset by more risks, an aquaculture insurance scheme was pilot tested.

The first pilot insurance programme was carried out during 2011–2013, supported by the Prime Minister's Decision No. 315 (1 March 2011) on the 'pilot provision of agricultural insurance during 2011–2013' aimed at helping pangasius and shrimp farmers recover from financial losses caused by natural disasters and epidemics. It covered the main input costs, namely seed and feed; the condition was the insured farmer strictly followed the procedures stated in the insurance contract.

### **The pilot insurance programme for aquaculture**

The pilot insurance programme in aquaculture was implemented in 84 communes in five southern provinces. The species insured were pangasius (Tra and Basa fish), black tiger shrimp and whiteleg shrimp. The natural risks covered were typhoon, flood, drought, cold, frost, and tsunami. The diseases covered were: (i) liver and kidney bacterial diseases for pangasius, (ii) white spot syndrome, yellow head disease, infectious hypodermal and hematopoietic necrosis virus (IHHNV), and AHPND or EMS for black tiger shrimp, and (iii) for whiteleg shrimp, the same diseases covered for black tiger shrimp plus taura syndrome and infectious myonecrosis virus (IMNV).

The insurance scheme was indemnity-based, which compensates the input costs of feed and seed in case of crop loss. The compensation was based on different loss insured rates, and varied with the number of culture days.

Government officers, the insurance companies and the farmers involved stated that there was a significant scope for improving the existing insurance schemes that could significantly increase levels of satisfaction and profitability. A second phase of the aquaculture insurance programme is being discussed and new regulations will be issued that provide for the voluntary participation of farmers.

### **Results from the aquaculture insurance pilot programme**

Documents were developed and revised to support and implement the agriculture insurance pilot programme. These included the decision of PM, the circulars of the Ministry of Agriculture and Rural development (MARD) that prescribe technical guidelines for diseases and natural disasters, and the circulars of the Ministry of Finance (MOF) that provide regulatory guidelines for insurance companies. Other documents specify procedures for implementing the insurance programme.

Two insurance companies, Bao Viet and Bao Minh, participated in the pilot project. The Vietnam National Reinsurance Corporation (VINARE) under the guidance of MOF provided reinsurance services. In addition to

the criteria set by the Law on Insurance Business, a participating company must have branch offices in the project sites.

An insurance product for aquaculture based on cost of production was developed for shrimp and fish farming. The guidelines were developed by MARD.

Local steering committees and local supporting units have been established and operated to monitor the programme. The committees worked closely with insurance companies as well as MARD and MOF.

A total of 7 487 farmers participated in the pilot programme; some 27 percent were, by the government's poverty categorization, poor. Aquaculture insurance faced some difficult issues. The loss ratio was high, i.e. around 300 percent, which was mostly attributed to the shrimp disease epidemic. Claims during the pilot programme had been settled although there were delays in processing. A total of VND 675.9 billion (ca USD 32 million) was compensated to farmers. Based on the results, shrimp farmers were able to recover and resume shrimp farming after suffering from the impacts of the new disease outbreak (i.e EMS) and from natural disasters.

The collaboration of MARD, MOF and Provincial People's Committees (PPCs) enabled the smooth establishment and operation of the programme; all issues incurred were solved in time during the programme.

In general, the results and lessons from the pilot programme provided a basis for considering a second phase of insurance programme in aquaculture. The documents for expanding the programme were being finalized. Implementation of the new programme shall be decided by the PM.

### **Challenges and opportunities**

Although the scale of the pilot test was limited to 84 communes, the programme has created awareness of insurance as a risk-sharing mechanism and the realization that risk and therefore cost of insurance can be reduced by better farm practices. This has opened an opportunity for a sustainable farming and sector development. However, there were several challenges to the implementation of the programme. These are:

- Number of households that participated were mainly poor and marginally poor farmers, for whose insurance premium the Government paid 90–100 percent.
- The limited number of participants – which means a narrow pool of insured – partly contributed to the high loss ratio. For example, in Bac Lieu province, there were 1 465 households that participated contributing a premium of VND 56.8 billion. However, a total indemnity of VND 190.3 billion was paid out to the farmers. In addition, the insured areas were scattered and fragmented, which added to the difficulty and cost of monitoring the farms and detecting moral hazard.
- Technical guidelines during disease outbreak were not updated, hence, the number of risk-area increased. The guidance of MARD and MOF when the programme started was not relevant to the real production conditions in the provinces, so that, damage determination and compensation rates could not be corrected.
- There was lack of collaboration between the insurance companies and the different departments in the provinces (regarding aquaculture and animal health issues); technical support and disease confirmation did not fulfill damage assessment requirements. And the number of insurance staff and their level of experiences in aquaculture insurance were limited and thus could only provide limited advice to farmers.
- In some case, farmers failed to comply with instructions and the requirements of the contract. This caused considerable delay in assessment of damage and processing of compensation.

### **Recommendations**

The consensus among MARD, MOF and the farmers was that a scaling up of the programme was needed. However, farmer participation in the new programme should be on a voluntary basis. Part of the premium support for poor farmers should be retained. However, the farmers should contribute part of the premium. This would induce in the insured farmers a higher sense of responsibility particularly in following the technical guidelines and complying with the insurance contract conditions.

Other recommendations for further development of aquaculture insurance in Viet Nam are:

- Some restructuring of the aquaculture sector – develop cooperatives or farmer clusters for better self-monitoring and value chain connection between different partners.
- Application of good aquaculture practice (GAP) and certification standard, for example VietGAP and other certifications schemes.
- Improving collaboration between insurance company and local officers in terms of sharing and understanding each others' technical work, disease monitoring and damage assessment, processing of claims. If necessary, a third party assessor could be invited to examine the activities of the different partners in the programme.
- Strengthen the capabilities of the organizations related to their specific roles in the insurance programme, as follows:
  - MOF – monitoring all activities of insurance companies, clarifying the guidelines provided by the documents, procedures, premium subsidy and preparing of financial support from government;
  - MARD – improving technical guidelines for better application, disease and natural risk confirmation procedure, and monitoring farmers' compliance with regulations and application of prescribed practices;
  - PPCs – improving the effectiveness of the steering committee, approving the list of farmers entitled to premium subsidy, developing guidelines relevant to local conditions to meet the requirements of insurance participants;
  - insurers – in collaboration with the other partners, developing the guidelines and regulations related to insurance procedure, training of staff and improving technical service supply for farmers;
  - farmers – comply with the provisions of the insurance contract and application of recommended better management practices.



**Overview of national policies and programmes on aquaculture insurance in China:  
opportunities and challenges**

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In 2015, China's total output of aquatic products reached 66 million tonnes, ranking first in the world for the 27th year in a row. Aquaculture contributed 73 percent to the total domestic output of aquatic products. Its value was CNY 827 billion. With the decline of the fishery resources of the country, keeping priority to develop the aquaculture industry will continue to be a policy guiding China's fishery development.

Aquaculture farmers in China urgently need insurance to transfer or at least to share and mitigate risks. However, Chinese aquaculture insurance penetration is still limited. In 2015, while aquaculture production value was CNY 827 billion, aquaculture insurance premium income was only CNY 240 million. This implies a huge potential market for insurance in the aquaculture sector.

The development of China's aquaculture insurance has been a slow and difficult process. However, after 2013, benefiting from the fiscal subsidy policy, aquaculture insurance received a strong boost. That said, it faces many challenges. First, aquaculture is a high-risk industry and thus a match between the farmers' premium payment and ability as well as willingness to pay is difficult to balance. To solve the problem, on the one hand, the government needs to give policy and financial support. On the other hand, it is necessary to improve farm management to reduce risks.

Aquaculture industry is very professional and insurance design is complex; it is difficult to assess damages and adjust the losses. Coupled with scattered small family business, the moral hazard is also high. A solution would be to train teams of professionals who understand both aquaculture and insurance. Mutual insurance model and index insurance scheme should be widely promoted.

Aquaculture is obviously regional and risks can be concentrated, and quickly intensify, in particular areas. Solutions could be through insurance designed for specific areas (rather than a one-size-fits-all design) as well as reinsurance.

China has become the second largest agricultural insurance market in the world. Under 'China's agricultural insurance guidance to improve the insurance standards, and expand the scope of insurance', aquaculture insurance could become another growth point of agricultural insurance in the country. It is expected to bring more opportunities (and challenges) to the global insurance industry.

## **Overview of national policies and programmes on aquaculture insurance in the Philippines: opportunities and challenges**

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### **The scenario**

A recent report of the United Nations identified the Philippines as the third most at risk to climate change events. Another report on the Global Climate Risk Index 2015 released by the environmental organization, German Watch, lists the Philippines as the most vulnerable based on 2013 events of weather related disturbances like storms, floods and heat waves.

As an agricultural country, two-thirds of its population is directly or indirectly exposed to the impacts of climate change events. The country's agricultural sector is the most affected not only because its productivity and performance are dependent on the weather, but also because a significant portion of its population depends on it for food and livelihood.

The above scenario demands serious attention and resolute action. "It is in the agricultural sector that the battle for long-term economic development will be won or lost." in the words of Gunnar Myrdal, Nobel Laureate in Economics. Furthermore, if development were take place and become self-sustaining, it will have to start with the two of the most important sectors, agriculture and fisheries.

### **Policy legislation**

The government and its instrumentalities consider as imperative the adoption of risk reduction and risk management schemes to build resilience in the country's agri-fishery sector. The Philippines, 37 years ago – long before climate change was an issue – had already included in its development framework the institutionalization of a crop insurance system through the establishment of the Philippine Crop Insurance Corporation (PCIC). It was enacted by Presidential Decree No. 1467 on 11 June 1978.

PCIC as the country's sole crop insurance provider aims to help stabilize the income of farmers and promote the flow of credit in the countryside by providing insurance protection to qualified farmers, fishers and other agricultural stakeholders against loss of crops including damage to their farm machineries and equipment, transport facilities and related infrastructure arising from natural calamities, pests and diseases, and other perils beyond their effective control. PCIC provides innovative and client-responsive insurance packages and other services through organizations, including farmers' cooperatives, agricultural lenders and financial service providers.

For the aquaculture sector, Republic Act (RA) No. 8550 as amended by RA 10654 under Section 54, provides for the insurance coverage of fish ponds, fish cages and fish pens, seaweed farms and other aquaculture projects and assets such as ice plants, cold storage and other post-harvest facilities.

### **Enabling policy environment**

The Philippine Development Plan is one of the national strategies aimed at: (i) improving food security and increased rural income, (ii) increasing resilience to climate change risks, and (iii) enhancing policy environment and governance. It supports the strengthening of the agriculture and fisheries system through risk sharing mechanism such as improving risk-reducing mechanisms (i.e. guarantee and insurance) to encourage more banks and other lending conduits (i.e. cooperatives and NGOs) to lend to agriculture and fisheries, and introducing innovative risk-transfer mechanisms such as index insurance system.

In order to create a policy and regulatory environment that would accelerate the adoption of agricultural insurance, these laws and policies have been promulgated:

- Republic Act No. 9729 – mainstreaming climate change in government policy formulation such that policies and measures that address climate change concerns are integrated in planning and sectoral decision making.
- Republic Act No. 10121 – known as the ‘Disaster Risk Reduction and Management Act of 2010’, specifically identifies crop insurance as a disaster risk management strategy.
- Climate Change Act (2009) – the law mandates the Climate Change Commission to create an enabling environment for the design of relevant and appropriate risk-sharing and transfer instruments.
- DA-Policy and Implementation Program for Climate Change – provision of access to capital through innovative financing windows such as small grants, interest-free loans, soft loans and insurance-risk transfer mechanism.
- Republic Act No. 10717 – General Appropriations Act (2016), which provides fully subsidized insurance coverage for farmers and fishers.

### **Guidelines for the fully subsidized fishery/aquaculture insurance coverage (RSBSA)**

Insurance types include:

- fishery/aquaculture projects;
- fishery non-crop assets, e.g. ice plants, cold storage, etc.

Eligibilities to insurance coverage are as follows:

- Farmers and fishers are registered under the RSBSA.
- Farmers and fishers are not receiving any other subsidy for similar types of insurance programme from the government.
- Farmers and fishers listed in the RSBSA have insurable interest on the fish farm or object of coverage.

Limits of coverage per household are:

- inland fishpond – maximum of 500 square meters;
- mariculture parks/off shore (fish cage/fish pen) – maximum of 400 square meters;
- seaweed farm – maximum of 500 square meters;
- fishery – maximum of three fishing boats and three tonnes per boat.

### **Accomplishments**

From 2011 to 2015, for fisheries assets particularly fishing boats, PCIC covered 18 327 fishers with a total sum insured of PHP 238.4 million and a gross premium of PHP 9.9 million. Over the same period, 410 fishers were indemnified PHP 4.9 million for losses sustained.

In 2015, 883 aquaculture farmers engaged in crab, grouper, lobster, milkfish, seaweeds, shrimps, and tilapia culture were covered for a total sum insured of PHP 103.5 million and a total premium of PHP 4.6 million. The total indemnity paid for claims in the same year was PHP 0.3 million.

### Experience from aquaculture insurance pilot programme in Viet Nam

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The government of Viet Nam, recognizing the extreme burden on the finances and operational capabilities of central and regional governments imposed by frequent natural disasters and disease outbreaks launched a pilot agriculture insurance programme for rice, livestock, and aquaculture. It was coordinated by the Ministry of Finance and Ministry of Agriculture and Rural Development during the period 2011–2013, as mandated by Decision 315/QĐ-TTg of the Prime Minister dated 1 March 2011. Our report will concentrate on the aquaculture insurance for shrimp and pangasius.

The aquaculture pilot insurance was implemented in the southern provinces of Ben Tre, Bac Lieu, Ca Mau, Soc Trang and Tra Vinh. The natural risks covered were typhoon, flood, drought, frost damage, saltwater intrusion and tsunami. The diseases covered were liver and kidney bacterial diseases for pangasius (*Pangasius bocourti* and *P. hypophthalmus*) and white spot syndrome, yellow head disease, infectious hypodermal and hematopoietic necrosis virus and acute hepatopancreatic necrosis disease (AHPND) or early mortality syndrome (EMS) for black tiger shrimp (*Penaeus monodon*). For whiteleg shrimp (*Litopenaeus vannamei*), the coverage was for the same diseases of black tiger shrimp plus taura syndrome and infectious myonecrosis virus.

The government subsidized the insurance premiums by applying four levels of entitlement according to the level of participants' household income: 100 percent to poor households; 80 percent to near-poor households (later changed to 90 percent); 60 percent to non-poor households and 20 percent to organizations and cooperatives. From the total participants of 7 487 households in five provinces, 2 054 were poor (27 percent), 300 near-poor (4 percent), and 5 133 non-poor households (69 percent). Total insured area was 5 803 ha, of which 55 percent was in Soc Trang. The average insured area per household ranged from 0.35 to 1.05 ha.

The aquaculture insurance programme operated at a loss. Total sum insured value was VND 2 590 billion (USD 115 million). Gross premium was VND 218 billion (USD 10 million), the biggest portion of which came from Soc Trang (39 percent), followed by Bac Lieu (26 percent). The total claim was VND 670 billion (USD 30 million), which resulted in a loss ratio of 306 percent. In addition, the average claim payment per household was considerably high in aquaculture insurance, which turned out to be VND 89 million (USD 3 964). The high losses were attributed to increased disease risks simultaneously occurring on a large scale in all provinces during the pilot implementation. Shrimp mortality was mostly caused by AHPND. For pangasius, the major causes of loss were liver and kidney bacterial diseases.

The result showed that the aquaculture insurance was extremely risky and could have benefitted from better management. Moral hazard behavior occurred and participating farmers faced challenges during the implementation, which they expressed candidly. But they also said they were aware that a fish farm enterprise needs insurance coverage against risks over which they have little or no control. Should the programme go into a second phase, it may be carried out on a smaller pilot scale on a scientific-based format. This would enable the systematic collection and analysis of detailed data to guide revisions on the insurance programme.

### REFERENCE

**FAO.** 2016. *Aquaculture insurance in Viet Nam: experiences from the pilot programme*, by Kim Anh Thi Nguyen and Tipparat Pongthanapanich. FAO Fisheries and Aquaculture Circular No. 1133. Rome, Italy. Available at [www.fao.org/3/a-i6559e.pdf](http://www.fao.org/3/a-i6559e.pdf)

### Experience from aquaculture insurance pilot programmes in China

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Fishery and aquaculture insurance in China cover number of perils that are the impacts of risks originating from physical (flood, drought, storms, cyclones, abnormal temperatures), biological (diseases, pests, harmful algal blooms), chemical (oil spills, chemical leaks, contaminated run-offs), or geological (landslides, mudslides, tsunami) hazards.

China has had a long experience in providing insurance to fishery and aquaculture. Commercial insurance began in the 1980s. The role of fishery and aquaculture insurance broadened from coping with disasters to promoting good aquaculture practices when awareness was raised among governments and the industries of the opportunities and benefits offered by insurance as a financial tool for risk management: farmers can recover the business easier and faster after a disaster; it can be combined with better management and new technology; it lightens the burden on government finances for the costly disaster relief, recovery and rehabilitation efforts.

China's insurance system has various models, i.e. mutual, commercial, 'mutual + commercial' and 'cooperative + commercial'. It greatly improved the insurance organization and efficiency, but still has limitation in the coverage of fishers and fish farmers. Fishers and fish farmers used to consider insurance was needed only for loss of life, accident injury and catastrophe, not as a risk management measure.

China Fishery Mutual Insurance Association (CFMI), established in 1994, is the largest organization of mutual insurance programme provider in China. With support from the central and local governments, the insurance regulation was initiated and the policy insurance programme was successfully carried out.

To improve the insurance programme, the insurance schemes were diversified. Weather index insurance (i.e. for wind speed and temperature) for species such as seaweed, mitten crab, and bivalves has provided indications of technical and economic efficiency of administration, reduction of fraud, and proper and timely compensation. This scheme has shown its suitability for risks that are the direct impacts of climate variability. A 'cooperative + commercial' model provides incentive to the members of the cooperative to reduce losses from disease with better management practices. In China, the models 'mutual + commercial' and 'cooperative + commercial' have proved successful in finfish aquaculture insurance and shrimp aquaculture insurance. The commercial insurance companies, aside from having well-trained field operatives, rely on the expertise of fishery and aquaculture cooperatives for risk identification and assessment.

Innovative insurance programmes can promote good farm management practices, a risk mitigation approach. Public-private partnership models such as mutual insurance are likely to be feasible in effectively providing insurance services to organized groups of small farmers.

### REFERENCE

**FAO.** 2017. *Fisheries and aquaculture insurance in China*, by Yuan Xinhua, Tipparat Pongthanapanich, Zhang Zongli, Jing Xiaojun and Ming Junchao. FAO Fisheries and Aquaculture Circular, Rome, Italy. (in draft)

### **Climate resilient tilapia farming in the Philippines: role and prospects of insurance**

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Aquaculture is an important sector to the Philippine economy for its contribution to fishery production, gross domestic product, employment and export earnings. The sector contributes 50 percent to the total fishery production in the Philippines. However, declines in production were observed in 2012, 2014 and 2015. Major causes are weather disturbances and related hazards such as intense heat, typhoons and flooding, diseases and market shocks.

The aquaculture sector is highly sensitive to weather disturbances. The Philippines is one of the most disaster-prone countries in the world due to the high frequency of typhoon and floods occurring annually. The country was ranked number 4 in the world as the country hit by the most number of disasters.<sup>8</sup> These disasters are expected to intensify due to climate change, posing greater risks to aquaculture.

#### **Role of insurance**

The disasters, coupled with the problems of fish diseases, financial and market-related issues make aquaculture a highly risky venture. Insurance can be an important solution to this vulnerability by providing protection to aquaculture operators from risks posed by weather variability and climate change. Farmers can recover faster from damages caused by these risks, which eventually redounds to higher and more stable consumption and income. Potential benefits from insurance extend beyond risk protection include the following: it can increase farmers' access to formal credit and encourage good aquaculture practices and investment in 'riskier' more modern but productive technology. Important questions are as follows:

- What are the prospects of aquaculture insurance in the Philippines?
- How do aquaculture operators view insurance?
- Is a viable insurance scheme feasible for aquaculture?

#### **Prospects for aquaculture insurance in the Philippines: lessons from the field**

The assessment of viable insurance schemes has been part of the activities under the FAO Technical Cooperation Programme on 'building capacities for climate resilient tilapia farming in the Philippines' (2015–2016), executed by the Bureau of Fisheries and Aquatic Resources (BFAR).

The project includes three areas where the majority of freshwater tilapia ponds are located. The project recognizes the vulnerability of farmers to climate change and aims to increase their resiliency. It also seeks to better equip local institutions to cope with climate change and variability through enabling policies, developing robust technologies, installing farmer friendly information systems and strengthening partnerships.

One of the purposes was to explore the possibility of insurance for freshwater tilapia farming, particularly weather-index based crop insurance, and assess the existing agricultural insurance scheme in terms of its viability. Field survey and in-depth interviews with the fish farmers and government institutions were conducted to study the feasibility of insurance. The major findings are as follows:

- Tilapia farming in the study sites is mainly small scale (i.e. culture area of five hectares at most), but the large-scale operators dominate production volume.

<sup>8</sup> United Nations Office for Disaster Risk Reduction and the Centre for Research of Epidemiology of Disasters. 2016. *The human cost of weather related disasters:1995–2015*.

- Marketing channel is simple, from farms to consumers with two to three middlemen.
- Farm-gate prices are based on prevailing market rates set by traders. For large-scale farms, these can be negotiated.
- Self-financing is the most common practice but when lacking in funds for inputs, farmers resort to borrowing from informal lenders in their locality.
- Sources of vulnerabilities of farmers are weather and climate-related risks (sudden changes in temperature, flooding), pollution, market risks (high costs of inputs, highly saturated market for tilapia and other fish species).
- There is an existing agricultural crop insurance provided by the Philippine Crop Insurance Corporation (PCIC), a government owned corporation. PCIC has recently begun providing fisheries and aquaculture insurance products. However, fish farmers in the study areas covered by the project have yet to avail of PCIC's insurance services. They have no idea as to how it works but most of them are receptive to buying insurance. Some farmers are skeptical because of the premium payments that they consider would be a sunk cost if no damage to their crop occurs.
- The assessment of the feasibility of weather index insurance for tilapia at the project sites by the international insurance expert, Mr Jason Scott, shows that:
  - Complete, accurate and secure weather data and recording mechanisms are important for the development of weather index insurance schemes.
  - Insurance in general is suitable for low frequency fortuitous events while the threats identified by farmers (e.g. fish kill) occurs quite frequently (at least once a year), hence more often anticipated rather than unexpected.
  - Given the frequency of these events, the profitability and sustainability of any private insurance schemes will require high premium payments, which will be expensive for fish farmers.
  - The current set up is a government-subsidized insurance programme. This raises the question of whether the best way to subsidize aquaculture farms is through insurance. If perils are occurring frequently, then a more appropriate strategy is risk avoidance strategy in the form of better technology, adaptation measures, and improved culture practices.

## Conclusion

Insurance is potentially an important mechanism to promote resiliency of aquaculture to risks posed by weather variability and climate change provided that the necessary conditions such as good and reliable data and information are present. There are other aspects that are equally important to fish farmers' resiliency such as access to low-cost formal credit, favorable market conditions, technology improvement and relevant and useful information/training. These can be bundled with insurance to provide a comprehensive strategy to enhance resiliency to climate change.

## **National pilot programme on agricultural insurance in Viet Nam: successes, failures and lessons**

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The national agricultural insurance pilot programme (NAIPP) of 2011–2013 was established through Prime Minister Decision 315/2011/QĐ-TTg. This was the first programme of its kind in ASEAN. This note describes the successes, weaknesses and lessons from the programme.

Up to 2010, total revenue from agricultural insurance premium only had accounted for 0.05 percent of total insurance fee. Insurers focused on high value agricultural products such as industrial crops, cattle and fishery. Farmers mostly expected government compensation for their losses caused by natural and biological risks. They have limited awareness of and capacity to cope with the risks. There was no policy promoting the development of insurance in the agricultural sector. NAIPP was considered as an essential mechanism to gradually change from public to private investment, share risks and decrease government's expenditure on disaster compensation.

### **General assessment about NAIPP**

*Purpose.* The government considers agricultural insurance as a social protection policy. It should help farmers actively overcome financial losses from natural disasters and diseases through the compensation. It would thus contribute to the stability of rural social security and to better agricultural production. In this regard, enterprises participate in this programme with making a profit as a secondary motivation. They had two incentives: (i) developing a new product for a new market, and (ii) if the programme is successful and thrives, it would facilitate access to the available markets because they would have already established their operating system and cultivated customers in the pilot areas.

*Implementation.* The operating system of the programme was established quickly and efficiently with the support of the relevant agencies in the state management system. The continuous development of legal documents to implement the NAIPP had built up a comprehensive institutional and policy framework for agricultural insurance. Nevertheless, because of the lack of experience of governmental agencies, the issuance of detailed guidelines was not timely causing difficulties to the insurers and insured and the associated institutional services.

*Beneficiaries.* Despite being a pilot programme, NAIPP was implemented on a vast geographical scale, including 20 provinces and cities. These provinces represent five of the seven agro-ecological zones. While NAIPP covered a wide range of commodities, i.e. rice, livestock and aquaculture, it did not include some important products with high insurance demand such as industrial crops and forest products. In hindsight however, an insurance programme at this large scale was ambitious relative to the capacity and experience of Viet Nam in managing agricultural insurance.

Farmers received generous support from the government for insurance premium (100 percent for poor households, 90 percent for near-poor households, 60 percent for average households and 20 percent for agricultural production cooperatives). This could have motivated farmers to participate in the programme only for the purpose of receiving support of government; the programme indeed failed to attract farmers who really needed and had demand for agricultural insurance. In addition, paying no or a very low premium tended to make farmers less responsible for risk management in the production process.

*Insurance companies.* Bao Viet and Bao Minh are currently the two insurers with the requisite capability in Viet Nam, along with the committed participation of VINARE, a national reinsurer and Swiss Re, an international reinsurer. These companies have created a high capacity for the distribution and implementation of insurance products. These products were designed based on statistics at commune level provided by the experts and the insurance company managers.



*Results.* The programme was implemented in a short period so that is not possible to determine precisely the level of achievement of the programme's objectives of ensuring social security and promoting agricultural production. Thus, the basis for assessment would be limited to a few criteria such as number of participants and revenue from insurance premium. Based on these criteria, we find that NAIPP had mixed results. Regarding, the number of farmers particularly the poor, the programme was successful as it attracted a significant number of poor and near poor farmers. On the other hand, the negative results included low voluntary participation rate (meaning those who received lower insurance premium subsidies) and significant financial loss for insurance companies.

### **Rice insurance**

Rice insurance was successful on two aspects: number of participating farmers and profitability. There were 236 397 households covered by the pilot project with an insured area of 65 297 ha; revenue from premium was VND 91.9 billion; and low claim ratio at only 20.6 percent. Provinces such as An Giang and Dong Thap encouraged the participation of enterprises to provide inputs and buy products from insured farmers. This model created a responsibility link between players involved in the farming, processing and trading of rice. Nevertheless, there are still many issues in the rice crop insurance, as follows:

Firstly, the rate of non-poor household participation was low (6.7 percent). Key rice-producing provinces such as An Giang and Dong Thap had much lower insured rice area than expected which shows that the attraction of rice insurance remained low. Most farmers participated because they did not have to pay a premium. A number of households participating in the programme did not have any knowledge about rice insurance. In addition, average area of participating households is small and farms were fragmented, which made appraisal, monitoring and risk management difficult and inefficient.

Secondly, the coverage of risks for rice production regulated in NAIPP is limited and unsuitable. While some natural disasters covered in the programmes were unlikely to happen, many diseases and other risks such as pests were not insured against. Thus, farmers were reluctant to buy the insurance products.

Thirdly, under the regulations, rice households had to follow standardized production process but there were no inspection systems, thus most farmers did not apply the process strictly.

Finally, applying agricultural insurance based on index normally takes a lot of time for insurance companies to evaluate, calculate and implement the compensation. After harvest, the insurers had to get a new statistic database to determine the compensation. This affects the rice production calendar of farmers in the next season; it delays the planting of the next crop.

### **Livestock insurance**

Livestock insurance appeared to be the most successful insurance product in the pilot programme. There were 60 133 households that took part with 1 246 714 heads of cattle and poultry. Premium revenue was VND 83.9 billion and the rate of compensation was 15.9 percent. The success of the livestock insurance owed much to the fact that the coverage of risks was suitable and sufficient (80 percent of dairy cows, 90 percent of buffalo and cattle, 100 percent of swine, 100 percent of poultry). These insurance products attracted many farmers because they came with sufficient support from the government. The insurance system was convenient for the clients and included after-sales services (phyto-sanitary service and disease control) which was made possible by the close connection between the insurance agents and customers. Risk assessment procedure and compensation were performed rapidly and conveniently for farmers. It helped that no significant insurance event (i.e. no serious epidemic) occurred during the implementation and compensate financial loss period, which resulted in a low compensation rate.

Nevertheless, the livestock insurance is not without problems. The application of many farmers to participate in the insurance programme was accepted because there was no sanction inspection, supervision of breeding conditions and production processes; many households were able to buy insurance despite not being eligible to participate. In addition, the number of livestock producers participating was low and the participants were

mainly from poor households. Meanwhile, the target market of livestock insurance consists of large households, households using advanced techniques, correct procedures and are managing risk better but they were not interested in buying insurance.

### **Aquaculture insurance**

The premium revenue of the aquaculture insurance was VND 218 billion, accounting for 55 percent of total premium revenue of the entire programme. But the rate of compensation was around 300 percent. Aquaculture insurance incurred large losses. When designing the insurance policies, the experts and policy makers imposed rather strict conditions. In reality, however, infrastructure condition, forecasting, disease control systems and human resource capacity were not compatible with the stringent conditions. When the programme was implemented, disease outbreaks occurred frequently and were widespread causing large losses to the insurers. Monitoring capacity of the localities is extremely limited leading to poor risk management. Disease diagnostic capabilities at local levels are not sufficient. This delayed processing of claims and tended to encourage fraud.

### **Positive result of NAIPP**

Through the NAIPP, agricultural insurance has been demonstrated as an effective support to production and improvement of social welfare of farmers. It created institutions, policies and mechanisms in central and local levels for the implementation of agricultural insurance. It promoted a better understanding of agricultural insurance among officials of government agencies, insurers, farmers and the public through its operating systems and publicity. It has also increased awareness among farmers of the application of better production procedures, improved production techniques, and better risk management practices.

### **Lessons from NAIPP**

Agricultural insurance is an important measure to ensure social security and agricultural development. The following are some lessons from the programme:

- Diversify the insurance products to meet the needs of each group of farmers in accordance with the conditions of production and the natural and agro-climatic conditions.
- Promote the market through the support of the government.
- Improve the policy system and form the legal and institutional framework for the agricultural insurance system.
- Closely monitor the implementation and decision making, and make quick and suitable adjustments to improve insurance products.
- Establish the appropriate management processes to monitor and optimize the public and private investments.
- Closely monitor production procedures to facilitate the assessment of damage and determination of compensation.
- Include an appropriate reinsurance system to limit losses of insurers.
- Reduce subsidy to farmers. Turn public investment into reinsurance for insurance businesses to reduce risks and attract insurers' participation in agricultural insurance.
- Build a database system for agricultural insurance.
- Assess compensation needs with the participation of independent experts.
- Constitute multidisciplinary teams to implement policy, conduct research, and design insurance products.

The workshop aimed to identify policy and technical measures that would make insurance available and accessible to small-scale aquaculture farmers. Three commissioned papers and seven supplementary papers and presentations informed the discussions, which led to a set of recommendations addressed to the participating countries as well as to other developing countries and a specific follow-up activity in Thailand with a possible FAO collaborative assistance.

The workshop was a collaboration between FAO and Kasetsart University (KU) in Bangkok implemented through a Letter of Agreement with the Center for Applied Economics Research, KU. It was held at the Faculty of Economics of which comprised two days of meetings. The first, on 20 September 2016, had a regional scope that discussed the experiences in and challenges to aquaculture insurance. The participants were experts from China, the Philippines, Singapore, Thailand and Viet Nam. The second workshop, on 21 September 2016, focused on the prospects of a viable and sustainable aquaculture insurance for the shrimp aquaculture industry of Thailand. The deliberations were informed by a field study of the demand for insurance by the sector. It was joined by officers and members of shrimp farmers' cooperatives from five provinces of Thailand and the participants of the first workshop.

The workshop attained its objectives. It also facilitated these results: (i) made farmers, farmer advisers, researchers and academics more familiar with the insurance business and technical requirements of insurers, (ii) made insurers become more familiar with the circumstances and the needs of aquaculture farmers, (iii) confirmed that insurers continue to view aquaculture as a high-risk industry, (iv) highlighted the need to incorporate risk assessment and management in the development of better farm management practices in line with the requirements of insurance, and (v) confirmed the usefulness of bundling credit and insurance in the development of institutional services for farmers.

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