



Implemented by:

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Food and Nutrition Security Training in Thailand

การฝึกอบรม เรื่อง ความมั่นคงด้านอาหารและโภชนาการของประเทศไทย



Office of Agricultural Economics,
Bangkok, Thailand

12 – 16 October 2015

Module 1: Opening and introduction

The opening and welcome words were given by Ms. Jariya Sutthichaiya, Deputy Secretary General, Office of Agricultural Economics.

The colleagues from the Project based in Bangkok were also introduced:

- Ms Pouchamarn Wongsanga, Senior Regional Coordinator
- Ms Duangruetai Surasakjinda, Project Officer
- Ms Rojana Manowalailao, Communications Officer



Trainer: Dr. Georg Bokeloh

An expert on Food and Nutrition Security from Germany



Module 1: Opening and introduction

WHO?

name	education background	Organisation, function	Some personal information
Thanathat* (Nina) Chaiganon	Health + Nutritional Sciences + Sport Sci.	OBEC Ministry of Education (edu. media)	I love singing ♪ + playing guitar
MANTANA SUEHART	Royal Irrigation Department Agricultural Research Office	M.Sc. in Soil Fertility	Live in Amsterdam province
THANATCHAI	economist	OAE (Int. Ag. Economics)	Ag. trade LRO
WICHAI	ECONOMICS	OAE EVALUATION	GARDENING
Nancy	SCM Supply Chain Management	Economist BIAE	Food Lover
Pathumwadee (Katty)	Operational Mgt. & Logistics	ACFS, Head of ASEAN-China Unit	Workaholic
KANOK	Master - Business	Bureau of Agri. Economic	English
PETE	Ag. Econ	OAE (Fieldcrop)	SPORTS
OUM-PARINYA	Veterinary Medicine	Department of Livestock Development	Dog & Cat
Piyanuch (Gory)	Agronomy	Rice Department	Basketball
Boon	Master of Science Executive Agricultural Extension	Analyst Plant and Agri. Professional Level	Two little boys and I love shopping
Thitiya (whan)	Bachelor in Finance Master in Management Doing PhD in Agriculture	ALRO Agricultural Land Reform Office	One daughter named Nanthorn

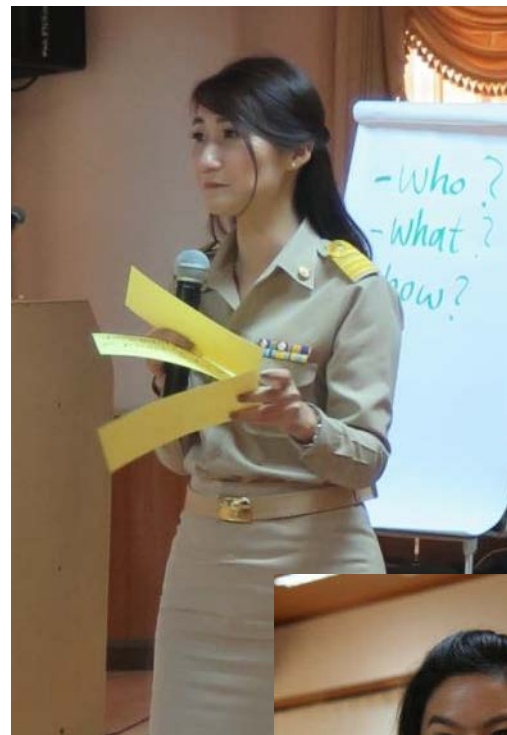
Noo	Communications Teaching English	GIZ Communication OFFICER	Movies Meditation
Wilaiwan	B.Sc. Agro-Indus-try M.Sc. Plant Genetic R.C.A	Horticulture Research Institute [HRI]	Food is brain's energy for my kids
GING	ECONOMIST	OAE Conducting Price Data	Happy & Sleepy
PUM	Agribusiness	OAE Policy and Plan Analyst	Red Lipstick
MAY	MBA	Economist OAE	I love watching concert
NOOK	Pol. sci	OAE Policy and Plan Analyst	I like Korean series
THIRAPADEE KONGSUVAN (A)	Food Science	Bureau of Nutrition Ministry of Public Health	I'm interested in food and movies
CHINTANA	Home Economics	Department of Agriculture Extension	I'm planting (tomato)
Supis (mai) Loa Jaturapis	Home Economics	Department of Agricultural Extension	Cook
SUREERAT (CIN)	Department of Economics Food and Nutrition	Bureau of Nutrition Department of Health	I Love to play Basketball
SUNMAR	FISHERIES FACULTY KASETSART UNIVERSITY	GIZ / DOA	FISHERIES
Pui	POL. SCI	PROJECT OFFICER / GIZ	BASKETBALL
Georg Bokebo	Geographer, agricultural economist	Consultant, GIZ, FAO, EU, GAA...	football (watch... 3 boys, gardening
POICHAMMAN (A)	RES. MGR	Senior Regional Coord. / GIZ / SAS	TRAVELLING (SIGHT SEEING)

Participants introduced themselves

Module 1: Opening and introduction



Participants introduced themselves



Module 1: Opening and introduction

WHO?

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Module 1: Opening and introduction

WHO?

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Module 1: Opening and introduction

WHO?

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Module 1: Opening and introduction

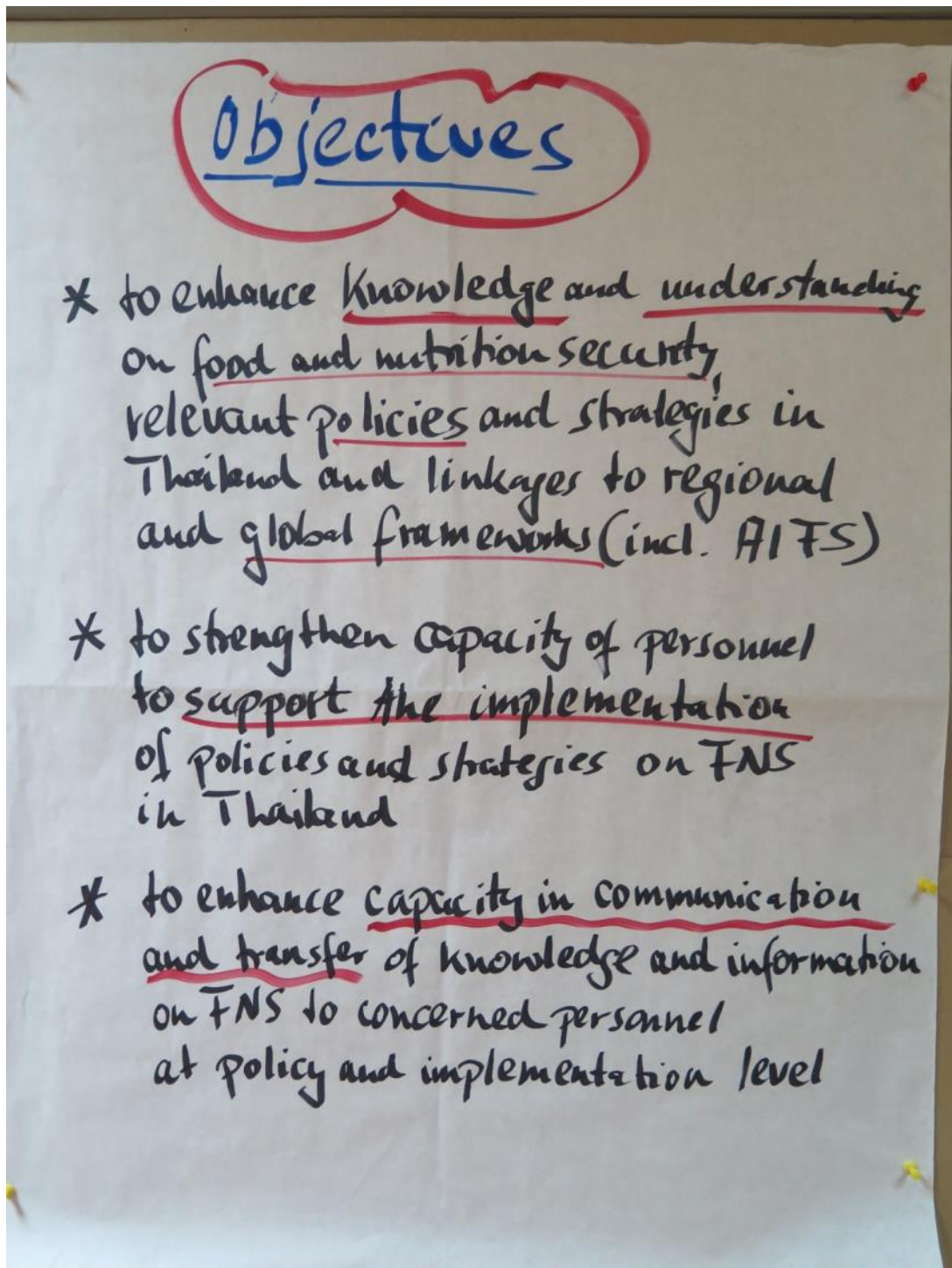
WHO?

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Module 1: Opening and introduction

WHAT?

The objectives of this training had been announced in the invitation leaflet; here they were reviewed and clarified.



Module 1: Opening and introduction

WHAT?

This program overview served as a reference and was adjusted on a daily basis according to the session flow.

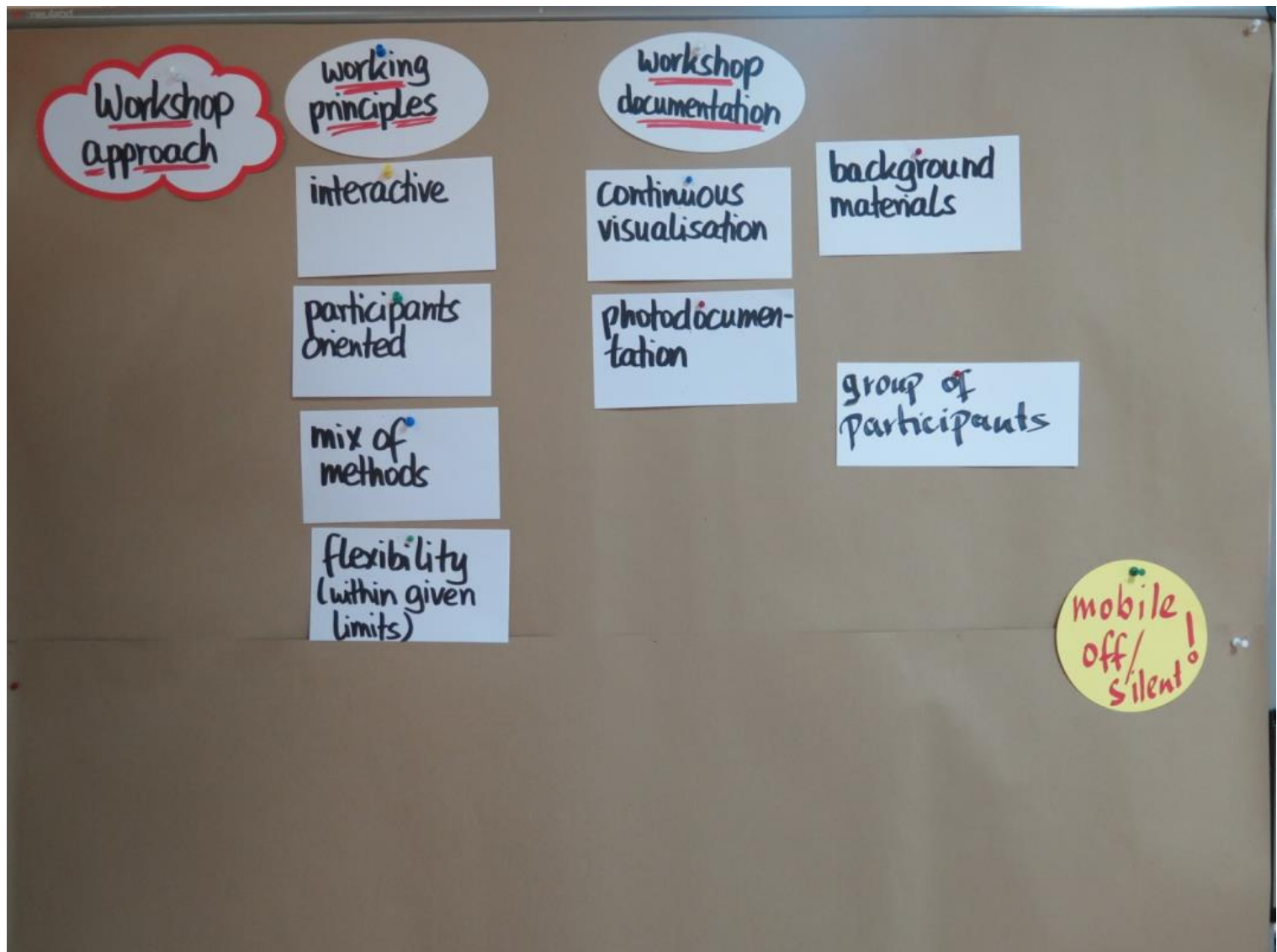
FNS: Programme Overview Bangkok Oct. 2015				
16. October World Food Day				
Monday 12-Oct	Tuesday 13. Oct	Wednesday 14. Oct.	Thursday 15. Oct	Friday 16. Oct.
<ul style="list-style-type: none"> ▷ Opening/Welcome ▷ Introd. GIZ-SAS introd. participants Object./progr. ▷ Global + regional FNS-policies/initiat <p>~~~~~ Lunch ~~~~~</p> <ul style="list-style-type: none"> ▷ Thailand Strategic Framew. on FS 2013-2016 MOAC ↳ linkages/discussion ▷ Zero-hunger challenge 	<ul style="list-style-type: none"> ▷ <u>Concepts on FNS</u> <ul style="list-style-type: none"> - dimensions, levels - Malnutrition causes - Manifestations of malnutrition ↳ group-work <p>~~~~~ Lunch ~~~~~</p> <ul style="list-style-type: none"> ▷ Introduction to AFSIS, OAE ↳ group-work on AFSIS + concept 	<ul style="list-style-type: none"> ▷ Climate Change and FNS <ul style="list-style-type: none"> - climate smart agriculture ▷ Thai framework on FS and Climch. - DoA - <p>~~~~~ Lunch ~~~~~</p> <ul style="list-style-type: none"> ▷ Food losses and Food Waste + groupwork ▷ Postharvest loss - DoA 	<ul style="list-style-type: none"> ▷ FNS progr. cycle (Triple A) ▷ Assessment + Analysis of FNS situation ▷ Actions/Intervent. to improve FNS <ul style="list-style-type: none"> ↳ Access to food <p>~~~~~ Lunch ~~~~~</p> <ul style="list-style-type: none"> ↳ group-work: characterisation of tools ▷ FNS programme action for AIFS 	<ul style="list-style-type: none"> ▷ FNS progr. cycle: Monitoring & Evaluation of results ▷ presentation of day before groups <p>~~~~~ Lunch ~~~~~</p> <ul style="list-style-type: none"> ▷ Evaluation of Workshop/training ▷ Closing and certificates

Program Overview

Module 1: Opening and introduction

HOW?

Dr. George introduced the workshop approach and underlined the aim of having strong participation and lively discussions from everyone.



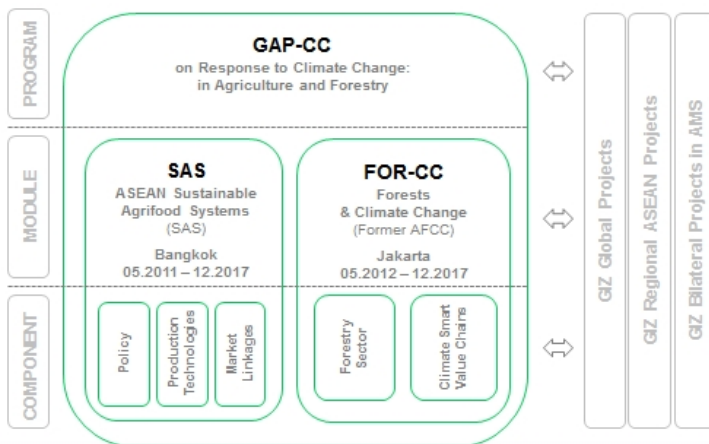
Module 1: Opening and introduction

Ms. Pouchamarn made a short introduction to GIZ ASEAN Sustainable Agrifood Systems Project

Background and Overview GAP-CC

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German-ASEAN Program (GAP-CC)



Overall Objective

“To enable ASEAN Member States to implement the **ASEAN Integrated Food Security (AIFS) Framework** and its **Strategic Plan of Action (SPA-FS)**, Strategic Thrust 4: Promote Sustainable Food Production, at the national level”

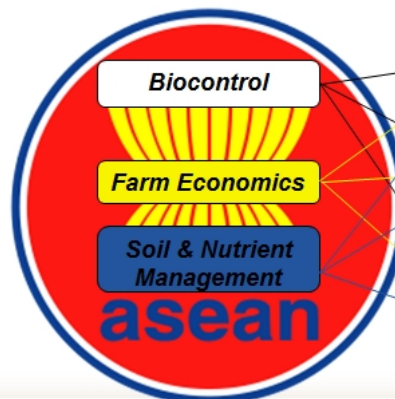


Areas of Interventions

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Priority Topics

Priority Crops



Team of “ASEAN Sustainable Agrifood System”



Module 2: Food and Nutrition Security Policies/Initiative

Dr. Georg introduced the topic of the

“ASEAN Integrated Food Security” (AIFS) Framework



The main chapters of this framework (components) were shown, including 5th component on ‘nutrition’ which was added to the 2nd phase of AIFS.

More details (sub-topics) are to be seen on 4th component (“agri innovation”) as this is the focus of the ASEAN Sustainable Agrifood Systems project.

Module 2: Food and Nutrition Security Policies/Initiative

Ms. Angkana Puttasri, Director of Regional and Sub-Regional Sub-Division, International Agricultural and Economics Division, OAE, introduced the topic of the

“MOAC Strategy on Food Security (2013 - 2016)”

Vision: Thai people have sufficient good food for sustainable consumption



Module 2: Food and Nutrition Security Policies/Initiative

MOAC strategy on Food Security covered by FAO definition is included Food Availability, Food Accessibility, Food Utilization and Food Stability, and composed of 4 Strategies as follows;

I. Produce adequate food for sustainable domestic consumption

- Increase Production Capacity
- Develop basic infrastructure on agricultural production
- Prevent and mitigate the impact of climate change
- Promote agricultural investments in all sectors
- Develop Farmers Empowerment

II. Support and connect everyone to have an access to food

- Promoting production in community
- Promote service systems to support the production and increase income within a community
- Restoring the reserve food culture in every household
- Promoting and facilitating food logistic
- Promote welfare and social safety net system
- Supporting defense and revitalization measures for the natural disasters

III. To enhance the quality of food production, reduce waste and utilize appropriately

- Support the standard of food safety through supply chain
- Promote the food consumption of nutritious diet
- Reduce the loss in agricultural production (food)
- Develop agricultural information system and access to information

IV. Stabilize sustainable food production

- To promote farmland protection
- Supporting sustainable resources management (Soil, Water, Forest and Fishery) and biodiversity
- Supporting and allocating land for agriculture and farmer ownership
- Supporting and developing farmer income to be more secure
- Allocating proportion for food crop and energy crop production properly

Module 3: Global Context

Dr. Georg gave an overview of World Food Nutrition situation and International Frame/Agreements including MDGs, SDGs, Scaling Up Nutrition (SUN) Initiative and Zero hunger challenge. The background, objectives, goals and indicators of aforesaid agreement or initiatives were also illustrated and highlighted in his presentation.



- Millennium Development Goals *MDGs* (1990-2015) are composed of 8 goals and 3 subtargets. With a view to halve the share of population that suffer from extreme poverty and hunger, a great effort is still needed to reach MDGs target though underweight rate has declined during 2 decades.



Millennium Development Goals (MDGs): „the past“

MDG 1: (1990-2015)

To halve the share of the population that suffers from extreme poverty and **hunger**

subtargets:

- To halve the share of those people that live from less than 1 US \$/day
- Full and productive employment and decent work for all, including women and young people
- Halve the proportion of people who suffer from hunger

Indicators: Prevalence of underweight children under-five years of age 1990: 25% 2012: 15 %
Proportion of population below minimum level of dietary energy consumption 1990: 19% 2012: 12 %
(undernourishment)



Module 3: Global Context

■ Sustainable Development Goals : SDG

The formulation of post-2015 development agenda and SDG were introduced. It was reflected that 8 goals of MDG were no longer sufficient, SDG was endorsed in 2015 with various additional new issues; namely clean energy, sustainable cities, infrastructure, etc. The details of 17 goals and subtargets were shown as follows.



In the recommendation, Dr. Georg also highlighted that MOAC Food Security Strategy phase II should be referred and linked with MDG and SDG.

Module 3: Global Context

▪ Scaling Up Nutrition (SUN) Initiatives

SUN was introduced as a showcase global movement from various organizations in many countries to coordinate for better nutrition. The two distinctive approaches were presented as follows.



- Global “movement” : **multi-stakeholder movement** that brings together governments, UN organisations, civil society, business and research in global and national networks
- Active **since 2010**; strategic document adopted by **more than 100 organisations**; **55 countries** participate (Sept. 2015) – Vietnam, Cambodia, Laos, Myanmar and Indonesia are part of SUN
- Objective:: ensure coordinated measures for better nutrition
- Approach: Promotion of **nutrition sensitive** and **nutrition specific actions** to improve FNS worldwide
 - **nutrition- specific actions**
 - **nutrition-sensitive actions**

Module 3: Global Context

- **Zero hunger challenges** started in 2012. Five targets of UN towards Zero Hunger were focused in the presentation



What does Zero Hunger look like?



What is the Zero Hunger Challenge?

Zero Hunger is the United Nations Secretary-General's vision for a future where

- no person is hungry,
- where every woman, child and man enjoys their **right to food**;
- **women** are empowered;
- priority is given to **family farming**; and
- food systems everywhere are made **sustainable** and **resilient**.

Source: FAO

The Initiative of Zero Hunger is composed of 5 components as follows;

- 1) zero stunted children less than 2 years
- 2) 100% access to adequate food all year round
- 3) All food systems are sustainable
- 4) 100% increase in smallholder productivity and income
- 5) Zero loss or waste of food

Though there has been significant progress in every components, some observations have been raised. For instance, the target percentage of hungry population has been reached; however, the percentage of undernourished people are still high. In addition, the number of food loss or waste of food are still high in developed countries.

In the last session of first day training, the linkage between global initiatives and regional initiatives in Food and Nutrition Security was presented. Furthermore, it also pointed out various key players in FNS.



Quelle: <http://www.farmingfirst.org/food-nutrition-security-initiatives/>

Main international Actors in Food and Nutrition Security

- **UN:** WHO, FAO, UNICEF, WFP, IFAD
- **European Union**
- **Europe:** Ireland, UK, Germany
- **International:** USAID, Canada, Worldbank
- **Foundations:** Bill & Melinda Gates Foundation, CIFF
- Increasingly also **private sector** (DSM, BASF, Bayer Crop Science...)
- **NGOs**

Day 2: The 2nd day of training started with the program of the day.

Tuesday 13. Oct. 2015

9⁰⁰ Progr. of the day

▷ Conceptual frame for FNS

- dimensions, levels
- malnutrition causes (UNICEF)

~10³⁰ ————— ☕ —————

10⁵⁰ - Manifestations of Malnutrition
↳ group-work on Concept/manifestations

12⁰⁰ ————— Lunch —————

13⁰⁰ ASEAN - Food Security Information System ATIS

14³⁰ ————— ☕ —————

14⁵⁰ group-work on Information-sources/collection

16¹⁵ ————— finish —————

Objectives

- * to enhance knowledge and understanding on food and nutrition security, relevant policies and strategies in Thailand and linkages to regional and global frameworks (incl. ATIS)
- * to strengthen capacity of personnel to support the implementation of policies and strategies on FNS in Thailand
- * to enhance capacity in communication and transfer of knowledge and information on FNS to concerned personnel at policy and implementation level

Recalling our training objectives

Then, two newcomers introduced themselves to the group.



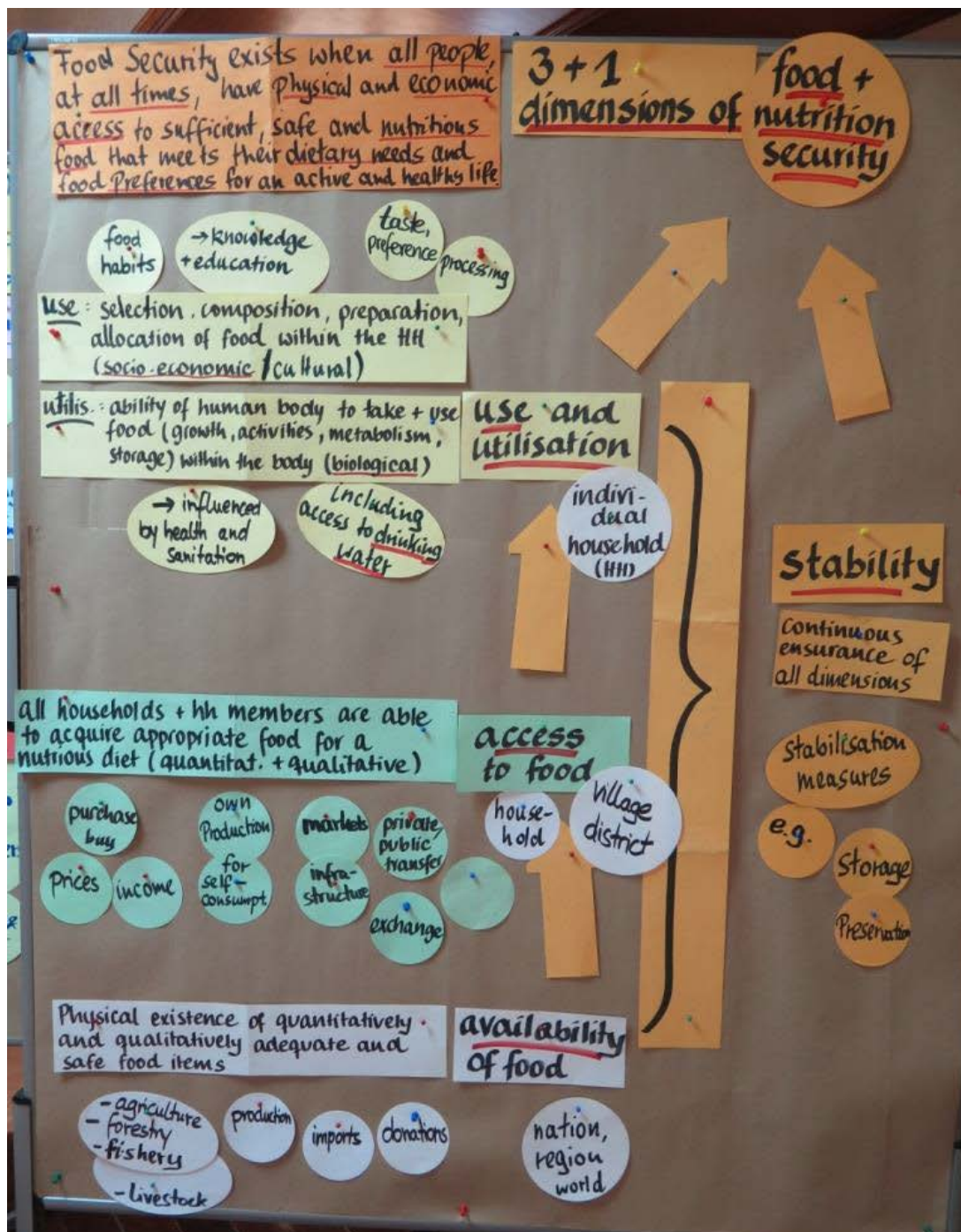
Ms. Ratchanok Sangpenchan
from Land Development
Department

Ms. Aphinya Wongkularb from
Department of Fisheries



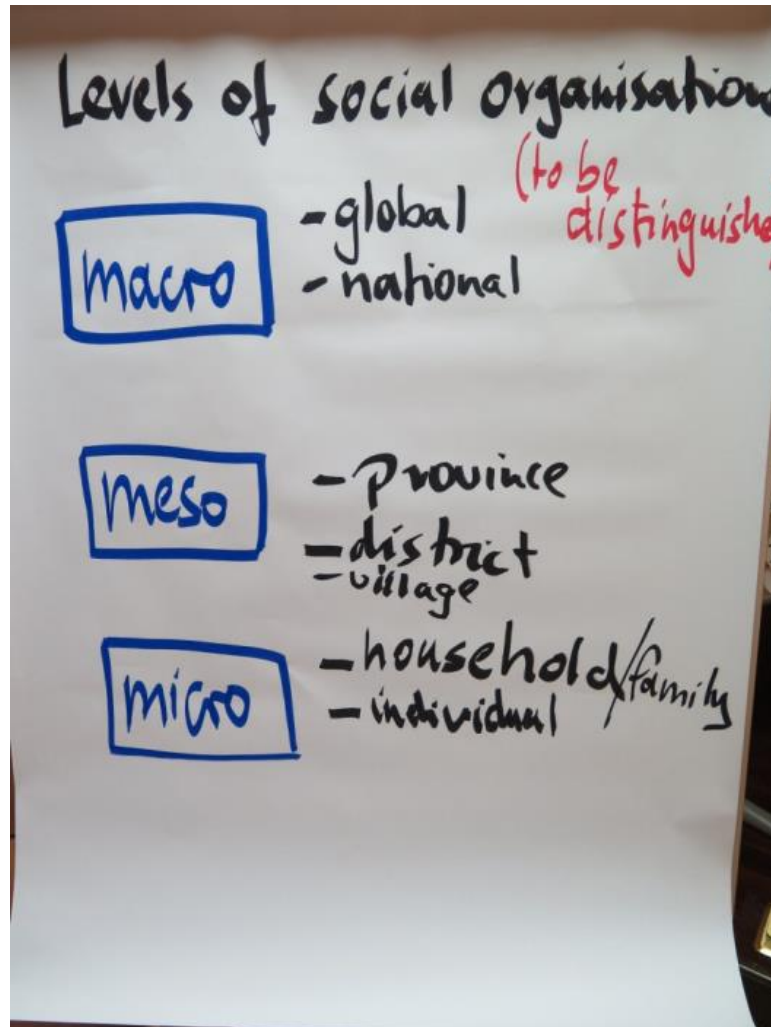
Module 1: Food and Nutrition Security (FNS)

The **3+1 dimensions of FNS** consist of 1) availability of food 2) access to food and 3) use and utilization. Additional dimension is stability which is continuous ensurance of all dimensions



Module 2: Levels of Social Organisations

3 levels of social organisations,
including Macro, Meso, and Micro level

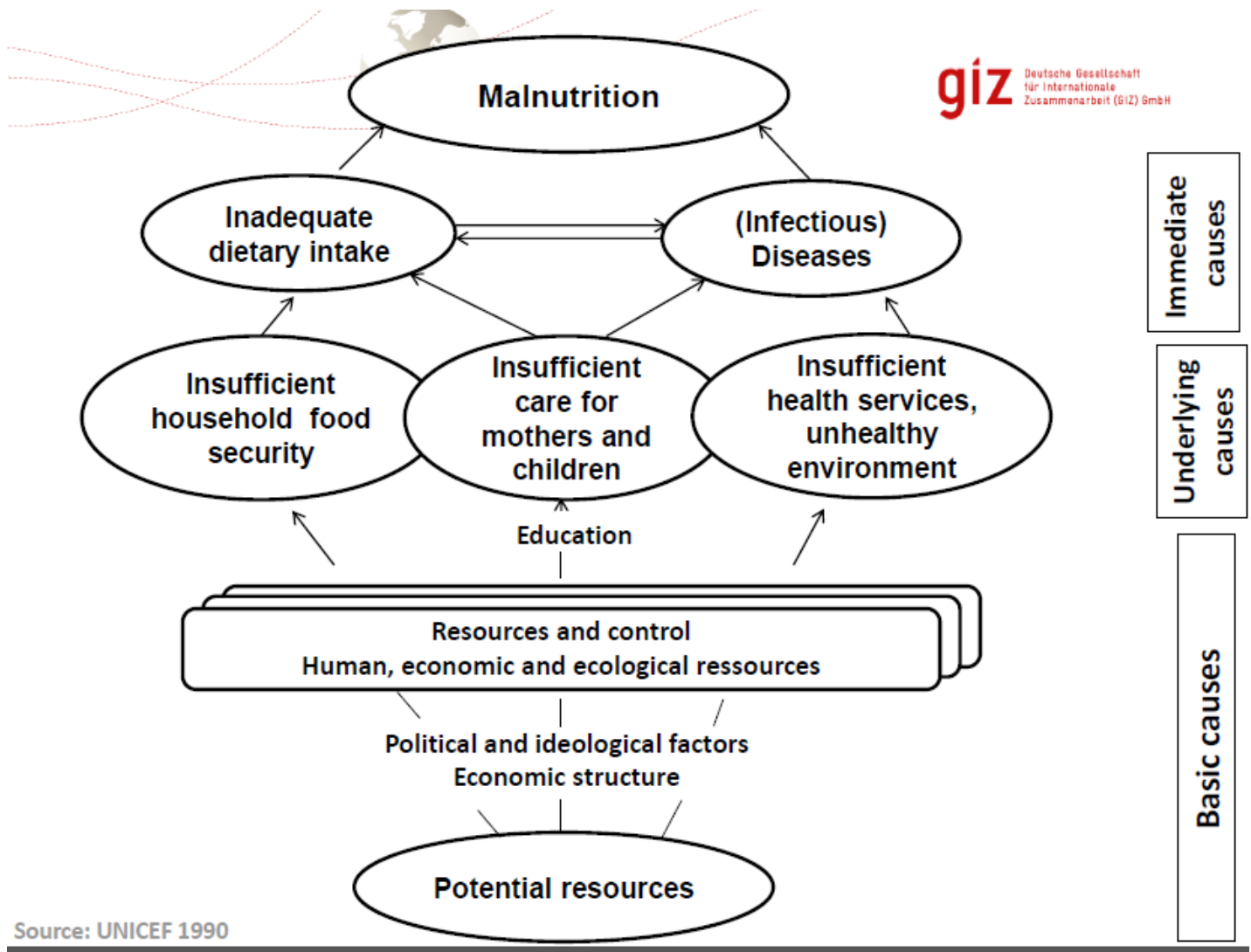


Noted: when we come to information, **do not mix up!**.
To analyze, we should distinguish which level the
information are taken from.

Module 3: Manifestation of Malnutrition (1)

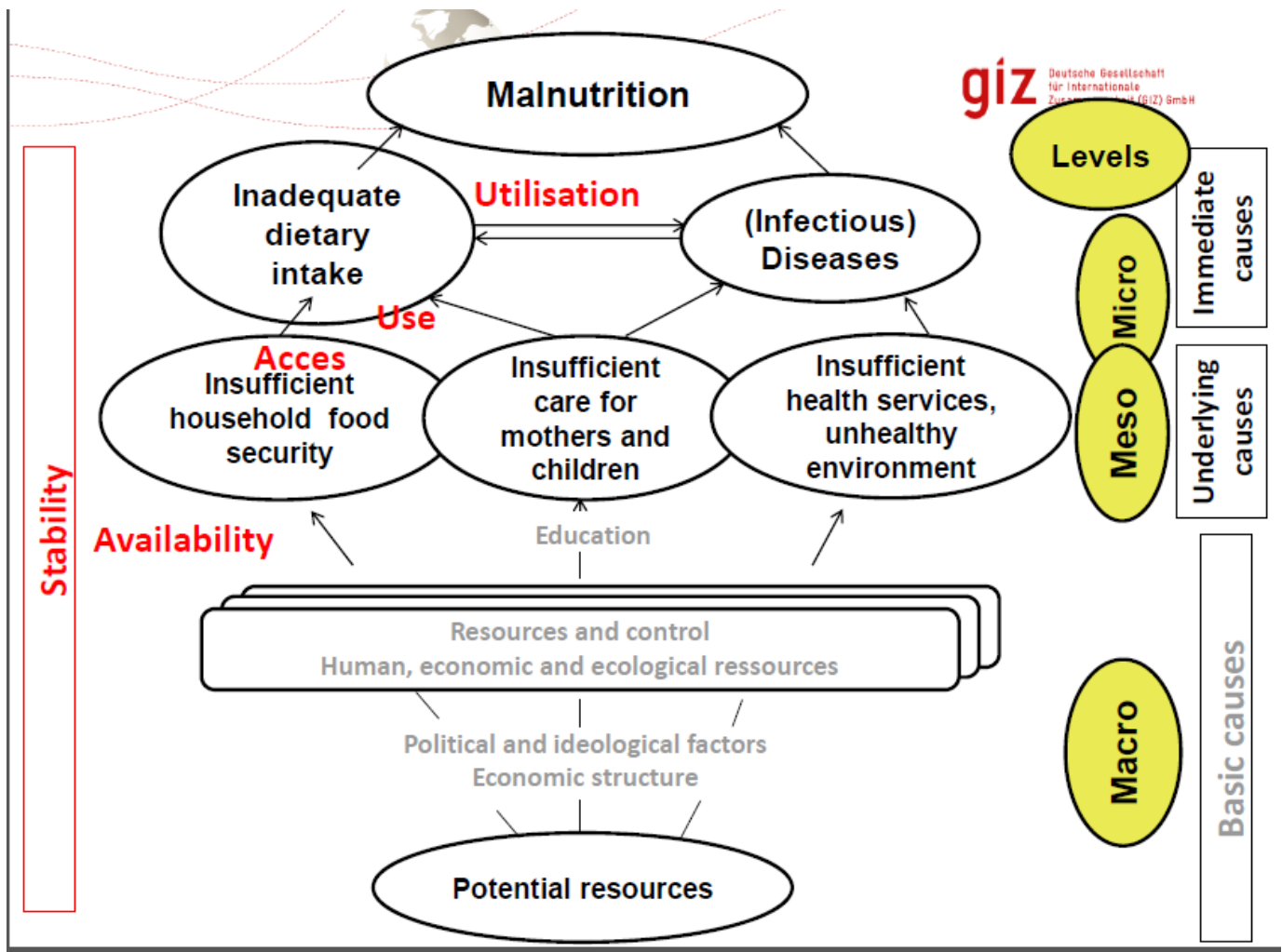
The UNICEF Model of Malnutrition

The causes of Malnutrition are threefold, including immediate, underlying, and basic causes



Module 3: Manifestation of Malnutrition (2)

The model can be linked to the 3+1 dimensions of FNA and 3 levels of social organisations.



Noted: Some countries might have potential resources; however, without good political factors or adequate resources control, malnutrition problem may still occur.

On the other hand, with good political factors or adequate resources control, even though they have not much resources, they may not face the problem. e.g. Switzerland

Module 3: Manifestation of Malnutrition (3)

How does malnutrition look like?

Manifestations of Food and Nutrition Insecurity:

How does malnutrition look like?

- ❖ The „double burden of malnutrition“
 - Undernutrition
 - Overnutrition
- ❖ „Hidden hunger“ → „triple burden of malnutrition“
 - Vitamin A deficiency
 - Iron deficiency
 - Iodine deficiency
 - Others

Some examples of malnutrition

Undernutrition (2)



Among **infants** and **children** (below the age of five years)

- Wasting/acute malnutrition (severe wasting = Marasme): low weight for height
- Stunting/chronic malnutrition: low height for age
- Underweight/global malnutrition: low weight for age

Overnutrition

Among **infants** and **children** (below the age of five years)

- High weight for height
- (High weight for age)

Among **adults** (non-pregnant in case of women)

- Overweight (BMI > 25)
- Obesity (BMI > 30)

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m)}}$$

Module 3: Manifestation of Malnutrition (3)

Malnutrition problems in ASEAN region: Lao PDR*, example of information along main indicators

Selected Malnutrition Data:

- 44.4 % **wasted** children under 5 (2012),
- 5.9 % **stunted** children under five,
- 26.6 % **underweight** children under five,
- Women with **low BMI**: 15 %
- % women (aged 15+) **overweight and obese**, % men
- ??? Kwashiorkor
- 10.8 % newborns with **low birth weight**
- 36.2 % **anaemia** in women (non-pregnant)
- ? % predicted **IDD**(low urinary iodine)
- 42 % **Vitamin A deficiency** (low serum retinol)
among children, 23 % women (2006)

Based on Food and Nutrition Security Atlas of Lao PDR -2013

10

Case study of malnutrition problems in ASEAN region: Lao PDR

Module 4: ASEAN Food Security Information System (AFSIS)

ASEAN Food Security Information System (AFSIS)

Training on Food and Nutrition Security in Thailand

12-16 October 2015

<http://www.afsisnc.org>




Ms. Nongnooch Deetae
Senior Expert for Agricultural Statistics System
AFSIS Secretariat
13 October 2015



AFSIS by Ms. Nongnooch Deetae
from AFSIS Secretariat

AFSIS



Objective :

- to strengthening food security in the region through the systematic collection analysis and dissemination of food security related information through development of food security information network and human resource for member countries


Coverage :

☐ Five food/feed crops :
rice maize sugarcane cassava
and soybeans

Objectives and timeline of AFSIS are described.

Five products that AFSIS focuses on:
Rice, Maize, Sugarcane, Cassava, and Soybeans

Timeline



- **2016-2018: preparatory stage of a permanent mechanism**
- **2013-2015: operate under establishment period**
- **2011 : mandate from AMAF+3 to transform AFSIS into permanent mechanism**
- **2003-2012: Project stage**

Module 4: ASEAN Food Security Information System (AFSIS)

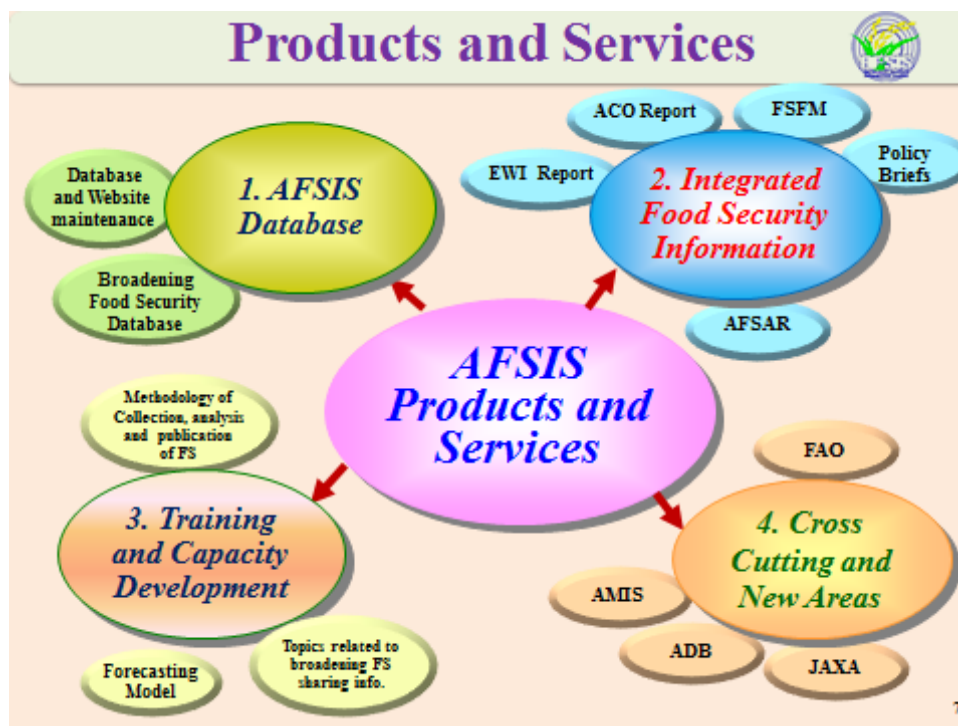


AFSIS

Activities :

- ☐ Human resources development
 - training
 - mutual technical cooperation
- ☐ Database development
- ☐ Early Warning Information (EWI) Report
- ☐ Agricultural Commodity Outlook (ACO) Report
- ☐ Forecasting Model
- ☐ Agricultural Land Information System (ALIS)
- ☐ Assessment of ASEAN Food (Rice) Trade System and Development of IT-based Food (Rice) Trade
- ☐ DG&FC Meetings

AFSIS Activities



AFSIS Products and Services

Module 4: ASEAN Food Security Information System (AFSIS)

AFSIS Database



EWI Report

Content : only Supply side

Current Year and One Year Forecast

- ☐ planted area, harvested area, production
- ☐ damaged area

Release : March and September

ACO Report

Content : Supply Side and Demand Side

- ☐ same as EWI
- ☐ plus crop balance sheet
- ☐ Trade Quantity (Import/Export)
- ☐ Price (FOB and CIF)
- ☐ Ratio of crop production to domestic utilization

Release : June and December

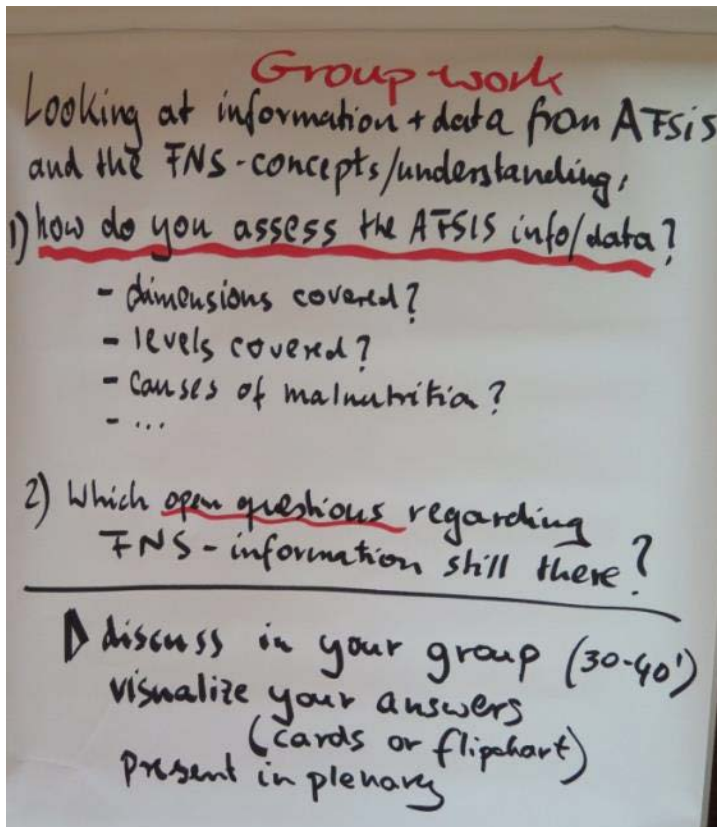
Regional Data = Sum of Country data

Some examples of AFSIS report

Noted: Dr. Georg mentions that AFSIS should clearly define their target group and try to get feedback from them in order to improve their activities. In his opinion, the important thing AFSIS needs is to convince policy maker to read and use their information.

GROUPWORK I

In the last session of the 2nd day, participants are separated into 3 groups to do the group work activities

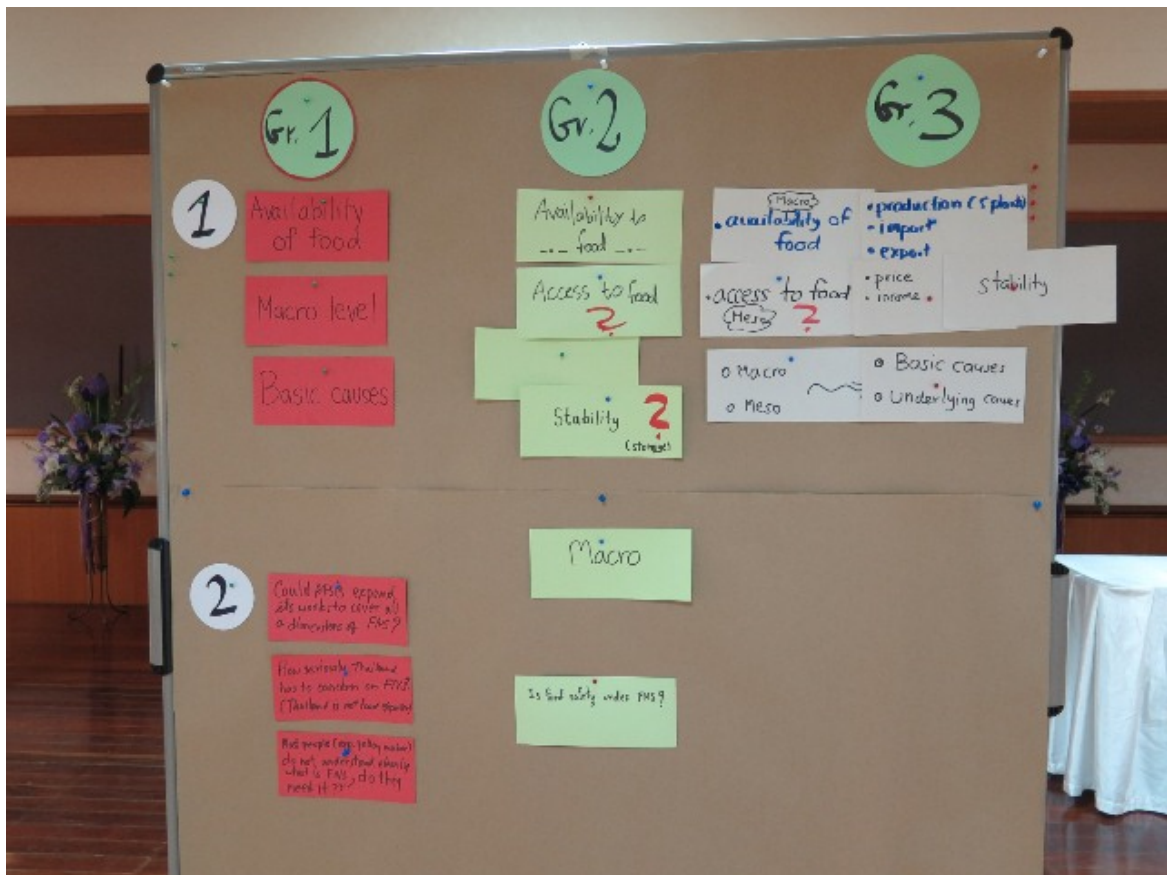


**2 Questions for
group discussion**



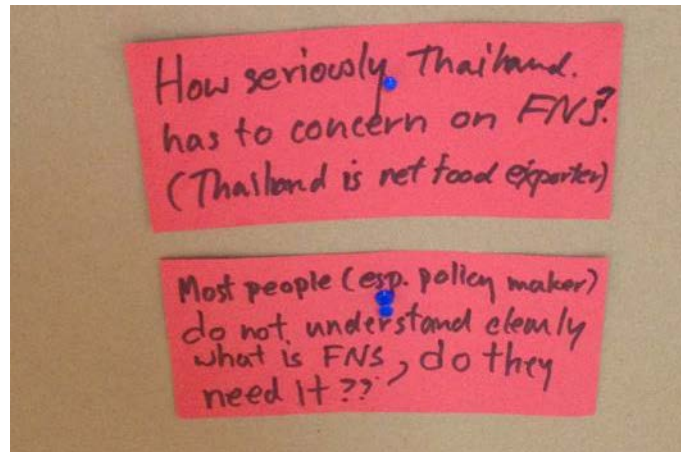
GROUPWORK I

Results of each group



From the discussion, AFSIS information covers FNS in the dimension of food availability, in macro or global level, and basic cause of malnutrition.

GROUPWORK I

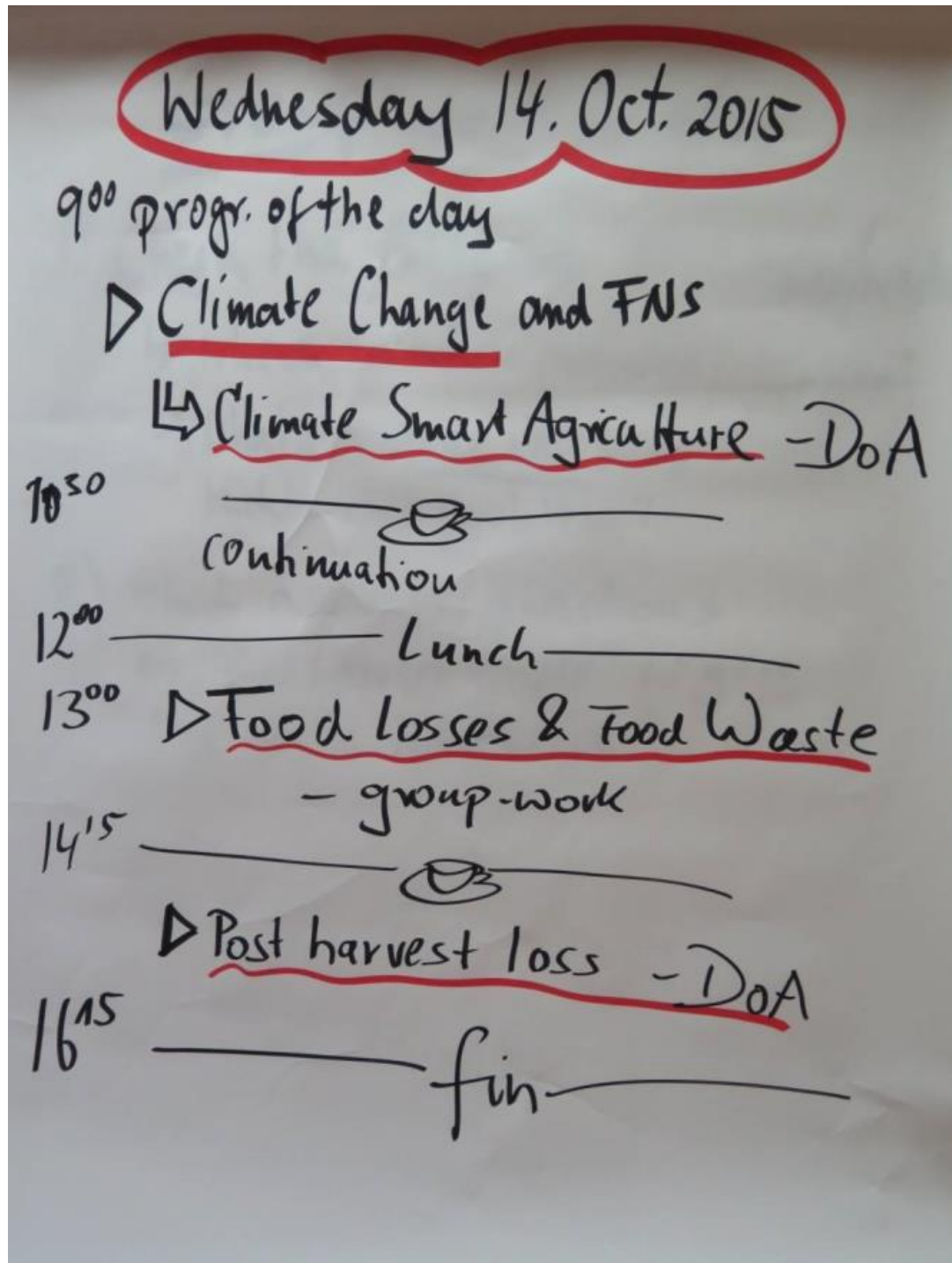


From the discussion, Thailand have not much problem in food availability. However, problems are occur in other dimensions including food accessibility and use and utilisation.

In order to cope with the problems effectively, the clearly understanding of FNS is very important especially for policy makers.



Day 3: The 3th day of training started with the program of the day.

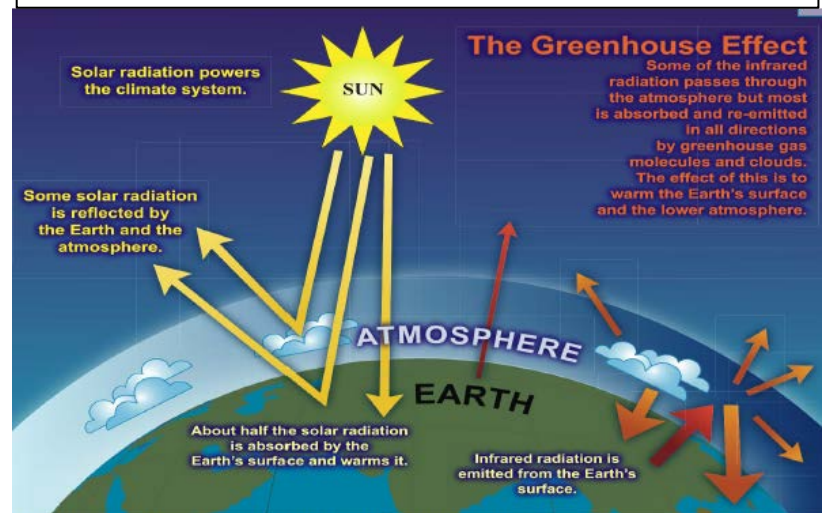


Module 1: Climate Change

Training of day 3, Mr. Georg made an introduction on climate change with a presentation “Tackling climate change in agriculture: approaches to adaptation in Asia”. The presentation can be found on a USB stick.

The first part discussed the causes and effects of greenhouse gas and climate change.

The Earth's climate system ➤ the greenhouse effect

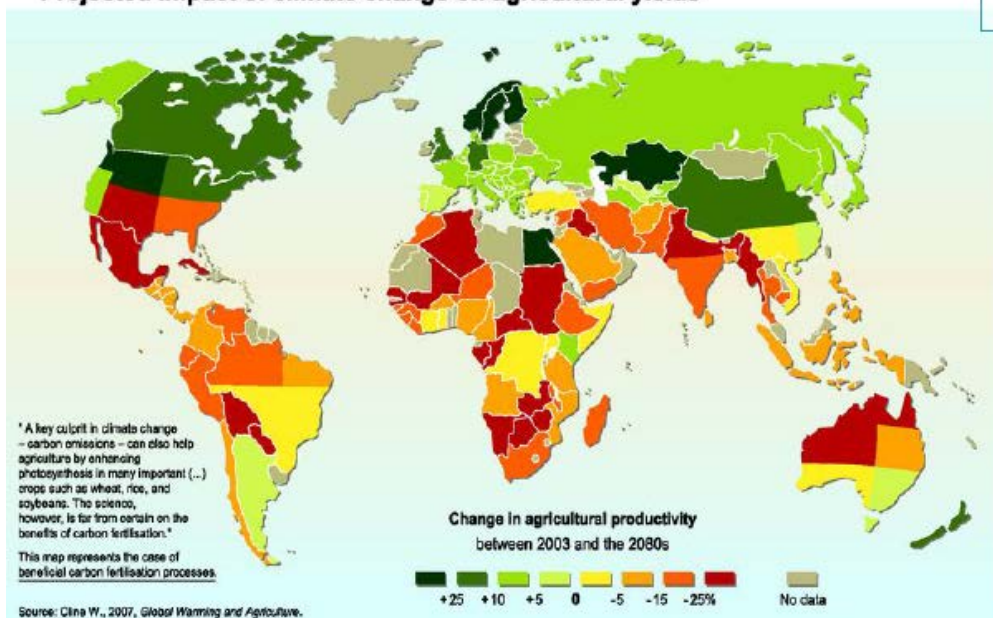


Source: Climate Change 2007. The Physical Science Basis. IPCC Working Group I. Contribution to the 4. AR
24/03/2015
Intro Climate Change and Agriculture Ia

The effects of climate change on agriculture

Effects on agricultural yields

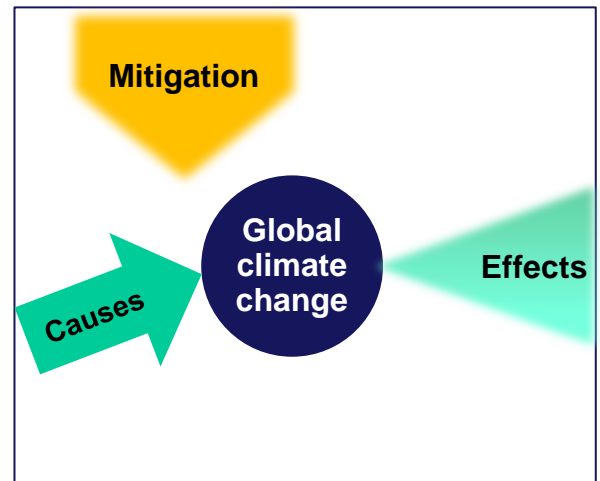
Projected impact of climate change on agricultural yields



Module 1: Climate Change (2)

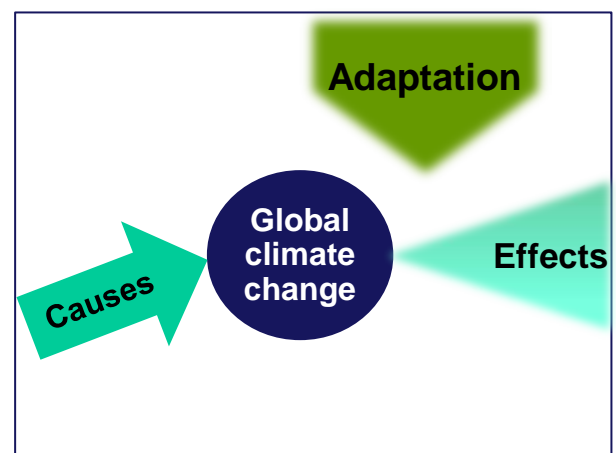
Mitigation

- Avoid the un-manageable
- IPCC (2007): Technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, **mitigation means implementing policies to reduce GHG emissions and enhance sinks.**
- Copenhagen (COP 2008): +2°C maximum
- IPCC (2013): Carbon Budget Concept



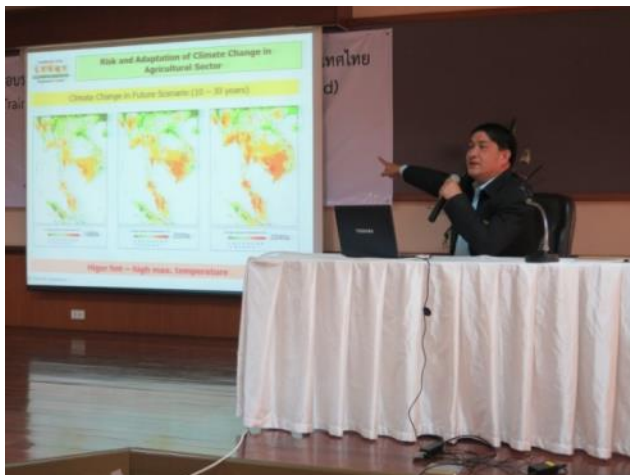
Adaptation

- Manage the un-avoidable
- IPCC (2007): Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
 - Autonomous
 - Planned
 - Policy
 - Technical measures
 - Capacity development
 - Research
- What is the objective?



Module 2: Climate Smart Adaption and Security in Thailand

By Dr. Somchai Boonpradub
Senior Expert in Cropping System
Department of Agriculture



การเกษตรกรรมที่เท่าทันต่อสภาพภูมิอากาศ
กับความมั่นคงด้านอาหารในประเทศไทย
**Climate - Smart Adaptation and Food Security
in Thailand**



Somchai Boonpradub
Department of Agriculture



Global Warming and Climate Change in Thailand

- Increasing Trend of Temperature and Drought throughout the Country
- Trends in Seasonal Changes
- Trend of Increase in Annual Precipitation Amount
- Fluctuate in Climate both Temporal and Spatial

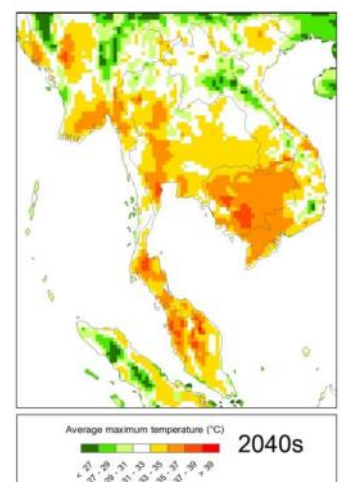
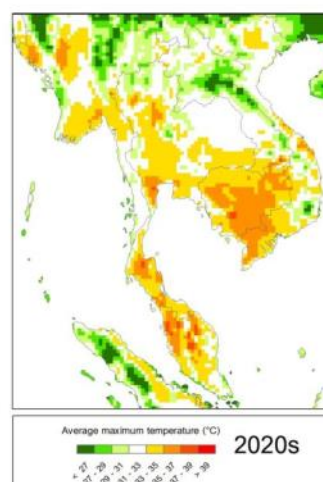
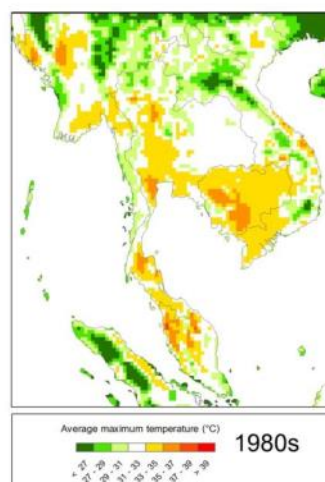
Impacts of Climate Change on Agricultural Sector in Thailand

- Change in Growth and Development of Crops
- Change in Cropping Pattern
- Pest Outbreak
- Higher Risk in Crop Production
- Change in Suitable Area for Crop Production

Risk and Adaptation of Climate Change in Agricultural Sector

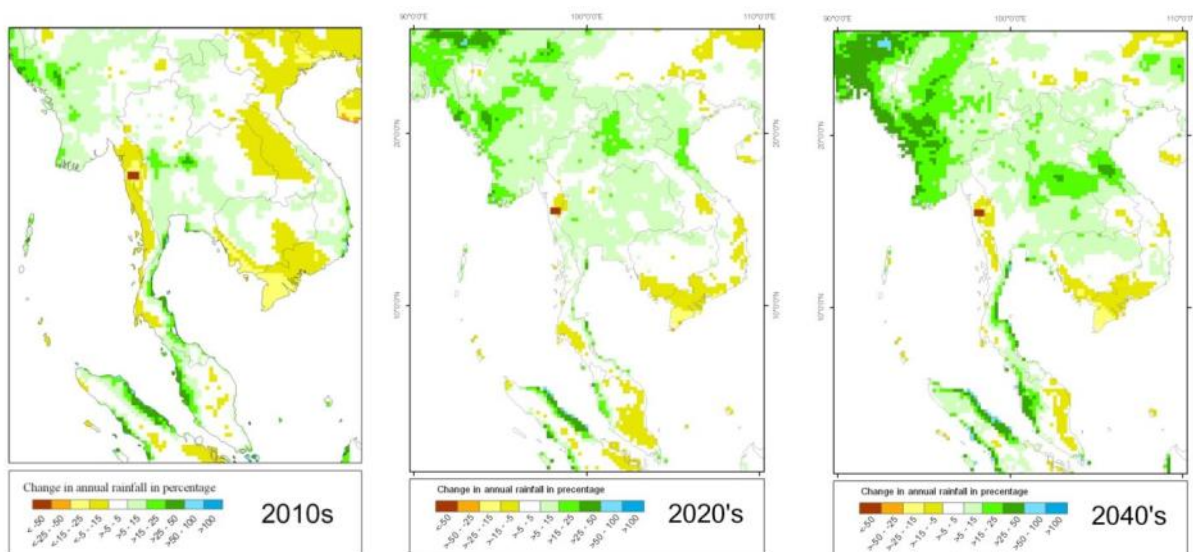
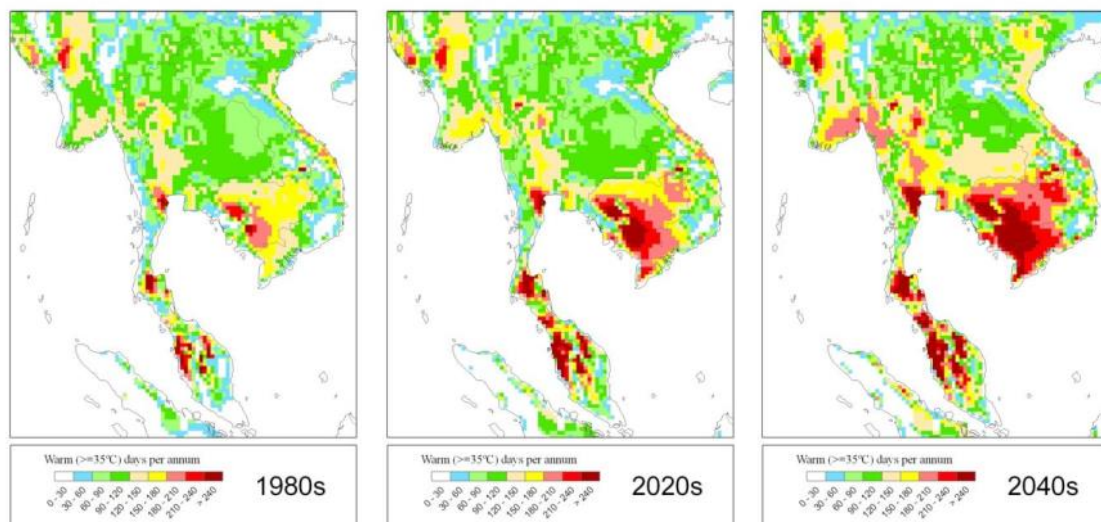
Climate Change in Future
Scenario (10 – 30 years)

Higher hot – high max.
temperature



Module 2 : Climate Smart Adaption and Security in Thailand (2)

More hot interval –
More no. of hot days



More amount of
rainfall

Adaptation Options

Rainfed rice :

- Using Early maturity and Drought Tolerant Varieties
- Suitable cultural practice and nutrient management

Corn :

- Change planting date from early to mid rainy season

- Using Early maturity and Drought Tolerant Varieties

Cassava :

- Change planting date from early to late rainy season

- Change to sugarcane in hotspot area (1.6 million rai)

Sugarcane :

- Supplementary water during early vegetative growth

Conclusion

- Climate change as affected to pest outbreak.
- Drought as affected to black-headed caterpillar infestation in coconut plantation.
- Controlling in black-headed caterpillar by using trunk injection with *Goniozus nephantidis* including other factors i.e. rainfall, irrigation water application, intercrop.

Module 3 : Food losses and waste (1)

Mr. Georg gave the overview on global food losses and food waste

Roughly **one third of the food** produced in the world for human consumption every year — approximately 1.3 billion tonnes — gets lost or wasted.

Food losses and waste amounts to roughly US\$ 680 billion in industrialized countries and US\$ 310 billion in developing countries.

Fruits and vegetables, plus roots and tubers have the highest wastage rates of any food.

Per capita waste by consumers is between 95-115 kg a year in Europe and North America, while consumers in sub-Saharan Africa, south and south-eastern Asia, each throw away only 6-11 kg a year.



Food Losses and Waste in the Global Context

Food loss and waste also amount to a major squandering of resources, including:



and needlessly produce
GREENHOUSE GAS EMISSIONS, contributing to
GLOBAL WARMING and **CLIMATE CHANGE**.

www.fao.org/save-food

SAVE FOOD: Global Initiative on Food Loss and Waste Reduction



Food and Agriculture Organization
of the United Nations



©FAO, 2015

Module 3 : Food losses and waste (2)

Food losses in Thailand: Report from a stakeholder Meeting in Bangkok 2013

report highlights:

- Approximately 46.6 percent of the total population of Thailand is engaged in agriculture.
- The country is self sufficient in food production and is also engaged in export.
- Relatively little research has been conducted to quantify the levels of post-harvest loss in the country. Estimates: more than 30 percent post harvest loss is sustained in agricultural production mainly during transport and storage owing to the lack of infrastructure and technologies.

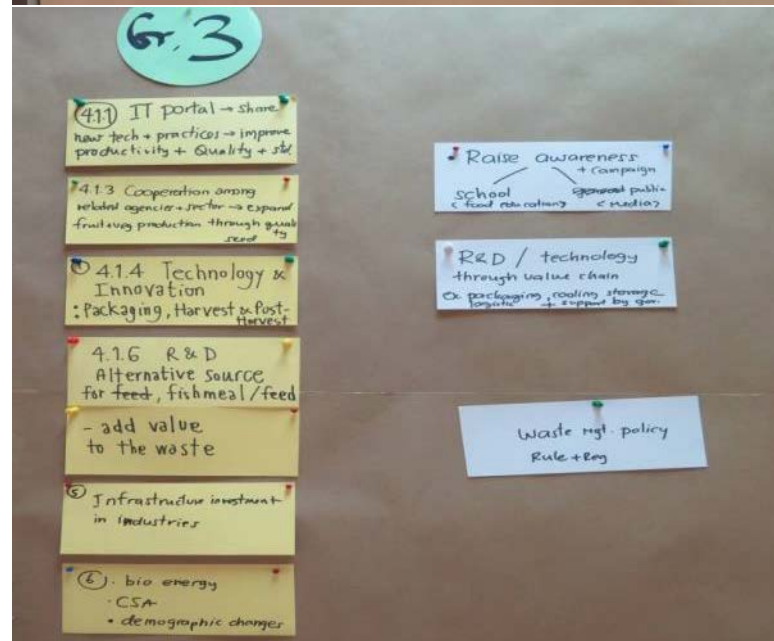
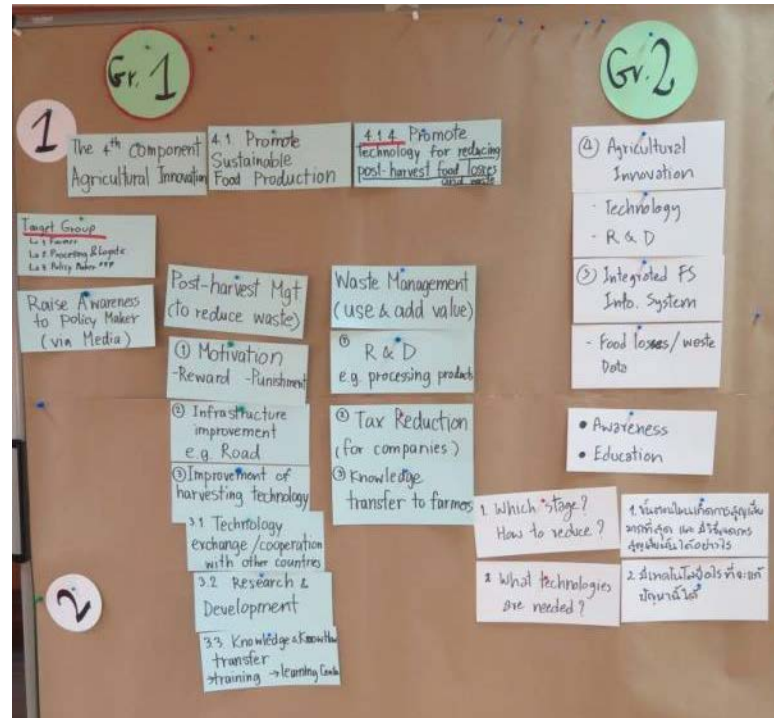
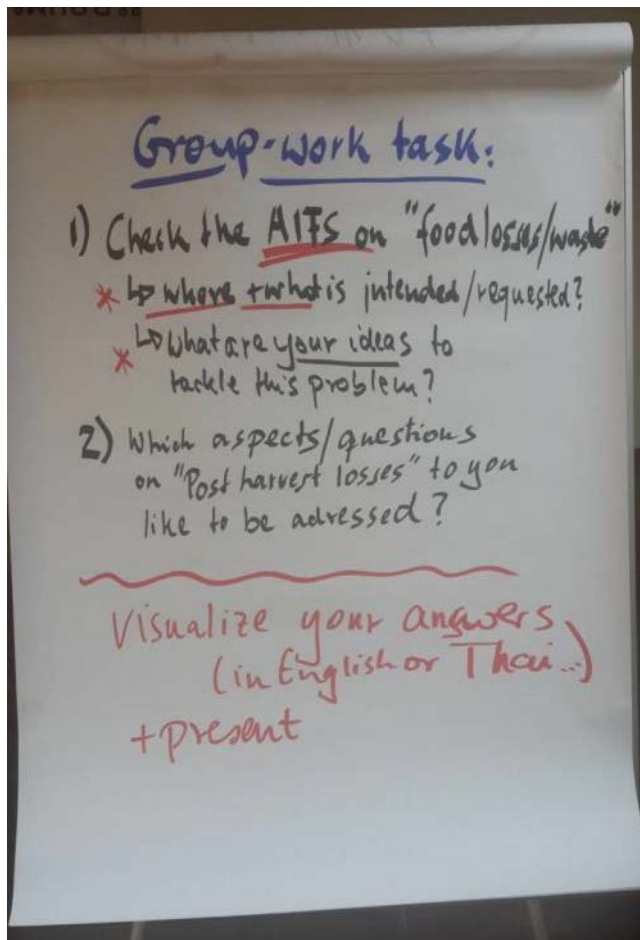


Challenges faced by Thailand in terms of food losses and food waste

- Lack of knowledge and technology transfer to farmers,
- costly post-harvest infrastructure and technologies,
- lack of funds for research and development,
- lack of investment and the involvement of local manufacturers in constructing small scale need based post-harvest infrastructure;
- lack of awareness among policy makers and the general public about the need to reduce food losses after harvest,
- low price of food commodities in the local market which discourages farmers from using proper packaging and transportation, and
- high cost of packaging and transportation.

Group work

Questions for 3 groups to discuss
and Results of each group



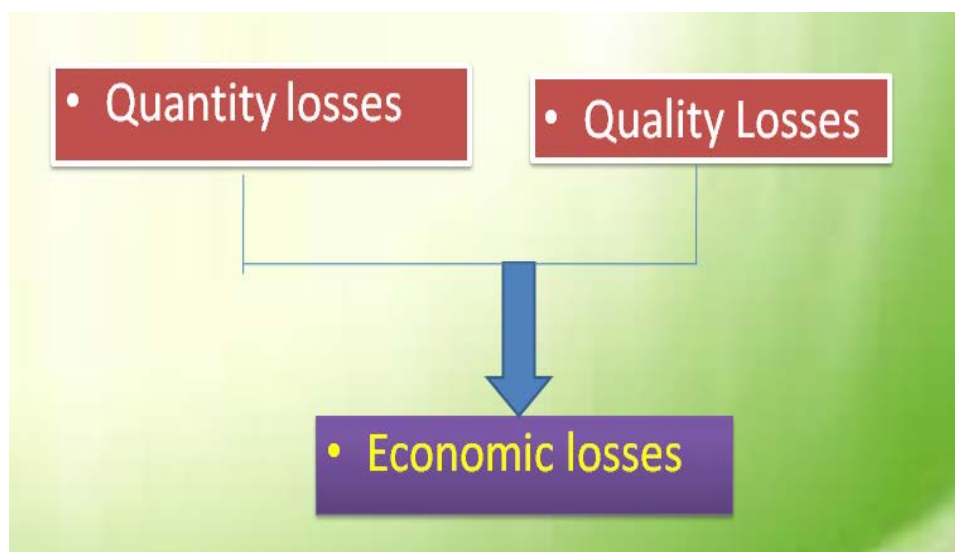
Module 4 : Postharvest Losses (1)

By Ms. Charuwan Bangwaek
Senior Agricultural Scientist
Department of Agriculture



Postharvest Losses

The main idea is how to minimize the loss of products or how to maintain the best quality



Quantity and quality losses tend to economic losses

Module 4 : Postharvest Losses (2)

Economic losses

- Food safety for export
 - Microorganisms : *E. coli*, *Salmonella* sp.
 - insects
 - Chemical residue
 - Toxic : aflatoxin

Quality

- Fresh
- color (browning)
- Sweetness
- Vitamin
- Residue

Quantity Losses

- Pests (microorganism, stored pest , rodent)
- Mechanical damage
- Climate change



Quantity losses of Fruit & vegetable

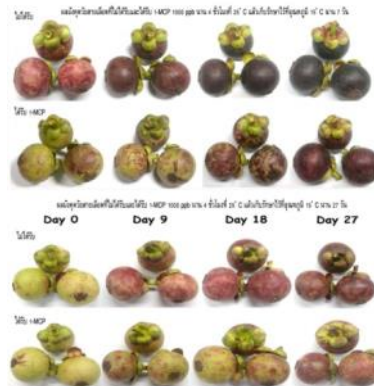


Module 4 : Postharvest Losses (3)

Postharvest Technology

Fruit :

- harvesting times - about 70-80% ripening
- Longevity
 - Modified atmosphere (plastic temp. and adj. gas)
 - Packaging
 - Ethylene absorber
 - 1-MCP
 - Sulfur fumigation



Postharvest Technology for fruit and vegetable



Module 4 : Postharvest Losses (4)

Harvesting

- Suitable harvesting time
- How to harvest



Drying

Crop	%MC at harvest	%appropriated MC
rice	>25-30	14-15
cassava	>60	14-15
maize	>30	14-15

Transporting

- Crop
- Clean
- short time
- safety

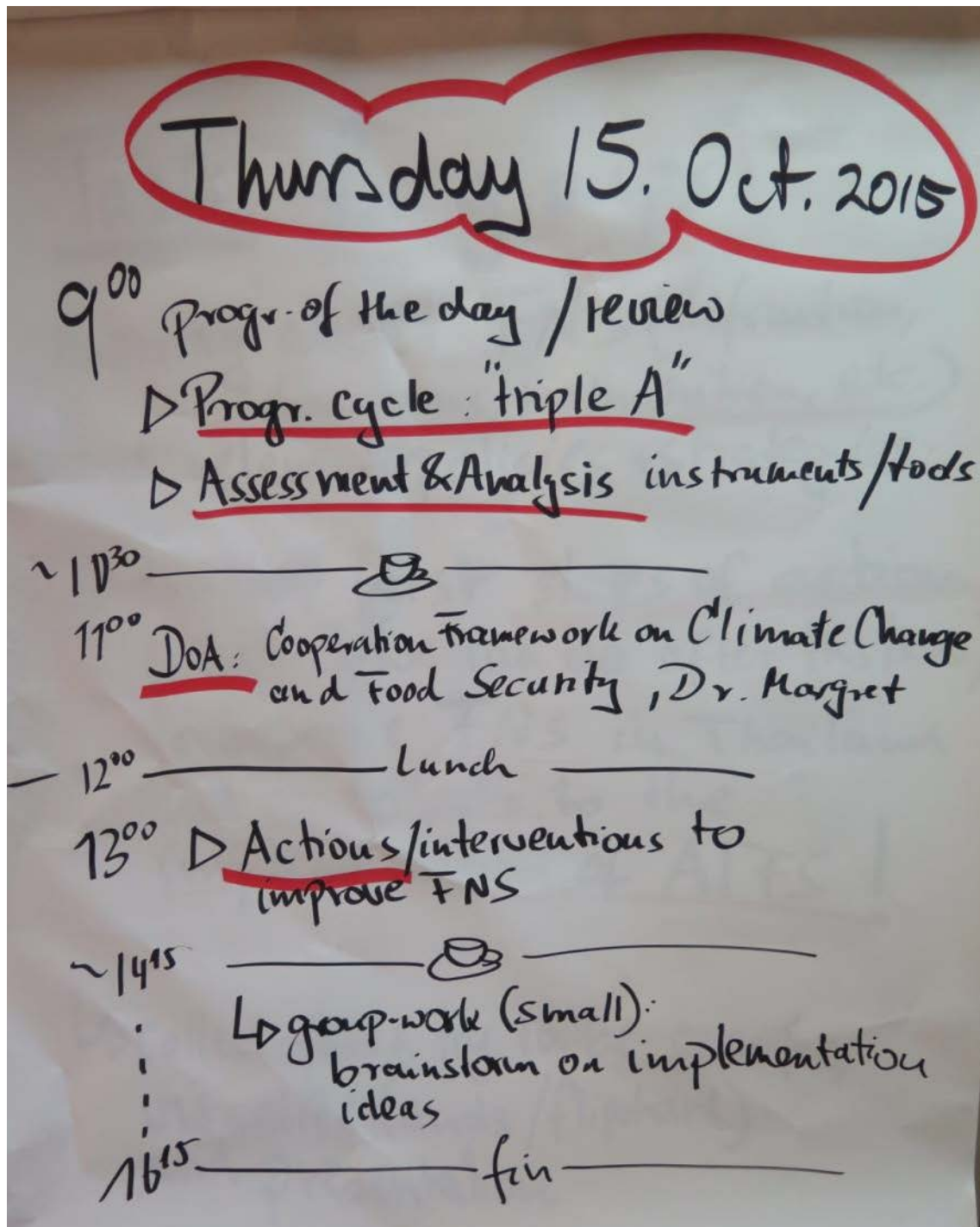


Storage

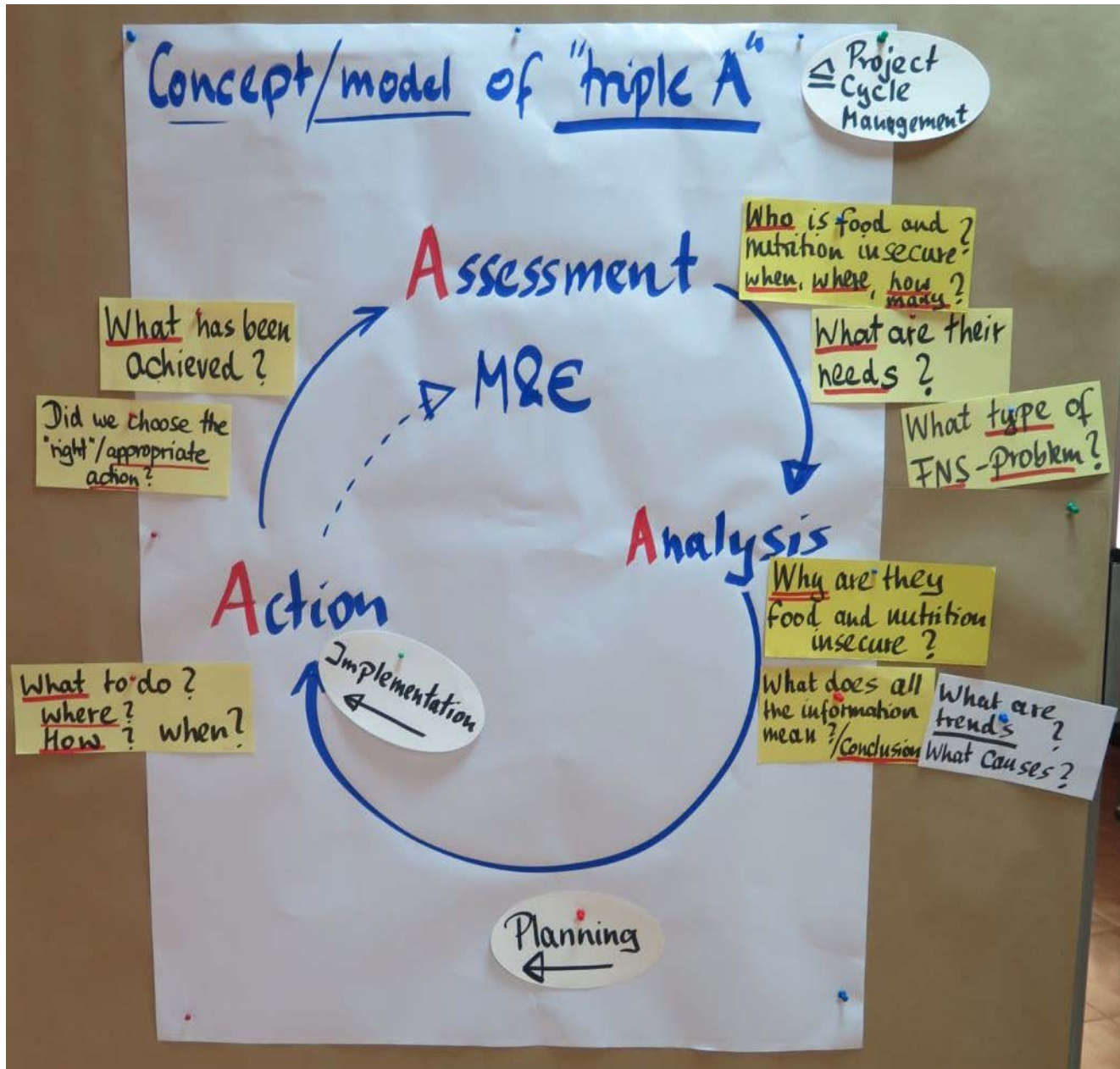
- Cleanliness
- good air circulation
- Low temperature
- place on pallet
- storage duration



Day 4: Dr. Georg introduced program of the day



Module 1: Program Cycle “Triple A”

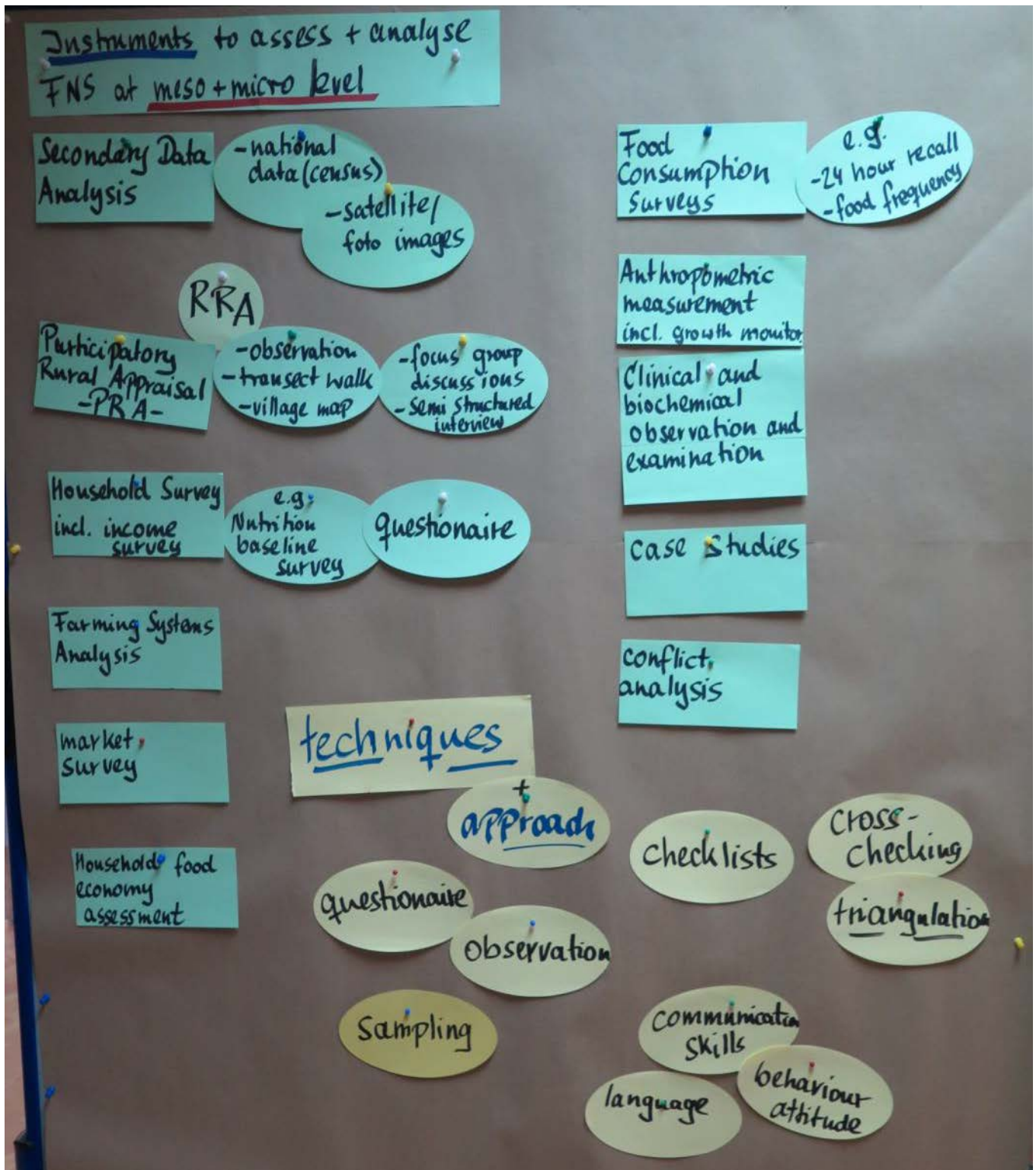


The concept/model “Triple A” is introduced to explain project cycle management.

Assessment and Analysis: normally conducted together with Analysis when planning for a project or as part of Monitoring and Evaluation during an implementation.

Action

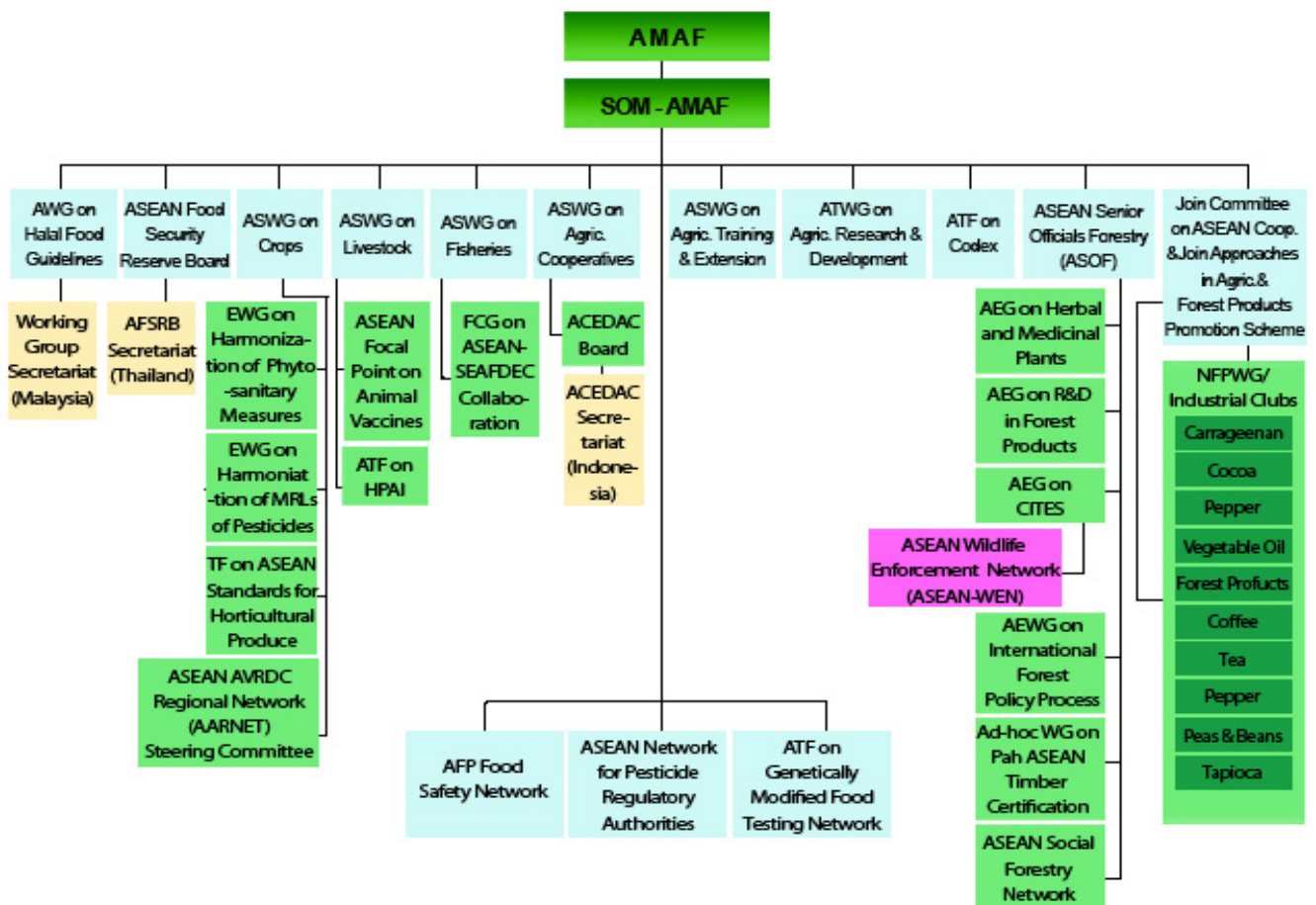
Module 1: Program Cycle “Triple A”: Assessment and Analysis



Instruments/tools commonly used to assess and analyze FNS at meso and micro level

Module 2: ASEAN cooperation on climate change and food security

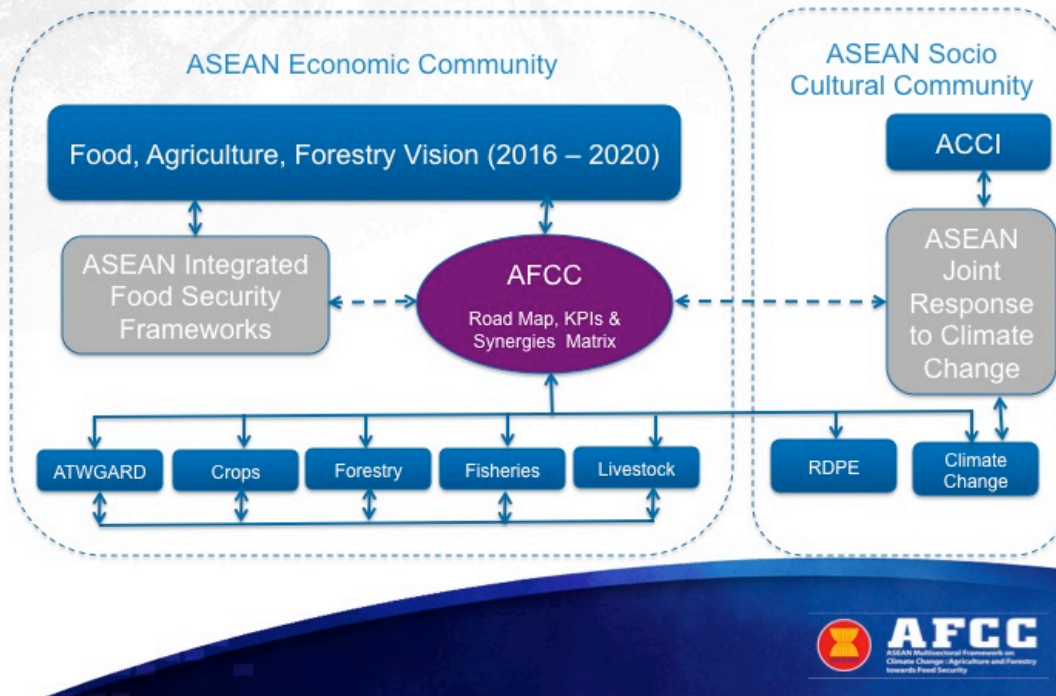
Dr. Margaret Yoovatana, Senior Policy and Plan Analyst at the Department of Agriculture made a presentation on International Cooperation to Strengthen Capacity in Managing the Impact of Climate Change on Food Security.



Structure under the ASEAN Ministers on Agriculture and Forestry (AMAF) consist of bodies relevant to food security including AWG on Halal Food Guidelines, ASEAN Food Security Reserve Board, ASWG on Crops, ASWG on Livestock, ASWG on Fisheries, ATWG on Agricultural Research and Development, ASEAN Task Force on Codex, and Joint Committee on ASEAN Cooperatives and Joint Approaches in Agriculture and Forest Products Promotion Scheme and networks such as Food Safety Network, Pesticide Regulatory Authorities and GM Food Testing Network

Module 2: ASEAN cooperation on climate change and food security

ASEAN Frameworks & Bodies



Key ASEAN frameworks addressing food security include:

- ASEAN Integrated Food Security (AIFS) Framework
- ASEAN Multi-Sectoral Framework on Climate Change: Agriculture and Forestry towards Food Security (AFCC)

Both frameworks are cross-sectoral or multi-sectoral in nature.

The AFCC four inter-related components

- Component 1: Integration of climate change mitigation and adaptation strategies into the economic and social development **policy framework**
- Component 2: **Cooperation** on the implementation of adaptation and mitigation measures
- Component 3: Strengthening of national and **regional knowledge sharing**, communication and networking on climate change and food security
- Component 4: Developing a more comprehensive **multi-sectoral strategic framework** and a roadmap for implementation

Module 2: ASEAN cooperation on climate change and food security**ASEAN-German Programme on Response to
Climate Change in Agriculture and Forestry
(GAP-CC)****SAS**
Sustainable Agrifood Systems
2014-2017**FOR-CC**
Forestry and Climate Change
2015-2017**Regional
Cooperation
on Forestry****Climate
Smart Value
Chain**

GAP CC has supported **ASEAN, together with FAO**, in developing vision and strategic plan for ASEAN Cooperation in the Food, Agriculture and Forestry (2016 – 2025), in particular with **sectoral support on food, crops and the forestry sector**.

In support to **Ad-hoc Steering Committee on Climate Change and Food Security**. Furthermore, it has provided regional knowledge management support in terms of **regional expert forums** (e.g. Gender and Climate Smart Agriculture), knowledge management **training**, climate proofing training to the AFCC Steering Committee and relevant working groups.

ASEAN Sustainable Agrifood Systems (SAS) is one of the two modules under GAP-CC. The project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) from 2011-2017 and hosted by the **Thai Department of Agriculture**, Ministry of Agriculture and Cooperatives where its Project Coordination Unit (PCU) is located.

The overall project's objective is to enable ASEAN Member States to **implement** the ASEAN Integrated Food Security (**AIFS**) Framework and its Strategic Plan of Action on Food Security in the ASEAN region (SPA-FS) by focusing on the promotion of sustainable food production at the national level.

ASEAN Sustainable Agrifood Systems (SAS) project

SAS aims to enable AMS to implement the AIFS Framework and its SPA-FS, **Strategic Thrust 4: Promote Sustainable Food Production**, at national level through the promotion of sustainable agrifood systems. Ongoing activities in Thailand include:

- At national level, the “**Policy Dialogue** on Food and Nutrition Security and the ASEAN Integrated Food Security (AIFS) Framework in Thailand” was organized at the end of March 2015. The Policy Dialogue identified issues and challenges in the implementation of Strategic Frameworks and projects relevant to food and nutrition security of Thailand and its contribution and linkages to the implementation of the AIFS Framework and its SPA-FS by focusing on the promotion of sustainable food production at the national level.
- **The ASEAN Guidelines on the Regulation, Use, and Trade of Biological Control Agents (BCA)**
- **Expert Group on BCA Regulation and Application**
- **Expert Group on Soil and Nutrient Management (SNM)**

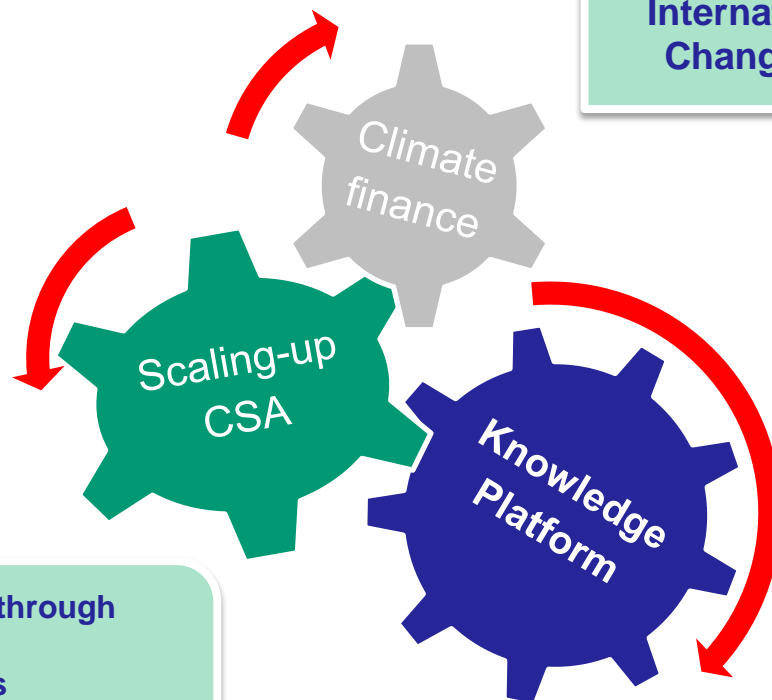
Externally-Funded Public and Private Partnerships

- The Project engages in the implementation of externally-funded public and private partnerships, which include the **Better Rice Initiative Asia (BRIA)**. BRIA have been operational in four countries, namely Indonesia, Philippines, Thailand and Vietnam. Capacity development on sustainable rice cultivation for small-holder farmers have been initiated. Among others, these include development of training modules on optimization of inputs, large-land management, integrated crop management, and rice by product development. Moreover, rice fortification has been kick started in Indonesia to enhance nutrition in rice.
- For awareness raising among rice farmers, "Farmers Love Safety" an edutainment reality contest was launched last year in Thailand to advocate the importance of optimal and safe use of agri-inputs. More awareness raising programs on integrated crop management in the rice sector are expected to come.

Forestry and Climate Change (FOR-CC) project

Component 2: Climate Smart Value Chains

“AMS have increased their financial and technical capacities for disseminating climate smart practices in agriculture and/or forestry value chains”



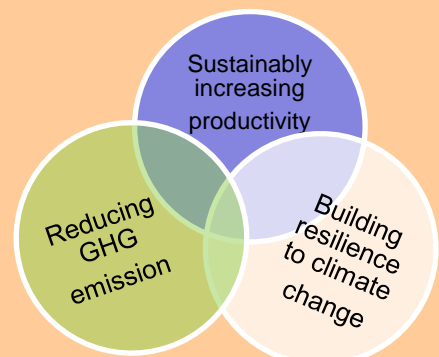
**Promote CSA in
International Climate
Change Processes**

- CSA Implementation through partners
- Investment Proposals
- Agricultural Advisory services institutions

- Identify CSA Practices
- Share and exchange knowledge among AMS
- Develop policy proposals / guidelines

Climate Smart Agriculture to respond to :

- ❖ Food security
- ❖ Climate change



Forestry and Climate Change (FOR-CC) project

Promotion of Climate Resilience in Rice and Other Crops

- Support the Thailand proposal Promotion of Climate Resilience in Rice and Other Crops (lead by Thailand).
- Support 7 AMS to conduct national studies conducted to assess climate impacts on crop production chain and establish good practices and capacity needs.
- Trainings on integration of adaption into development planning to AFCC relevant working groups and conducted pilots of climate proofing application in selected sectors.
- Regional Guideline on Promoting Climate Smart Agriculture Practices has been endorsed at the 37th AMAF Meeting in Manila, Philippines during 7-12 September 2015



In cooperation with:



Promotion of Climate Resilience for Food Security in ASEAN Rice, Maize and Cassava



The good practices are identified in national case studies. The publication on the “Promotion of Climate Resilience for Food Security in ASEAN: Rice, Maize and Cassava” including the national case studies from 7 ASEAN Member States can be download at <http://www.asean-agrifood.org/resources/>

Regional Guideline on Promoting Climate Smart Agriculture Practices

The Regional Guideline aims:

- ❖ To generate the needed **scientific data** and information relevant for the efficient implementation and scaling-up of CSA practices;
- ❖ To develop the **scientific expertise** and provide the technical experience on the identified CSA practices;
- ❖ To promote **exchange** of field data and information for the cross-location analysis of CSA practices; and
- ❖ To provide opportunity for **capacity building** and technical exchange and assistance among participating countries in the ASEAN ASEAN-CRN to promote institutional and enabling factors necessary for up-scaling CSA practices in AMS.

The Regional Guideline supports:

1. Establishment of the **ASEAN-Climate Resilience Network (CRN)** as a Regional Knowledge Platform
2. **Sharing** of knowledge, data and information
3. ASEAN **Policy Briefs**, Joint Statements and Protocols on Promotion of CSA
4. **South – South Collaboration**
5. **Partnerships**
6. **Sustainable Financing**
7. Regional Steering and **Monitoring and Evaluation**

ASEAN cooperation on climate change and food security

ASEAN cooperation frameworks and partnerships addressing climate change and food security include:

1. **ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC)** supports the implementation of AFCC through the strengthening of ASEAN Social Forestry Network (ASFN).
2. **ASEAN-FAO Biomass Energy for Food Security (BEFS)** aims to encourage more sustainable future development of the bioenergy sector in ASEAN.
3. **ASEAN Plus Three Bioenergy and Food Security Framework (2015-2025)** encourages the development of green renewable energy including bioenergy to achieve a range of national development objectives of energy security, improved environmental performance and rural employment and development.
4. AMS agreed to support UN Secretary General's **Zero Hunger Challenge** at regional and country levels.
5. **ASEAN Cooperation in Food, Agriculture, and Forestry (FAF) 2016-2025**

ASEAN FAF Vision and Goals

Vision:

- A competitive, inclusive, resilient and sustainable Food, Agriculture, and Forestry (FAF) sector integrated with the global economy, based on a single market and production base contributing to food and nutrition security and prosperity in the ASEAN Community

Goals:

- Equitable (gender, household and regional), sustainable and inclusive growth
- Poverty alleviation and hunger eradication
- Food security, food safety and better nutrition
- Deeper regional integration
- Gain from access to global markets
- Increase resilience to, and contribute to mitigation and adaptation of, climate change, natural disasters and other shocks
- Sustainable Forest Management (SFM)

ASEAN cooperation on food safety, food security and nutrition

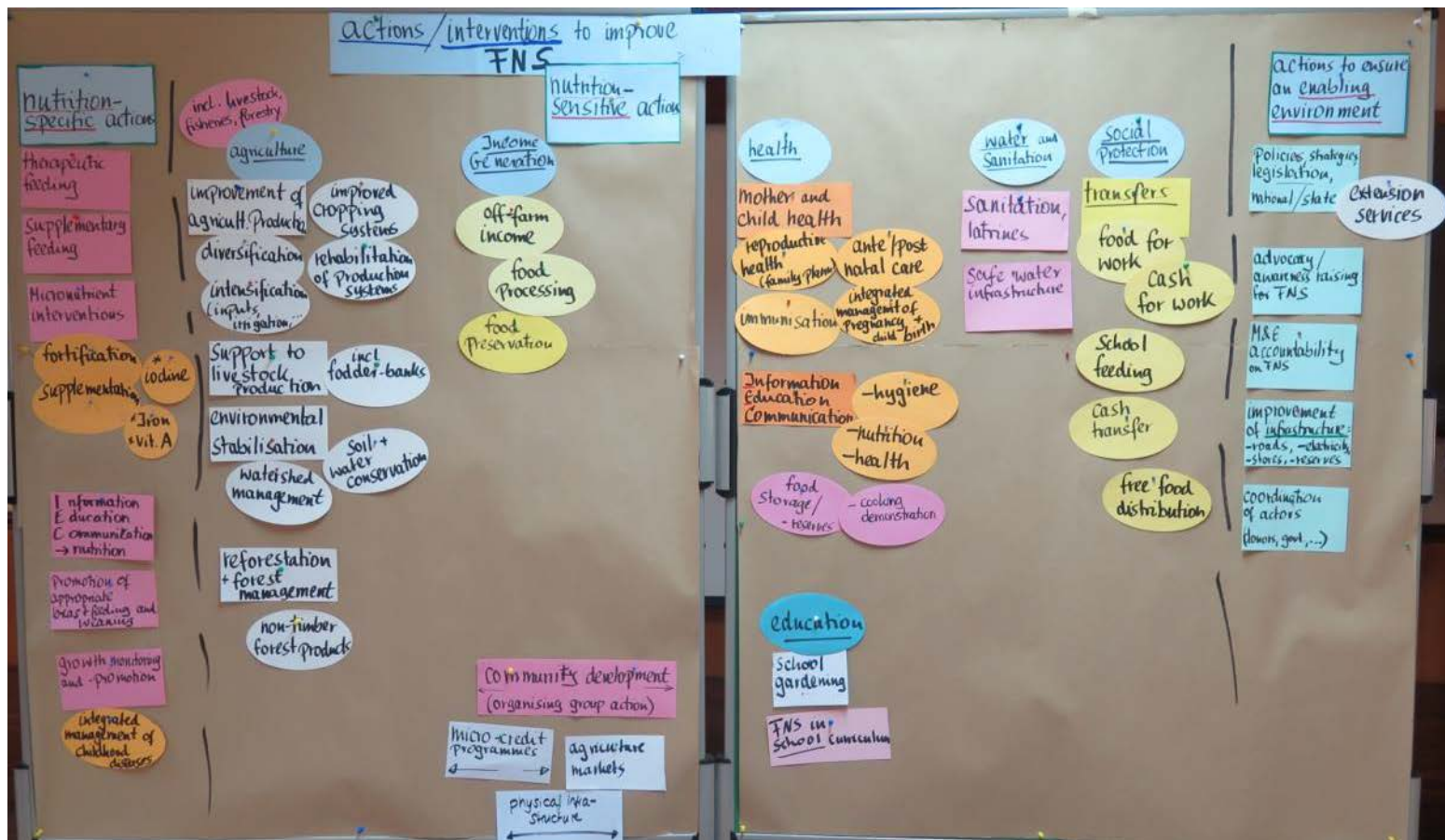
Food safety, food security and nutrition

- ASEAN Food Safety Network can be expanded to a **multi-sectoral task force** to address food cooperation issues in ASEAN. Effective coordination with the other organizations and bodies, including Health and Trade sectors and international partners involved in this area will be strengthened.
- The ASEAN Committee on SPS Measures (AC-SPS) shall coordinate with SPS-related bodies under AMAF (ASWGC, ASWGL, ASWGFi, ATFC, AWGHF, ASEAN GMF Net, ARASFF) through the **ASEAN SPS Contact Points (ASCP)** and coordinate with,
 - (a) the ASEAN Consultative Committee on Standards and Quality (**ACCSQ**) - Prepared Foodstuff Product Working Group (**PFPWG**), responsible in coordinating activities related to the exchange of information on international food trade, standards and conformity assessment, and development of food technical regulations in AMS,
 - (b) the ASEAN Expert Group on Food Safety (**AEGFS**), responsible in addressing important issues related to food safety under seven (7) program areas of the ASEAN Food Safety Improvement Plan (AFSIP), and
 - (c) the SPS Subcommittees created under various FTAs (e.g. **AANZFTA**, **AKFTA**, etc.) to promote extra-ASEAN trade, though its main focus is on intra-ASEAN trade.

Conclusion

- ❖ Multi-sectoral and cross-sectoral nature of food security initiatives
- ❖ Urgent needs for the implementation of the food security policy frameworks
- ❖ Policy mainstreaming of food security initiatives into national socio-economic development plans
- ❖ Scaling-up of climate smart agriculture practices in collaboration with dialogue and development partners
- ❖ Capacity building to enhance climate resilience and climate finance

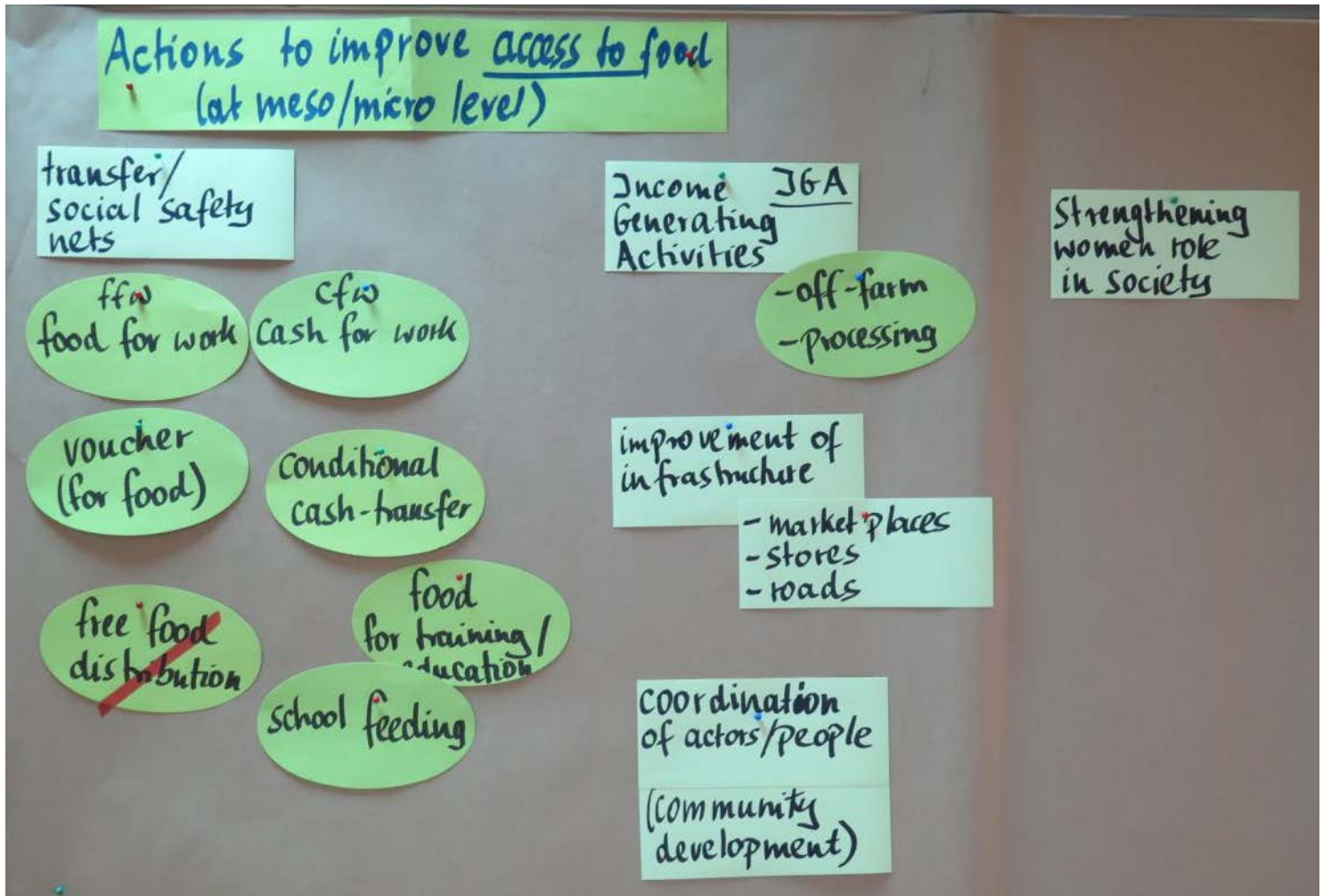
Program Cycle “Triple A”: Action



Some actions/interventions to improve food and nutrition security include

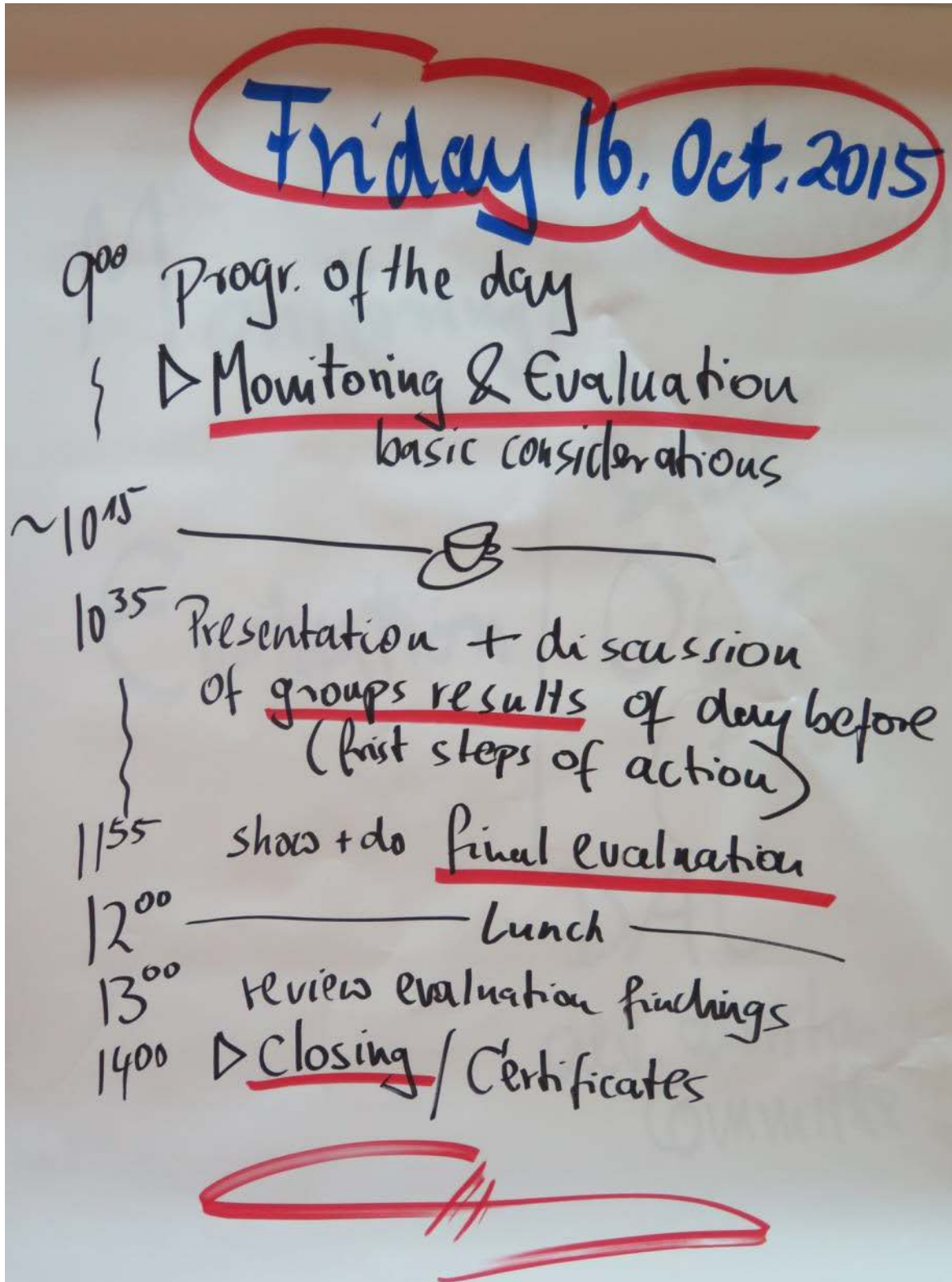
- 1) Nutrition-specific actions
- 2) Nutrition-sensitive actions
- 3) Actions to ensure an enabling environment (such as policies, legislation, etc.)

Program Cycle “Triple A”: Action

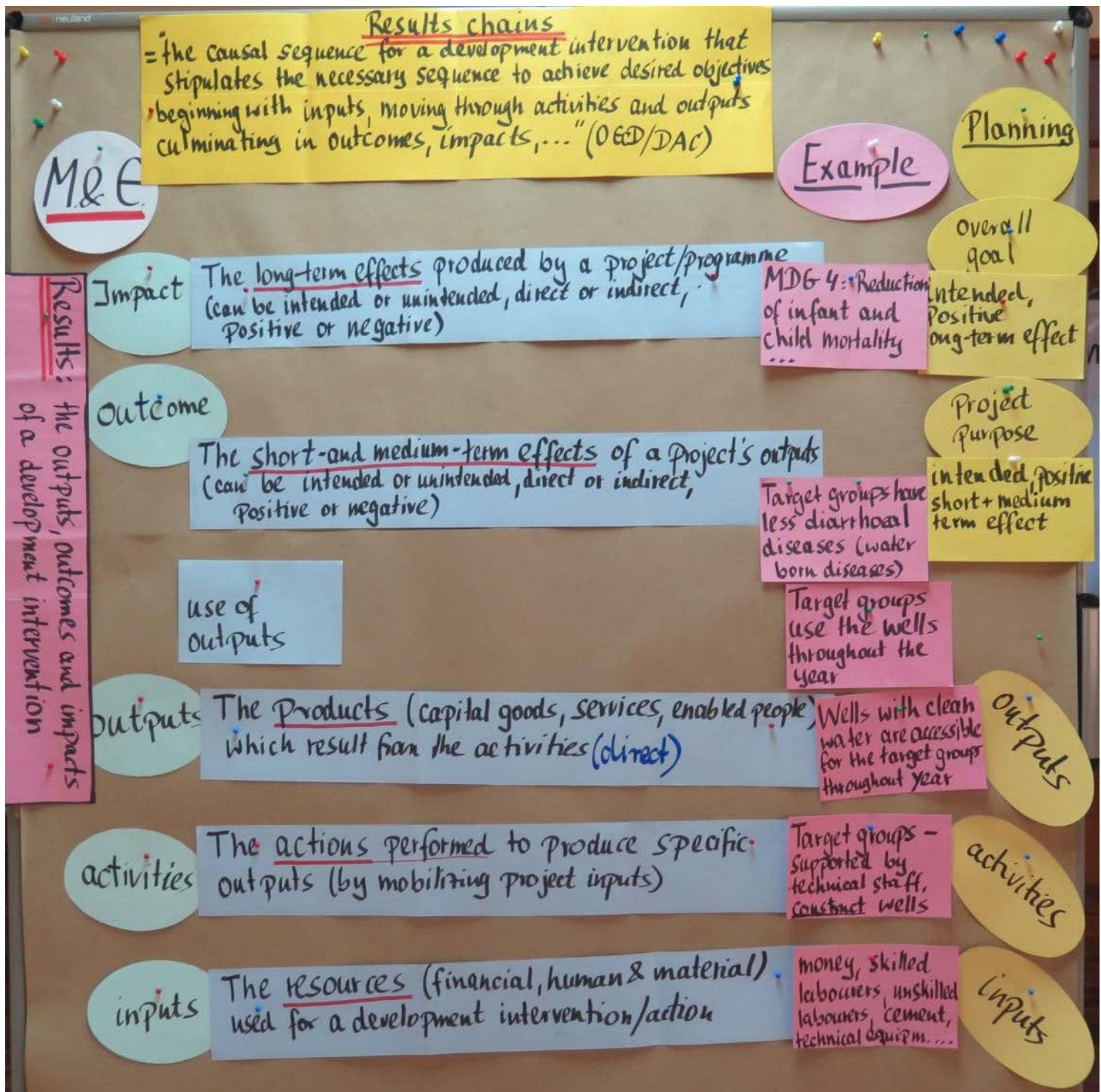


For specific intervention to improve food access at meso and micro level, some ideas for actions are given.

Day 5



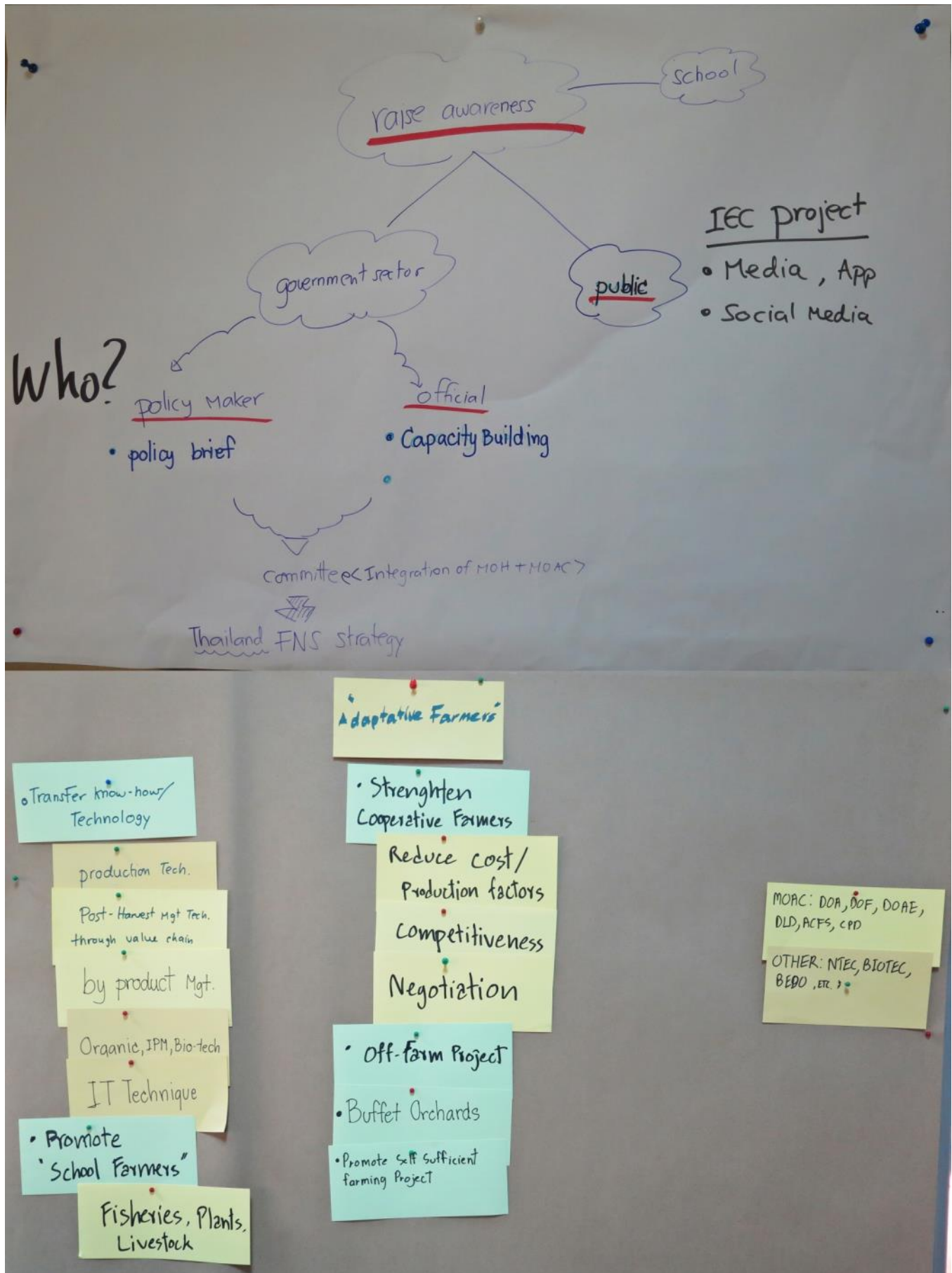
Monitoring and Evaluation (M&E)



"Results Chain" is defined as the causal sequence for a development intervention that stipulates the necessary sequence to achieve desired objectives-beginning with inputs, moving through activities and outputs, and culminating in outcomes, impacts, and feedback.

Source: OECD - Development Assistance Committee Network on Development Evaluation

Presentation by Group 1



GROUP WORK

Task for groups:

Knowing about FNS (definition, dimensions, malnutrition, etc.) and relevant policies + strategies:

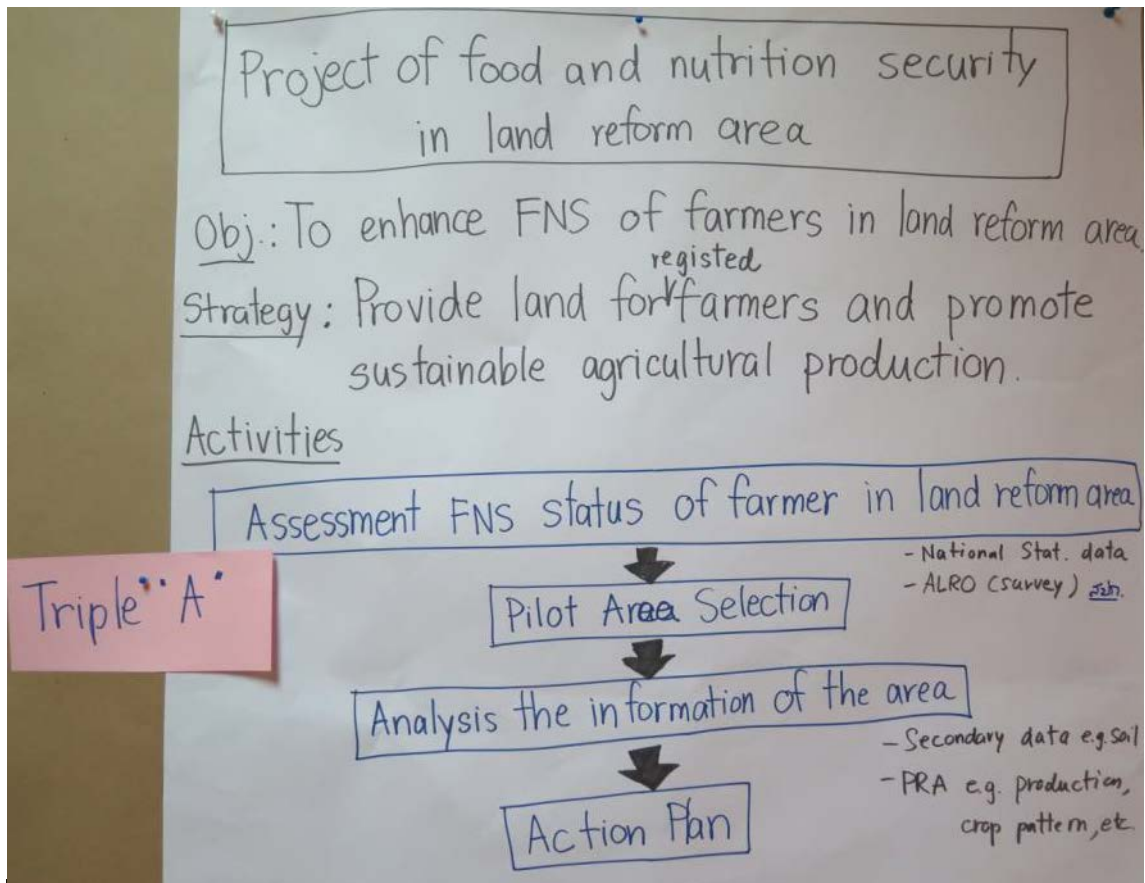
- develop first steps of action (what I/we can do after this train) to improve FNS in Thailand and contribute to the implementation of AIFS!

↳ collect ideas, try to be specific, visualize (cards / flipchart) and presentation



Participants are divided into 3 groups and assigned to develop action plan to improve food and nutrition security in Thailand and contribute to the implementation of AIFS Framework.

Presentation by Group 2



AJTS-link:

C4: Agricultural Innovation

Promote sustainable food production

Identify and address emerging issues related to FNS

C5: Nutrition-enhancing agriculture development

Develop and strengthen nutrition enhancing agricultural policies +

+ build capacities for their implementation.

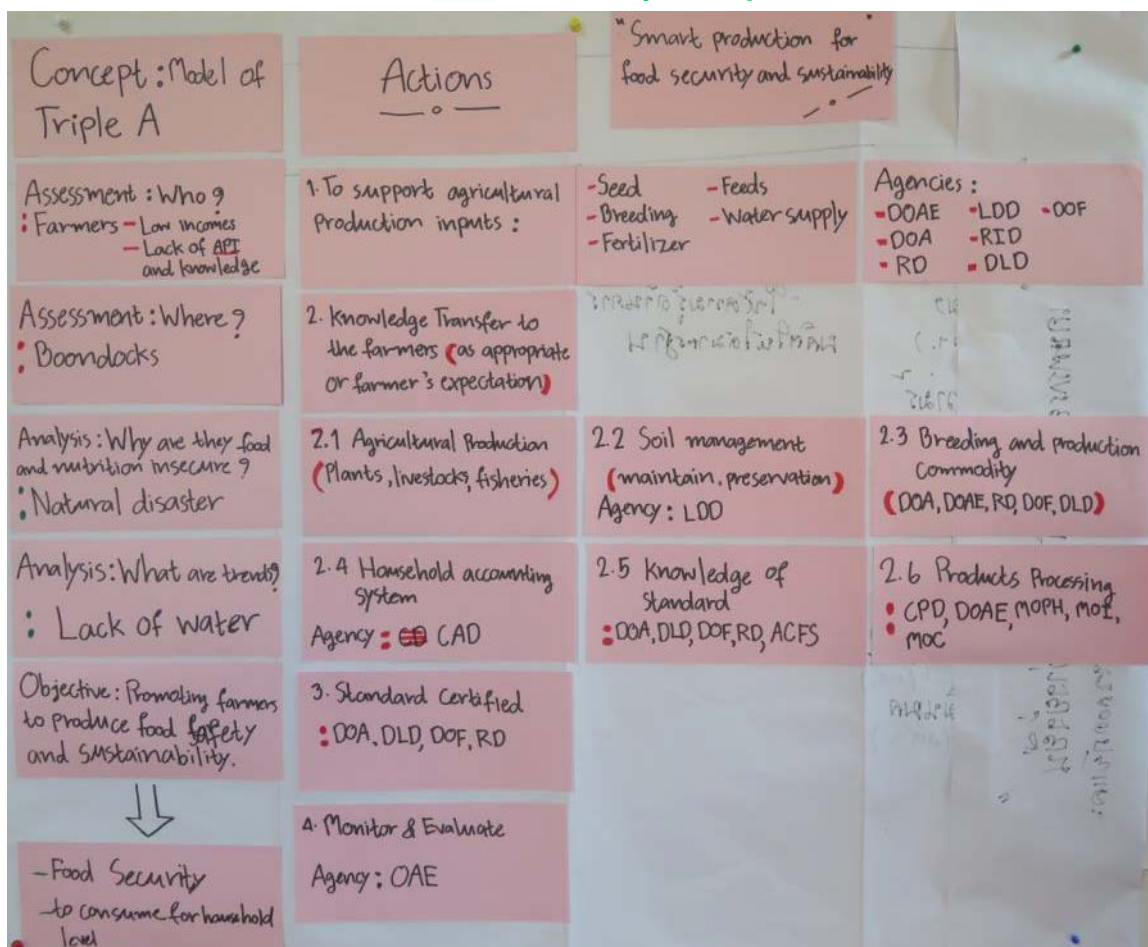
Activities	Relevant agencies
① Allocate land for farmer	ALRO
② Promote integrated farming (focusing on subsistence farming)	Access to food
- Soil analysis	LDD
- Production plan (aware of nutrition need)	ALRO, MoPH
- Improve basic infrastructure	RID, Local government agencies
- Provide seeds and poultry/cattle	DOA, DLD, DOF
- Provide good agricultural practises	DOA
- Provide knowledge about processing	DOAE
- Marketing management	DOAE, MoC, CPD
- Support group development e.g. Cooperatives	DO CPD
③ Monitoring & Evaluation	ALRO, OAE

Availability of food

Stability

Use & utilisation

Presentation by Group 3



กิจกรรม	2559	2560	2561	2562	หน่วยงานรับผิดชอบ.
1. สหัชชีสนับสนุนปัจจัยการผลิต (เช่น เมล็ดพันธุ์ พันธุ์สัตว์ ประมง ปุ๋ย อาหารสัตว์ สหัชชีสนับสนุนเมล็ดพันธุ์เมื่อกรณีพิเศษ)	✓	✓	-	-	กว. ภ. พด. ปศ. กป. ชป. กส.
2. ถ่ายทอดความรู้					
2.1) การผลิตพืช ประมง ปศุสัตว์ (ตามความเหมาะสม/ความเชี่ยวชาญ)	✓	✓	-	-	กว. กส. ปศ. กป. ภ.
2.2) การปรับปรุงพันธุ์/การผลิตพืช อุตสาหกรรม/อาหารสัตว์	✓	✓	-	-	พด.
2.3) การผลิตและขยายเมล็ดพันธุ์พืช ประมง/ปศุสัตว์	-	✓	✓	-	กว. ภ. ปศ. กป.
2.4) การผลิตสัตว์ประมง/สัตว์เรือน	✓	✓	-	-	กส.
2.5) ให้ความรู้ด้านการผลิตที่ได้มาตรฐาน	-	✓	✓	✓	สก. กว. ภ. กป. ปศ.
2.6) การแปรรูปผลิตภัณฑ์ทางการเกษตร เพื่อบริโภค / ส่งออกได้.	-	✓	✓	✓	กส. กส. ส. อ. พก.
3. การตรวจรับรองตามมาตรฐาน GAP	-	-	✓	✓	กว. กป. ปศ. ภ.
4. ติดตามประเมินผล	✓	✓	✓	✓	กส.

Evaluation and Closing

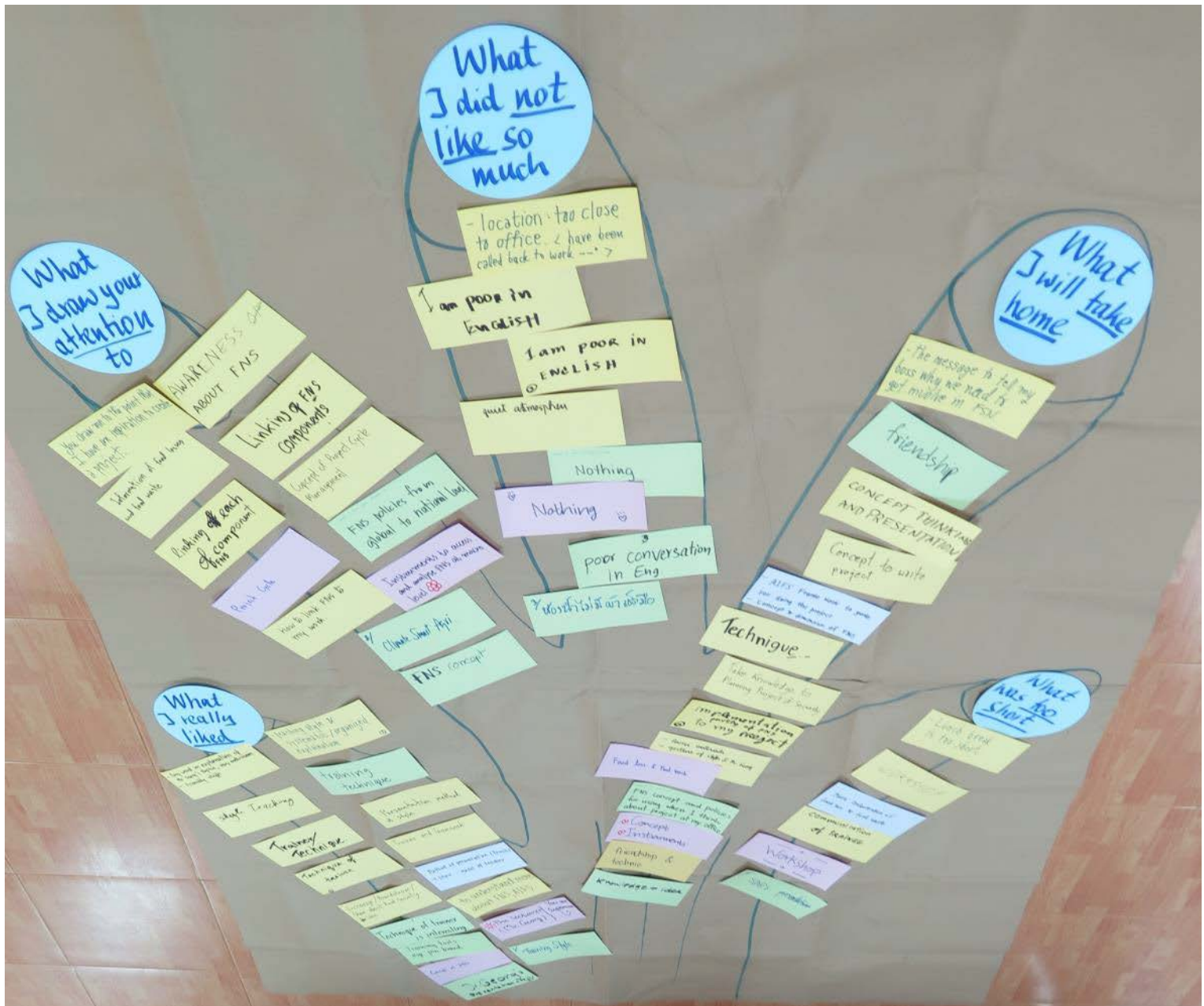
The participants were asked to write on cards responding to five questions and to place the cards on a large hand-shaped paper.



- 1) What I really liked?
- 2) What I draw your attention to?
- 3) What I did not like so much?
- 4) What I will take home?
- 5) What was too short?



Evaluation and Closing



Evaluation and Closing



Dr. Matthias Bickel, Project Director of ASEAN Sustainable Agrifood Systems made closing remarks before handing out certificates to all participants.



The documentation is completed with the contribution from all participants.

The training is organized by ASEAN Sustainable Agrifood Systems Project in collaboration with the Department of Agriculture and the Office of Agricultural Economics, Ministry of Agriculture and Cooperatives, Thailand.

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und Organisationsberatung