



ASEAN Food Security
Information System
(AFSIS)

Project for supporting Agricultural Survey on Promoting Sustainable Agriculture in ASEAN Region (SAS-PSA)

APEC PPFS Webinar
23-24 May 2022

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AFSIS Manager



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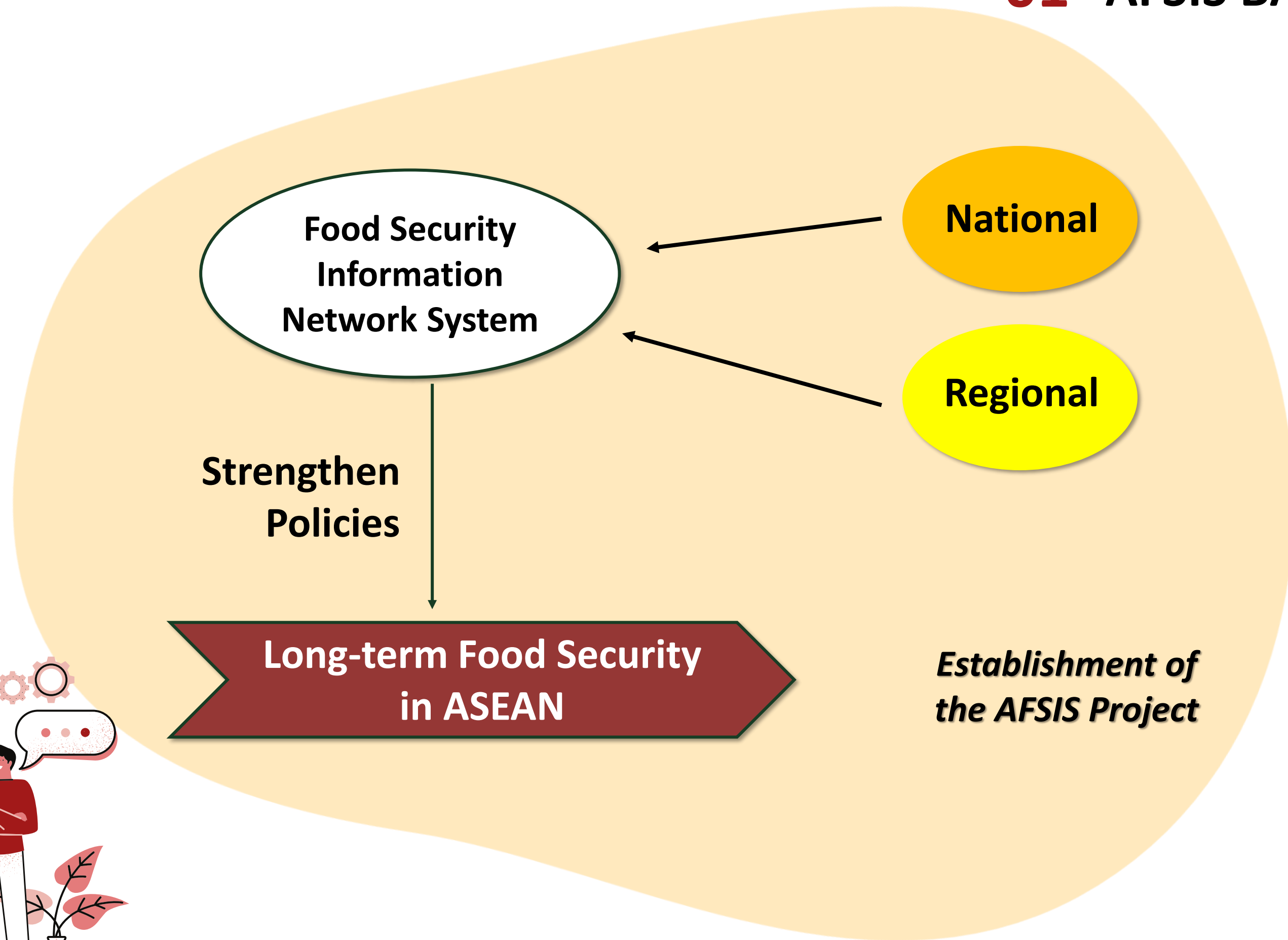
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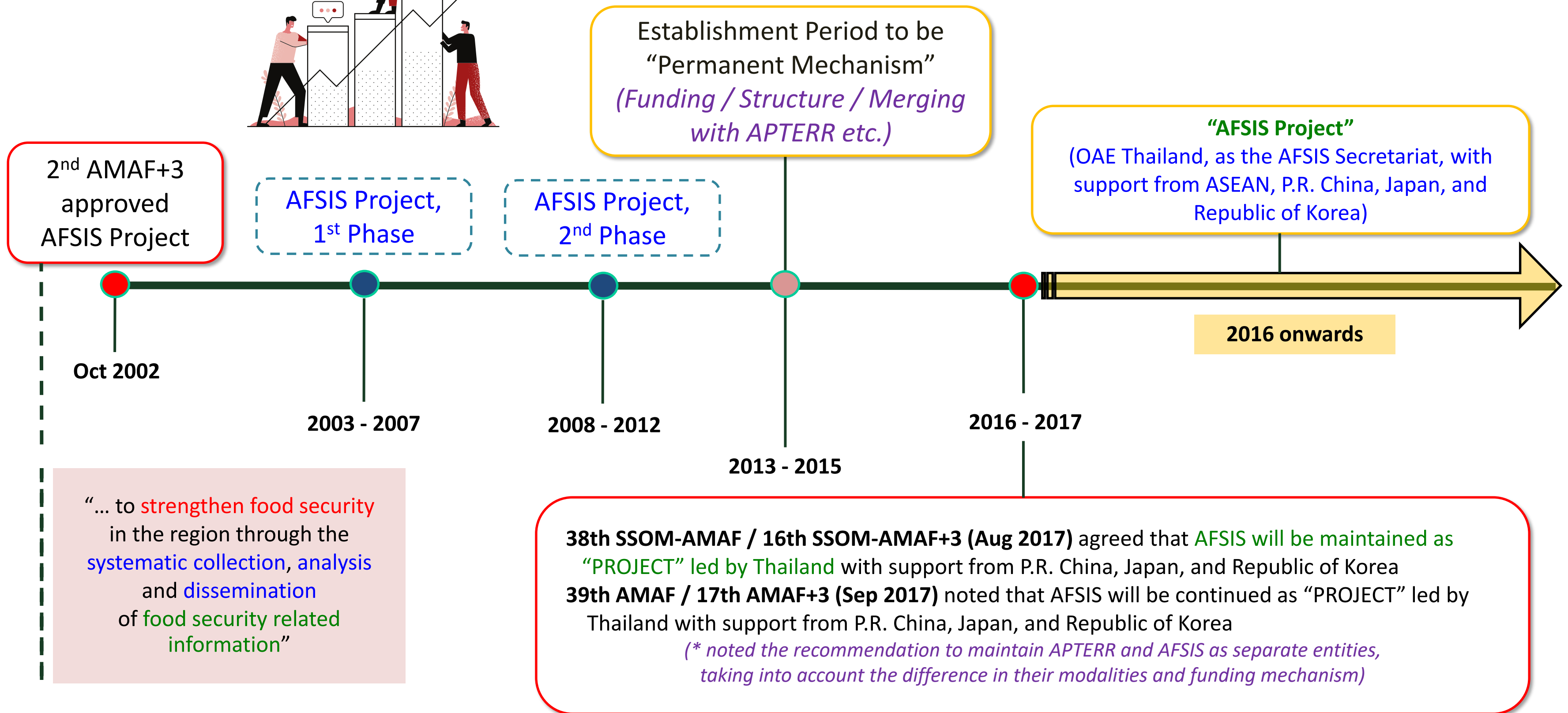
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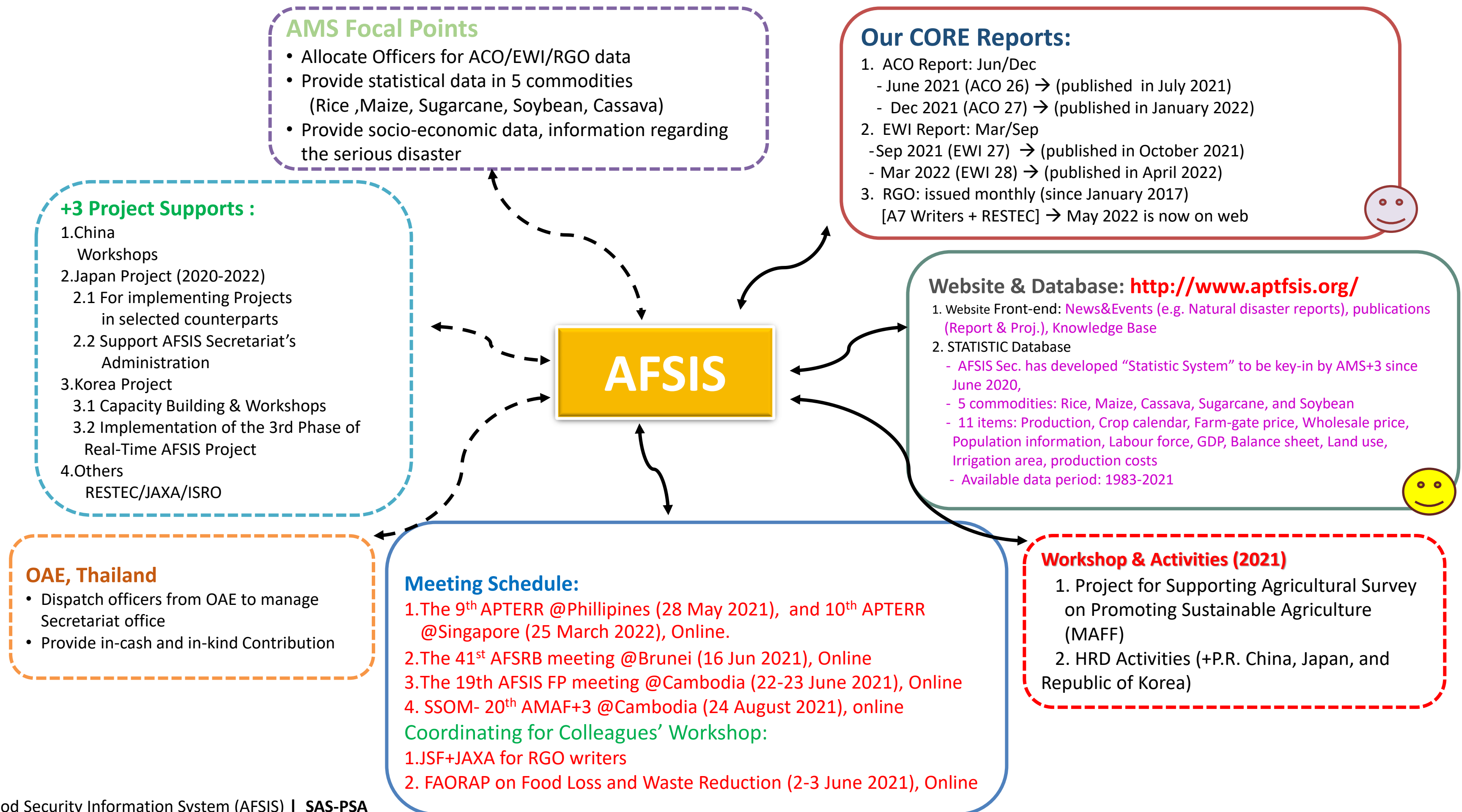
01 AFSIS BACKGROUND



02 HISTORICAL TIMELINE



03 AFSIS 2021 @ A GLANCE



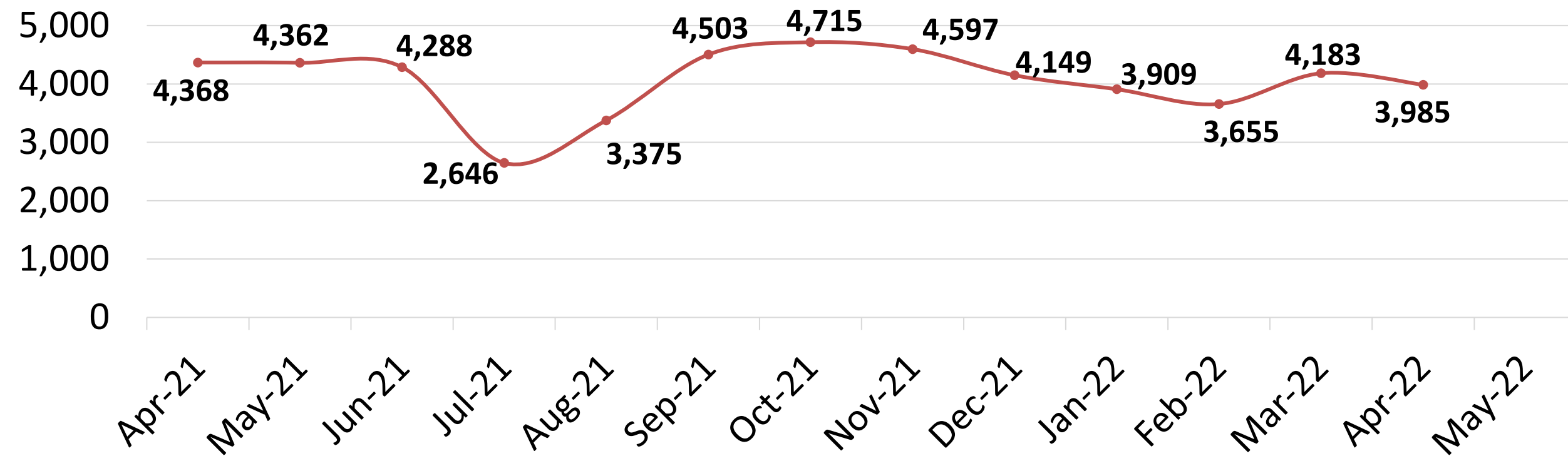
AFSIS Data Users

- ASEAN Plus Three Emergency Rice Reserve (APTERR)
- ASEAN Food Security Reserve Board (AFSRB)
- Public sectors for policy making (ASEAN Countries & Outside ASEAN)
- Private sectors that work related to 5 main crops
- Individual users such as researchers and university students requesting information for their research and thesis

Data Recorded on 1 May 2022

Website Visitors

No. of visitors (Persons)



Remark: This Month 3,811 (1-29 April 2022) | Total 52,735 visits (1 Apr 2021- 29 April 2022)

SDG indicator 2.4.1

Target 2.4, one of eight targets under SDG 2: “End hunger; achieve food security and improved nutrition and promote sustainable agriculture”

SDG indicator 2.4.1 defined as “**proportion of agricultural area under productive and sustainable agriculture**”

SDG 2.4.1 captures 3 dimensions of sustainable production: **Economic, Environmental, and Social** and 11 sub-indicators are organized in themes, each mapped to one of the three dimensions.



THE GLOBAL GOALS



Dimensions	No.	Theme	Sub-indicators
Economic	1	Land productivity	Farm output value per hectare
	2	Profitability	Net farm income
	3	Resilience	Risk mitigation mechanisms
Environmental	4	Soil health	Prevalence of soil degradation
	5	Water use	Variation in water availability
	6	Fertilizer pollution risk	Management of fertilizers
	7	Pesticide risk	Management of pesticides
Social	8	Biodiversity	Use of biodiversity-supportive practices
	9	Decent employment	Wage rate in agriculture
	10	Food security	Food insecurity experience scale (FIES)
	11	Land tenure	Secure tenure rights to land

The results for each sub-indicator are presented along a spectrum desirable (green) acceptable (yellow) unsustainable (red)

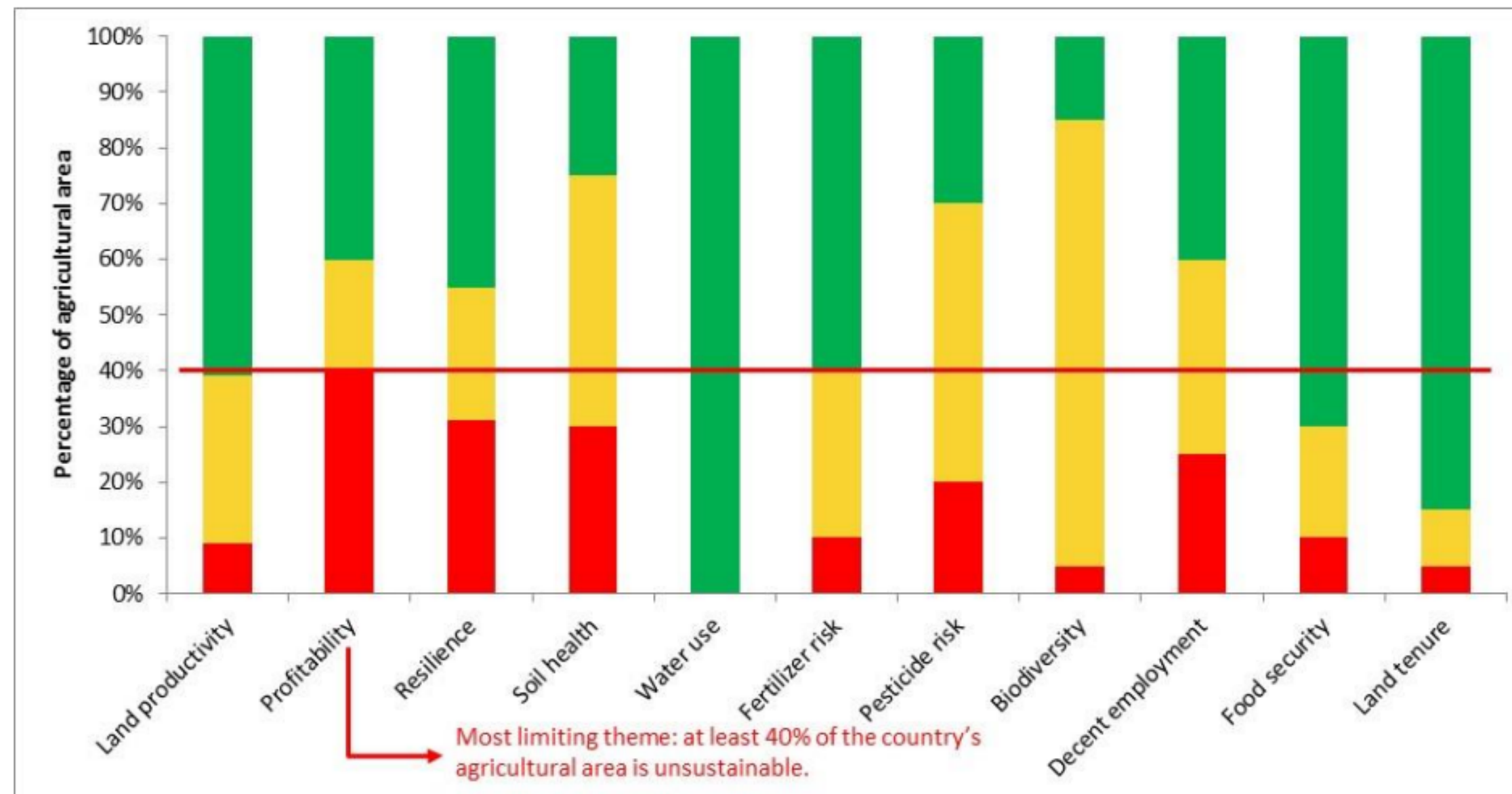




SDG indicator 2.4.1 (cont.)

The 2.4.1 methodology proposes reporting of indicator 2.4.1 through a national-level dashboard, presenting the different sub-indicators together but independently. As a result, it is easy to visualize their performance in terms of the different sustainability, and therefore understand where their policy efforts may best be focused.

Example of dashboard for SDG Indicator 2.4.1



Background of SAS-PSA

The Project for Supporting Agricultural Survey on Promoting Sustainable Agriculture in ASEAN Region (SAS-PSA) funded by the Ministry of Agriculture Forestry and Fisheries of Japan (MAFF, Japan) through the ASEAN Food Security Information System (AFSIS) project. AFSIS Secretariat is responsible for the implementation of the project with the main purpose for supporting and promoting sustainable agriculture on SDG indicator 2.4.1, one of the 21 SDG indicators under FAO's management



Project Goals

1. To achieve the goals of SDGs in the region by developing data for agricultural productivity improvement and promotion of sustainable agriculture and use as basic data for policy making.
2. To strengthen the AFSIS activities which contribute to monitoring the food security situation throughout the ASEAN region for providing accurate and comparable agricultural statistics data collected using a unified survey method developed by the project.

Project Objective

The SAS-PSA project aims to develop capacity and strengthen knowledges of relevant officials on SDG indicator 2.4.1 methodology by introducing tools for data collection, providing technical training of pilot survey, computation and interpretation as well as conducting the regional workshop to share experiences with all ASEAN members for future improvement.

Time Frame

Implementation period : 2020-2022 (2 Years 8 Months)

THAILAND

October 2020 - August 2021

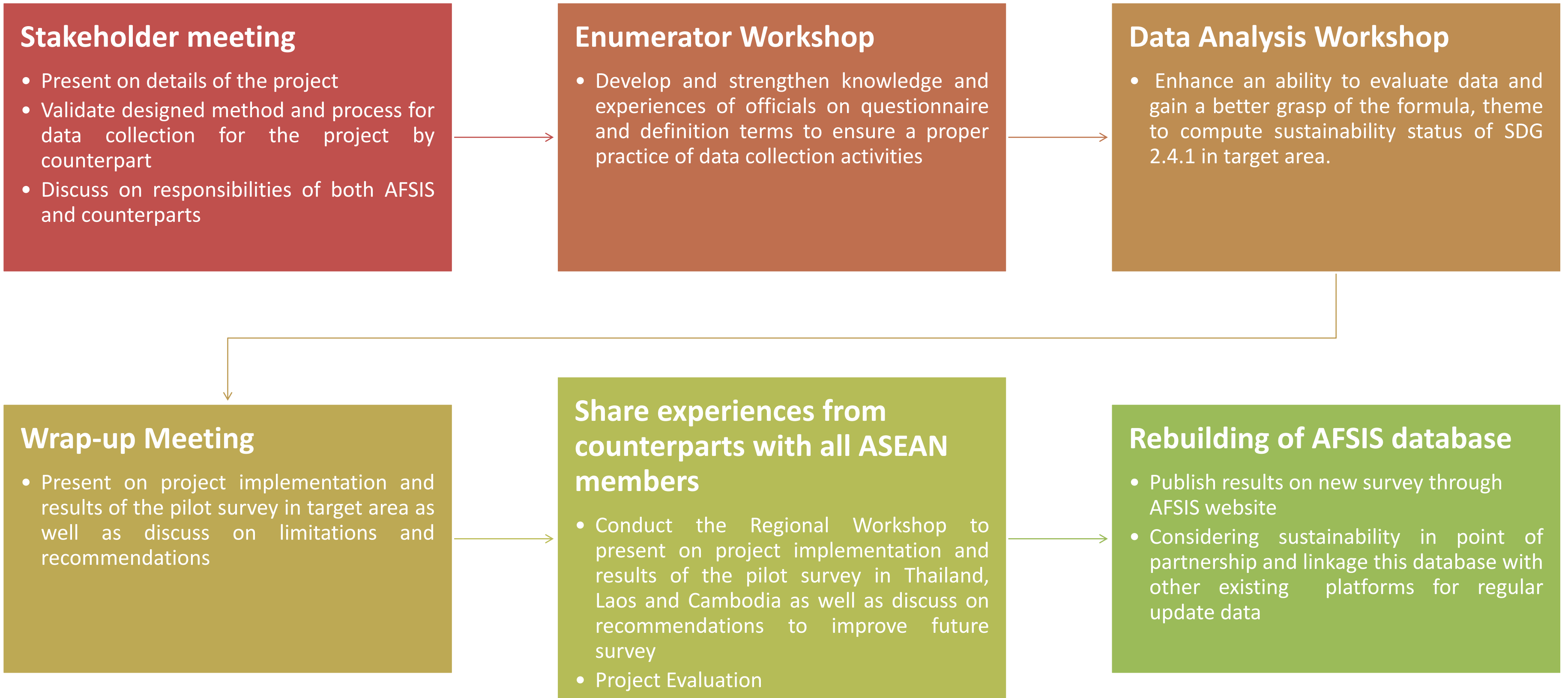
LAO PDR

May 2021 - March 2022

CAMBODIA

September 2021 - July 2022

Project Activities



Data Analysis



Section 3 AREA OF THE HOLDING

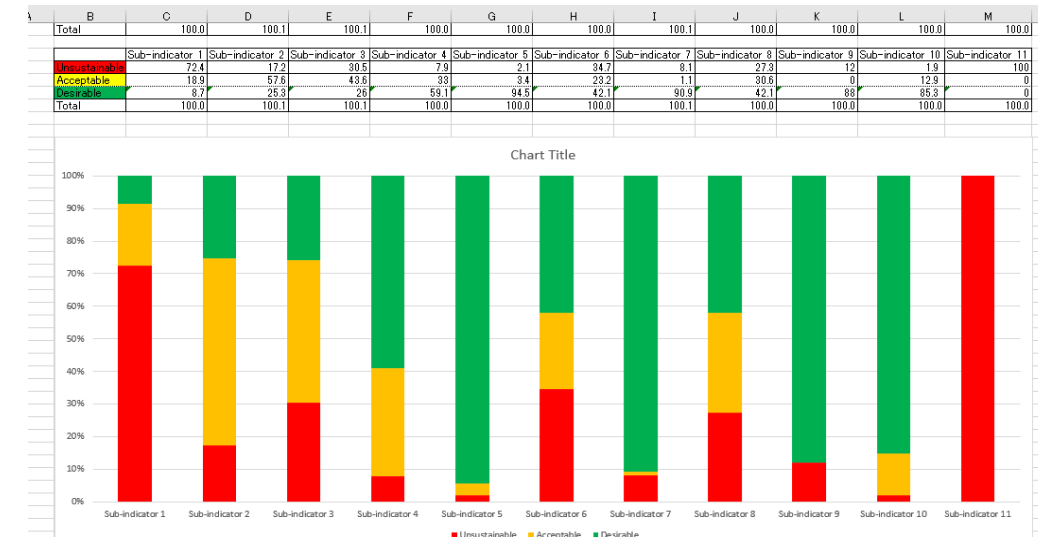
B1 Report land tenure type of the agricultural area of the holding

B2 Report area of the holding by land use

Area of the holding		Area of the holding by land use										Farm land information									
1 Owned and operated	2 Rented-in	3 Other (occupied, borrowed for tree, including common land managed by the holding)	4 Owned and rented-out (not operated by the holding)	1a Temporary crops (less than one year or country definition) under greenhouses or high shelters	1b Temporary crops (less than one year or country definition) outdoors or under low shelters	2 Temporary fallow	3 Temporary meadows and pastures	4 Kitchen gardens and backyards	5a Permanent crops (more than one year or country definition) under greenhouses or high shelters	5b Permanent crops (more than one year or country definition) outdoors or under low shelters	6 Permanent meadows and pastures	Total agricultural area of the holding	7 Farm buildings and farmyards	8 Forest and other wooded land	9 Aquaculture on the holding (area not counted elsewhere)	10 Other area not elsewhere classified (unutilized rocks, wetlands, including with natural vegetation)	Total area of the holding	Total agricultural area of the holding (local unit)	Exchange rate from local unit to ha	Total farm land (ha)	Expanded farm land (ha)
6	0.4		6.4	0	6							6	0.12			6.12	6	1	6	6	
1.54			1.54		1.5							1.54				1.54	1.54	1	1.54	1.54	
0.3			0.3		0.3							0.3				0.3	0.3	1	0.3	0.3	
2.5			2.5		2.6							2.6				2.6	2.6	1	2.6	2.6	
1.48			1.48		1.48							1.48				1.48	1.48	1	1.48	1.48	
0.5			0.5		0.5							0.5				0.5	0.5	1	0.5	0.5	
1.1			1.1		1.1							1.1				1.1	1.1	1	1.1	1.1	
7			7		7							7				7	7	1	7	7	
15			15		15							15				15	15	1	15	15	
5			5		5							5				5	5	1	5	5	
3.5	0.4		3.9		3	0.5						3.5	0.4			3.9	3.5	1	3.5	3.5	
0.8			0.8		0.8							0.8				0.8	0.8	1	0.8	0.8	
3.04			3.04		3							3				3	3	1	3	3	
7.9			7.9	0.7	2	5						7	0.2			7.2	7	1	7	7	
2.19			2.19		2		0.01					2.01	1.5			3.54	2.01	1	2.01	2.01	
0.5			0.5		0.4							0.4	0.01			0.41	0.4	1	0.4	0.4	
0.2	0.3		0.5		0.5							0.5	0.5			0.5	0.5	1	0.5	0.5	
1.01			1.01		1							1	0.01			1.01	1	1	1	1	
2.08			2.08		2		0.08					2.08	0.05			2.08	2.03	1	2.03	2.08	
1.02			1.02		1							1.02	1			1.02	1	1	1	1	
5			5		5							5	0.04			5.04	5	1	5	5	
2.08			2.08		2.03							2.06	2.03			2.06	2.03	1	2.03	2.08	
0			5.05		1.5	3		0.05		0.2		4.75	0.3		2	7.05	4.75	1	4.75	4.75	

Sub indicator 1-9 and 11

No	Name of farmer	Expanded farm land	A7 How often was this holding profitable?	Sustainability status	Indicator	Area	Ratio
1	ທ. ວອດ ວັງພາຈິງ	6	2	A	Desirable	142.50	25.3
2	ທ. ກາສິນ ວິໄລສິງ	1.54	1	U	Acceptable	324.63	57.6
3	ທ. ສອນ ສອນ	0.3	2	A	Unstable	96.92	17.2
4	ນ. ໄຂ ກິງວິວະວິງ	2.6	2	A	Desirable	564.05	100.1
5	ທິງ ອິນທະວິງ	1.48	2	A			
6	ທ. ພາ ວ	0.5	1	U			
7	ທ. ດັກພາ ສິວິກາ	1.1	1	U			
8	ທ. ບຸນເລີງ ແກ້ນວິງວິ	7	2	A			
9	ທ. ແອ້ ບໍວິ	1.5	3	A			
10	ທ. ສິວິງ ໄທລ	5	3	A			
11	ທ. ສຸນ ຈິນໄທວ	3.5	1	U			
12	ທ. ສິວິງ ພິມມະວິງ	0.8	3	A			
13	ທ. ສິວິງ ບຸນສິງ	3	1	U			
14	ທ. ສິວິງ ພິມມະວິ	7	1	U			
15	ທ. ສິວິງ ແກ້ນວິງວິ	2.01	3	A			
16	ທ. ສອນ ກິມ	0.4	1	U			
17	ທ. ວາງ ສິວິໄ	0.5	1	U			
18	ທ. ສິວິງ ອິນທະວິງ	1	1	U			



Sub indicator 10

RStudio

si10_analysis_PRG02.R* x si10 x

	WORRIED	HEALTHY	FEWFOOD	SKIPPED	ATELESS	RUNOUT	HUNGRY
1	1	1	1	0	1	0	
2	1	1	1	1	1	1	1
3	0	0	0	0	0	0	1
4	1	0	0	0	0	1	1
5	0	0	0	0	0	1	0
6	1	0	0	0	0	1	0
7	1	0	0	0	0	0	1
8	1	0	0	0	1	0	1

```

region = col_character(),
area = col_character()
)
> view(si10)

```

~/si10C/si10.csv

Data Preview:

WORRIED (double)	HEALTHY (double)	FEWFOOD (double)	SKIPPED (double)	ATELESS (double)	RUNOUT (double)	HUNGRY (double)
------------------	------------------	------------------	------------------	------------------	-----------------	-----------------

Import Options:

Name: si10
 Skip: 0
 First Row as Names
 Delimiter: Comma
 Escape: None
 Trim Spaces
 Quotes: Default
 Comment: Default
 Open Data Viewer
 Locale: Configure...
 NA: Default

Code Preview:

```

library(readr)
si10 <- read_csv("si10.csv")
view(si10)

```

Reading rectangular data using readr

Import Cancel

SAS-PSA in Thailand

Organization : Center for Agricultural Information, Office of Agricultural Economics, Ministry of Agriculture and Cooperatives, The Kingdom of Thailand

Duration : December 2020 – August 2021

Target area : 5 districts in Chachoengsao Province, Eastern Thailand

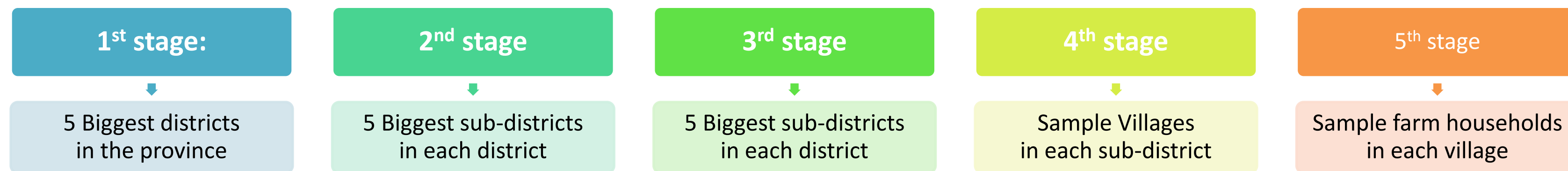


SAS-PSA in Thailand (cont.)

Sampling Design

Sampling Frame : Farmers' registration database in year 2020 (Farmer One)

Sample size : anticipated \approx 240 samples by proportional to amount farmers in district



Sample Allocation

District	Sub-district	Total Villages	Sample Villages		Sample Households	
			Plan	Actual	Plan	Actual
Phanom Sarakham	Ban Song	14	14	14	66	66
Sanam Chai Khet	Tha Kradan	23	16	16	62	62
Bang Nam Prio	Mon Thong	11	11	0	44	0
Mueang Chachoengsao	Bang Toei	12	10	3	39	12
Ban Pho	Sip Et Sok	5	5	5	29	29
Total		65	56	38	240	169

SAS-PSA in Thailand (cont.)

Data Collection

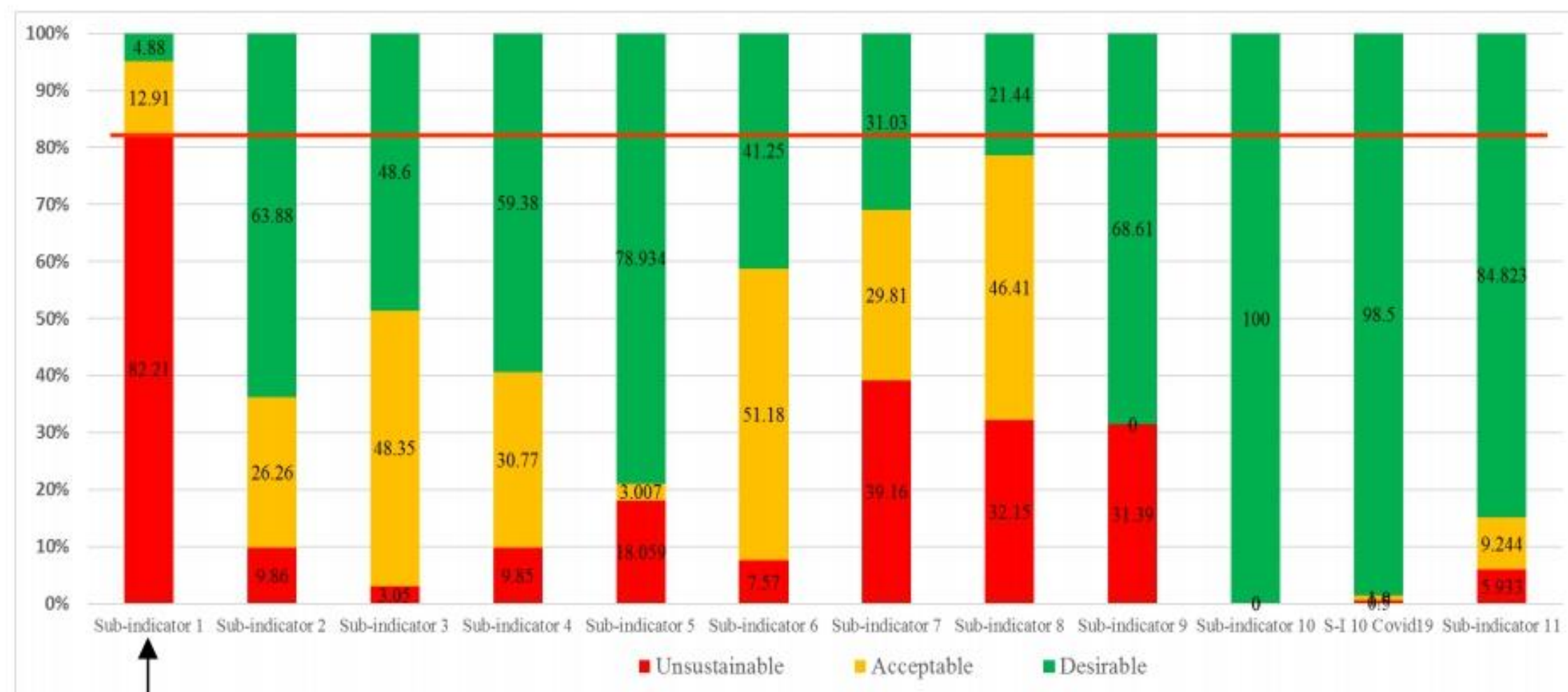
Type of questionnaire: Paper-based survey

Additional questions: The questionnaire has been rectified and associated with agricultural practices in ASEAN and the exceptional circumstance of the COVID-19 pandemic.



SAS-PSA in Thailand (cont.)

Results of pilot survey in Thailand



Most Limiting theme: at least 82.21% of the Chachoengsao Province's agricultural area is unsustainable.

Sub-indicator 1 : Farm output value per hectare
 the result was significantly influenced by the fact that there are several farmers, (who cultivate crops that can be harvested multiple times.), who have a high income due to their high productivity and these farmers do not have a large area of farmland. Farmers with high FOVH or farm output value per hectare held only a small area of agricultural land, which was not reflected in the area percentage of sustainability performance.

Sub-indicator 7 : Management of Pesticides
 Thai farmers use pesticides and chemicals more than necessary and it does not increase the productivity as it should be.

Sub-indicator 8 : Use of agro-biodiversity-supportive practices
 Based on the results, this may be due to a large farm size of the holding that have at least two different crops or pastures rotation which is more difficult in farm management than planting only one crop. In addition, there are limitation in adopting new technologies and increase productivity since most of farmers are elderly people.

SAS-PSA in Thailand (cont.)

Recommendations and Limitations

1. This pilot project although used existed sampling frame, ostensibly there is unavailable sample frame for the non-household sector. The variant of land productivity was not taken into consideration. Another aspect relevant to the land utilization is that the sample unit should be categorized by size of landholding. Indeed, in order to resolve this problem, the double sampling design should be used so crucial that the stratification can produce disaggregated statistics and valid survey.
2. The sample size of 240 is yet too small to characterize the whole province as Chachoengsao has diversified agricultural characteristics, the minute sample size was a constraint to capture the actual picture of the agricultural sector at the local level.
3. Due to the COVID-19 pandemic, enumerators were unable to fulfill 240 samples as planned and some of them cannot gain field-survey experience on SDG 2.4.1 questionnaire and online survey may not appropriate on such a new and broad dimension survey form, consequently, the valid responses of 135 were not adequate to provide the reliable information. The desirable solution would be adaptive plans which could apply instantaneously on unforeseen occurrences

SAS-PSA in Thailand (cont.)

Suggestions for future research

1. Double sampling design suggested by FAO is essential for conducting the future farm survey. The stratification is additionally indispensable for the classification of diversified groups of agricultural holdings (farm household and non-farm household), low, medium, and high intensification of land productivity, and also diversification of landholding size.
2. Sample size and distribution should be relatively sizeable to define the agricultural activities of the whole kingdom. Additionally, aggregate evidence in this study suggests that the data collection should be highlighted on important cash crops.
3. Data from farm survey can be supplemented with information from other sources, for example, the data, which has been obtained from agricultural census done by National Statistical Office, would probably accomplish sub-indicator 1 and 2.
4. Some key concepts and their specific definitions are uncommon in Thailand contexts. Enumerators and respondents have difficulties in comprehending those concepts. Another challenge is some questions in the survey create difficulty in recall, for example, the recollection of profitability in the last three consecutive years. The complicated contents in questionnaire creates respondent burden during the survey. The best practices would be;
 - 4.1) the multiple-choice questions would need to be adjusted to suit Thai circumstances
 - 4.2) the questionnaire should be simplified and comprehensible so that it will not be a burden for both enumerators and selected respondents
5. Essentially, the Thai authorities should discuss with FAO consultants whether aquaculture sector exclusively should be included in the future survey since the sector is one of the major contributions to the agriculture in Thailand.

SAS-PSA in Lao PDR

Organization : Center for Agricultural Statistics, Department of Planning and Finance, Ministry of Agriculture and Forestry, Lao People Democratic Republic

Duration : May 2021 – March 2022

Target area : 10 districts in Khammouane Province, Lao PDR

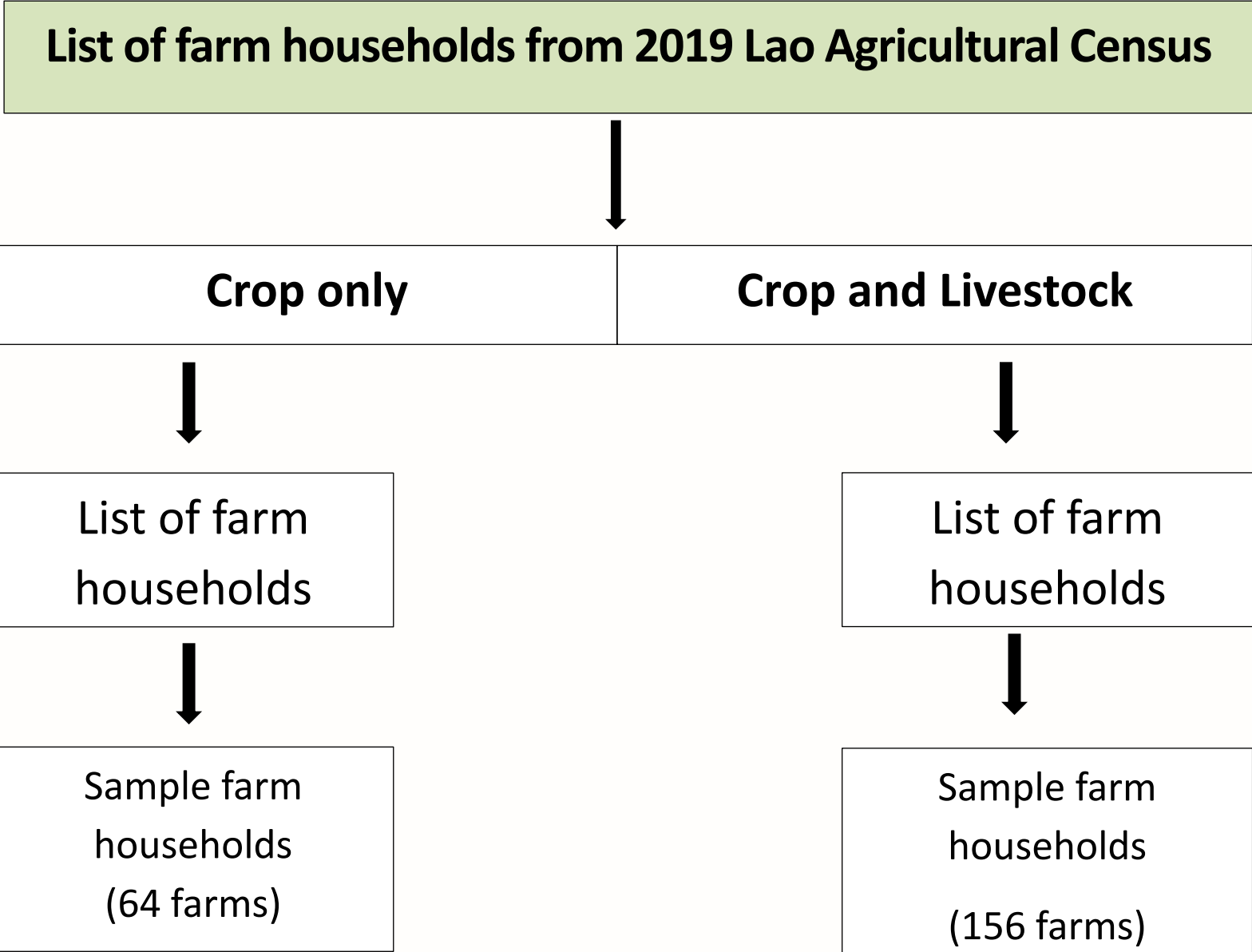


SAS-PSA in Lao PDR (cont.)

Sampling Design

Sampling Frame : Lao Agricultural Census 2019

Sample size : 220 samples of farm household by the percentage of each two categories:



Sample Allocation

No	Farm Size (hectare)	Total Farm Households	Sample households		
			Crop only	Crop and Livestock	Total
1	<50	1,133	5	12	17
2	0.50-0.99	2,696	12	29	41
3	1.00-1.49	4,271	19	46	65
4	1.50-1.99	1,513	7	16	23
5	2.00-2.99	2,701	2	29	41
6	3.00-3.99	1,532	7	16	23
7	4.00-4.99	321	1	5	6
8	>4.99	252	1	3	4
Total		14,419	64	156	220

SAS-PSA in Lao PDR (cont.)

Data Collection

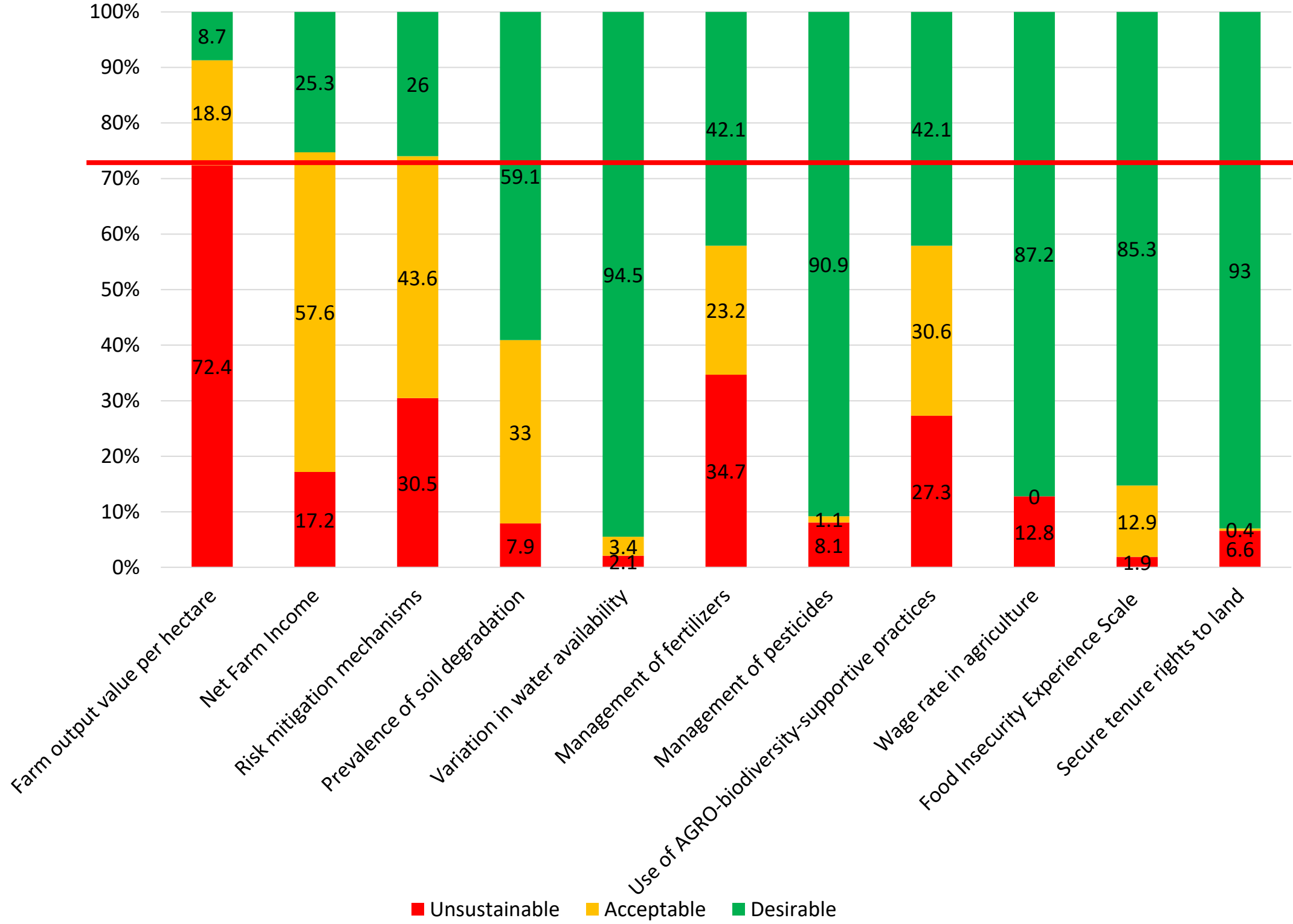
Type of questionnaire: Computer Assisted Personal Interviewing (CAPI) using CSPro application

Additional questions: There is no additional questions for pilot survey in Lao PDR



SAS-PSA in Lao PDR (cont.)

Results of pilot survey in Lao PDR



Sub-indicator 1 : Farm output value per hectare
 Farm households cultivated rice around 204 of 218 households, but the yield is quite low, the average yield is 2.18 tones/hectares and the price of paddy rice is also low, the average is 3,284 kip/kg that effected Sub-indicator 2: Net farm Income, have 57.6% of Acceptable.

SAS-PSA in Lao PDR (cont.)

Recommendations and Limitations

1. The government should find ways of increase their crop and livestock productivities by introducing new technologies including state of the art equipment and machinery. For example on rice, mechanical transplanter or direct seeder suitable and appreciated rice harvester to reduce the number of labors and advise them using labors with appropriated farm size.
2. The government should support and promote farmers in establishing farmer association or agricultural cooperative to have a strong bargain power more especially for smallholder farmers.
3. The government should organize the training program to the farmers in this survey on how to apply improved crop varieties and using chemical fertilizer on crop cultivation in the appropriated way and suitable amount of size of their planted area to achieved higher productivity.
4. This survey uses a calendar year as the survey period, but Laos officials would like it to be 12 months (36 months) to match the crop growth stage (June - May) of the economy being surveyed and the economy's financial year.
5. Regarding the definition in the FAO manual, since the definition was not familiar to the Lao people and it was difficult for the enumerators and farmer respondents to understand it, it would be great if the questions are adjusted to the actual situation in Laos
6. The use of CAPI in the whole area of Lao PDR in the future

SAS-PSA in Cambodia

Organization : Department of Planning and Statistics, Ministry of Agriculture Forestry and Fisheries, The Kingdom of Cambodia



Duration : September 2021 – July 2022

Items											
	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	June-22	July-22
1. Consultative Meeting	★										
2. Stakeholders Meeting		★									
3. Enumerator Workshop				★							
4. Conduct the pilot survey and examine the issues for improvement					★						
5. Data Analysis Workshop								★			
7. Conduct the wrap up meeting										★	
8. Write the final report of the activities in Cambodia											★



Web page of SAS-PSA project

http://www.apftsis.org/projectnewmore

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SAS-PSA Project

In order to achieve the goals of SDGs in the region, the project will develop data for agricultural productivity improvement and promotion of sustainable agriculture and use as basic data for policy making. Strengthening the ASEAN Food Security Information System (AFSIS) activities which contribute to monitoring the food security situation throughout the ASEAN region for providing accurate and comparable agricultural statistics data collected using a unified survey method developed by the project.

Sustainable Development Goals

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries – developed and developing – in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

Target 2.4
By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

Indicator 2.4.1 – Proportion of agricultural area under productive and sustainable agriculture
The area under productive and sustainable agriculture captures the three dimensions of sustainable production: environmental, economic and social. The measurement instrument – farm surveys – will give countries the flexibility to identify priorities and challenges within the three dimensions of sustainability. Land under productive and

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Thailand

Overview of Chachoengsao Province, Thailand

Chachoengsao, located in the vicinity of Bangkok province, is in the eastern part of Thailand. Its area is approximately 5,351 km² which is ranked as the 40th largest province in Thailand. Chachoengsao province is the target area for this study basically because it gains the reputation of various agricultural practices and eases the quality control of the project. As mentioned earlier, Chachoengsao has highly diversified agricultural activities with particular strength in crops, livestock, and fisheries. These businesses have played distinctively important economic and socio-cultural roles for the well-being of farming households, such as food security, supporting local livelihood household income-generation process, a form of saving, a social status and sources of employment. The livestock species are also of considerable importance for farm families through providing a means of generating income, satisfying household energy requirements, and supporting food supply for consumption of products.

Pilot survey results

Challenges and recommendations

Project Report

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Lao PDR

Overview of Khammouane Province, Lao PDR

Khammouane Province is a province in the center of Laos. It is a very suitable province for this pilot survey of the "Project for Supporting Agricultural Survey on Promoting Sustainable Agriculture because Khammouane Province is consists of various agricultural productions such as crops, livestock, fishery, aquaculture, non-timber forestry products, and forest. Especially, it is cover all lowland, hill, and upland area. It is a priority province of agriculture and forestry development plan of the Ministry of Agriculture and Forestry of Laos for commodity production, and food security. Khammouane Province covers an area of 16,315 square kilometers and is mostly of forested mountainous terrain. Many streams flow through the province to join the Mekong River. The vast forests of the Nakai-Nam Theun National Park are an important watershed that feeds many Mekong tributaries as well as form the catchment area for Nam Theun 2, the largest hydropower project in Laos. The population of the province according to the 2015 Population census is 392,052.

Pilot survey results

Challenges and recommendations

Project Report

Thank you for your attention
