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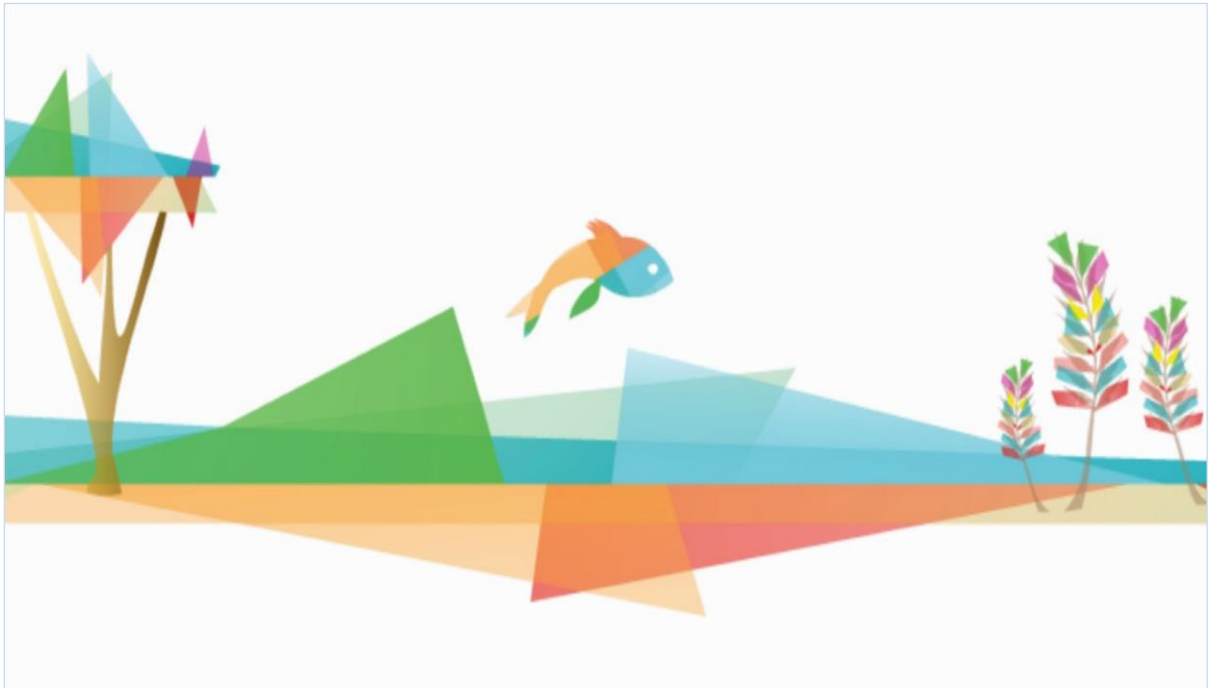
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Integrating Agriculture in National Adaptation Plans (NAP-Ag) Thailand



กระทรวงเกษตรและสหกรณ์
Ministry of Agriculture and Cooperatives

**Inception Report
October 6, 2016**

UNFA/GLO/616/UND

“Integrating Agriculture in National Adaptation Plans (NAP-Ag) Thailand”

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Integrating Agriculture in National Adaptation Plans (NAP-Ag) Thailand

Programme Name	Integrating Agriculture in National Adaptation Plans (NAP-Ag) Thailand
Programme Number	UNFA/GLO/616/UND
Duration	2015-2018
Programme Partnership	Food and Agriculture Organization of United Nations United Nations Development Programme Ministry of Agriculture and Cooperative
Geographical Coverage	Thailand
Donor	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) of the Federal Republic of Germany via International Climate Initiative (ICI)
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Executive Summary

Integrating Agriculture in National Adaptation Plans (NAPs-Ag) with funding support by the German Federal Ministry for the Environment, Nature, Conservation, Building and Nuclear Safety (BMUB). The project is under the CPF and collaborative workplan between FAO and UNDP. The project aims to integrate agriculture in National Adaptation Plans will support partner countries to identify and integrate climate adaptation measures for the agricultural sector into relevant national planning.

Climate change in Thailand is significantly adversely affected the countries water resources, marine and coastal ecosystems, forest, agriculture systems and biodiversity. The average annual temperature will continue to increase approximately 2 °C centigrade by 2050, approximately 4 °C centigrade by 2080. Increasing in temperature is directly effect to crops, livestock and fisheries.

MoAC-led NAP-Ag which is OAE is the secretariat for development of the Agriculture Strategic Plan on Climate Change 2017-2021. A three-year project (2015-2018) is partnership with FAO and UNDP and about 26-month time to the end date of December 30, 2018. The project is composed of 24 activities, 9 outputs and 4 outcomes. The activities will be included climate risk, vulnerability assessment, adaptive capacity, training on investment appraisal, budgeting/coding and tracking. Monitoring framework and indicator developed and trained to MoAC staffs. Vulnerable group, especially women will be concerned to participate in project activities. The results will be documented for a lesson learned materials and integrated into broader MoNRE-led NAP.

Acronyms

ADP	Agriculture Development Plan
BMUB	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BOB	Bureau of the Budget
CBA	Cost-Benefit Analysis
CBD	Convention on Biological Diversity
CCA	Climate change adaptation
CCMC	Climate Change Management Coordination
CCMP	Climate Change Master Plan
CIAT	International Center for Tropical Agriculture
CPF	Country Programme Framework
CPPACD	Policy and Planning for Agriculture and Cooperatives Development
CSA	Climate Smart Agriculture
ECOSWat	Ecosystem-based Adaption in Watersheds
FAO	Food and Agriculture Organization of the United Nations
GCM	General Circulation Model
GHG	Greenhouse Gas
ICEM	International Centre for Environment Management
INC	Initial National Communication
LDCs	Least Developed Countries
LEG	Least Developed Countries Expert Group
LMB	Lower Mekong Basin
M&E	Monitoring and Evaluation
MoAC	Ministry of Agriculture and Cooperatives
MoFA	Ministry of the Foreign Affairs
MoNRE	Minister of Natural Resources and Environment
NCCC	National Committee on Climate Change
NESDB	National Economic and Social Development Board
NRCT	National Research Council of Thailand
OAE	Office of Agricultural Economics
ONEP	Natural Resource and Environmental Policy and Planning in the Ministry of Natural Resources and Environment
RID	Royal Irrigation Department
RTG	Royal Thai Government
TGO	Thai Green House Gas organization
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

WHO

World Health Organization

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1. Introduction

1.1. Purpose of the Report

This report has been produced for the purpose of providing the information for the “Supporting Thailand to Integrate Agriculture Sectors in National Adaptation Plans (NAP-Ag). The report presents the climate change impacts and adaptation, institution and policies.

This report is the result of a half-day workshop held in Bangkok, Thailand, supported by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) of the Federal Republic of Germany via International Climate Initiative (ICI) and organized the workshop by OAE, MoAC. The workshop consisted of the presentation from UNDP, FAO and consultant about NAP process as well as a workplan. This report focuses on the activities under four outcomes, the detailed implementation plan and the linkage of outputs and activities.

This report is not intended to be a comprehensive or provide information for other sectors for instance energy or transport sectors. It only focuses on the agriculture sector.

1.2. Background on the NAP-Ag Program

The Integrating Agriculture in National Adaptation Plans (NAP-Ag) is a multi-year initiative funded by Germany’s Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) through its International Climate Initiative (ICI). The project aims to integrate agriculture in National Adaptation Plans will support partner countries to identify and integrate climate adaptation measures for the agricultural sector into relevant national planning. The integration will help to enhance:

- institutional capacities and processes for operationalizing climate response strategies in the sector
- access to international climate finance sources such as GEF and Green Climate Fund
- more strategic allocations of national budgets earmarked for adaptation Investments
- Sharing of lessons learned and best practices on adaptation-related planning and budgeting processes

Figure 1-1 The National Adaptation Plan (NAP-Ag) Partner Countries



Source: UNDP, 2016

FAO and UNDP are supporting these countries by sharing their technical knowledge on agriculture sector-based livelihood development and climate change adaptation. The Programme has four primary objectives.

1. Strengthen technical capacity
2. Develop integrated roadmaps for NAPs
3. Improve evidence-based results for NAPs
4. Promote agricultural NAPs through advocacy and knowledge-sharing

The NAP-Ag program approach principles:

- Country driven
- Linking bottom-up and centralized process and activities
- Gender-sensitive, inclusive and participatory
- Maximize partnerships and ongoing collaboration

FAO and UNDP are working together with ministries in partner countries to exchange knowledge between key national stakeholders in order to success the NAP-Ag programme number of workplans has been made as follows are in priorities;

- Mainstream climate change adaptation and disaster risk reduction into agriculture sector plans, policies, and budgets
- Strengthen functional capacities to link climate policies, sector strategies, and public finance through improved planning, budgeting, monitoring and evaluation
- Improve impact monitoring framework
- Understand benefits of climate change adaptation options and planning/budgeting implications
- Improve evidence base for adaptation actions in the agricultural sector within sector strategies and
- Ensure more robust, well-coordinated sector inputs to overall NAP and National climate change policies/action plans

The NAP-Ag Thailand is implemented under CPF which is a collaboration between RTG and FAO. FAO and UNDP have started working with Bureau of Agricultural Economic, OAE, MoAC through NAP-Ag Thailand “Supporting the Integration of Agriculture Sector into the National Adaptation Plans in Thailand”. The project is comprised of 4 priorities for adaptation in the agriculture sector;

1. Strengthening adaptation in the climate change strategic plan for agriculture
2. Assessing climate change variability, such as forecasting, early warning systems
3. Strengthening performance-based monitoring and assessments of: adaptation options in agriculture and mainstreaming, and climate finance
4. Capacity building for farmers: Build regional climate resilience by serving as a knowledge hub to foster regional cooperation and exchange experiences on adaptation

2. Background

This section presents the background of climate change in Thailand. The major information on climate change and impacts are mainly reviewed in this sections, and some climate projection has also been provided here. Several studies and adaptation to climate change for agriculture sector are reviewed here to provide the example of adaptation options. Moreover, it includes the institutions, national plans and climate change plans and relevant policies for adaptation.

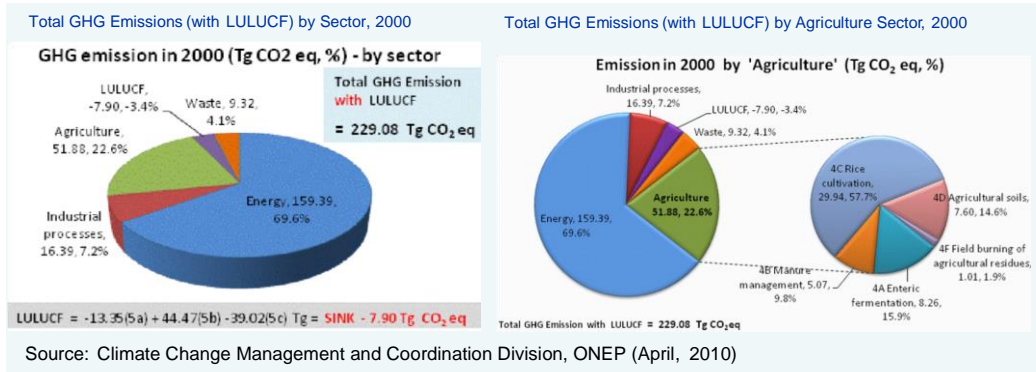
2.1. Climate change in Thailand

Thailand is located in the tropical area between latitudes 5 ° 37N to 20 ° 27 N and longitudes 97 ° 22 E to 105 ° 37 E. The total area is 513,115 square kilometers or around 200,000 square miles. According to the climate pattern and meteorological conditions, Thailand may be divided into 5 parts i.e. Northern, Northeastern, Central, Eastern and Southern Parts. The climate of Thailand is under the influence of monsoon winds of seasonal character i.e. southwest monsoon and northeast monsoon. From the meteorological point of view, the climate of Thailand may be divided into three seasons; (a) Rainy or southwest monsoon season (mid-May to mid-October). The southwest monsoon prevails over Thailand and abundant rain occurs over the country. (b) Winter or northeast monsoon season (mid-October to mid-February). This is the mild period of the year with quite cold in December and January in upper Thailand. Summer or pre-monsoon season, mid-February to mid-May. This is the transitional period from the northeast to southwest monsoons.

Climate change in Thailand is significantly adversely affected the countries water resources, marine and coastal ecosystems, forest, agriculture systems and biodiversity. The changes of these resources bases will affect socio-economic development. The average annual temperature will continue to increase- Approximately 1 degree centigrade in all regions (2010-30s), Approximately 2 °C centigrade by 2050, approximately 4 °C centigrade by 2080. Increasing in temperature is directly effect to crops, livestock and fisheries. IRRI found that rice yield decreases by 10% for every 1°C. It will also decrease in productivities and economic loss. The weather becomes warmer, especially in upper Thailand. According to a general annual rainfall pattern, most areas of the country receive 1,200 - 1,600 mm a year. Some areas on the windward side, have more than 4,500 mm a year. Annual rainfall less than 1,200 mm occurs in the leeward side areas which are clearly seen in the central valleys and the uppermost portion of the Southern.

Thailand’s national greenhouse gas emissions were only 0.84% of global emissions in 2012, and in 2015 it was 0.64% of global emissions. From 1990-2012 Thailand’s share of cumulative emissions was 0.75%. Total GHG emissions in 2000 were amounted to 229.08 TgCO₂eq. Total emissions can be categorized into the following Sectors: Energy 69.6%, Industrial Processes 16.39%, Agriculture, Land Use, Land-Use Change, and Forestry (LULUCF) 51.88%, and Waste 4.1%. (ONEP, 2010)

Figure 2-1 Total gas emission (with LULUCF) by sector, 2000



The impact of climate change, including floods, droughts, storm, sea-level rise and increase temperature as shown in figure 2-2. Besides, climate change also impacts to health. According to the climate projection; under a high emissions scenario heat-related deaths in the elderly (65+ years) are projected to increase to about 58 deaths per 100,000 by 2080 compared to the estimated baseline of about 3 deaths per 100,000 annually between 1961 and 1990. A rapid reduction in emissions could limit heat-related deaths in the elderly to just under 11 deaths per 100,000 by 2080. By 2070 approximately 71 million people are projected to be at risk of malaria assuming a high emissions scenario. If emissions decrease rapidly, projections indicate this number could decrease slightly to about 66 million (WHO, Climate and Health Country Profile, 2015)

Figure 2-2 Impact of climate change in Thailand.



The agricultural sector in Thailand is most vulnerable to climate change impact, since most farmers are small landholders in rain fed areas. The shift from annual field crops to permanent trees in recent years further limits the flexibility of changing the cropping system,

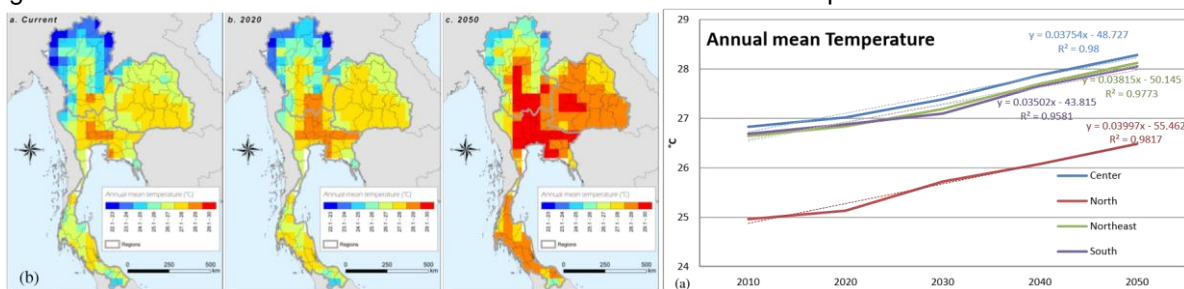
and hence creates more vulnerability. There are several studies and adaptation to climate change for agriculture sector;

- Assessment of Agricultural Water Demand in Thailand under Climate Change Impact. Using 7 general circulation model datasets with Representative Concentration Pathways (RCPs) 4.5 and 8.5 scenarios. Changing climate will result in about a %15 increase in water demand in both scenarios. The high-risk water deficit areas include the Ping, Yom, Nan, Chi and Mun River Basins due to increasing water demand and decreasing rainfall (Winai Chaowiwat, 2016)
- Adapting Rice Farming to Climate Change in Northeast Thailand (Oxfam). Due to the area is getting drier and the results are lower crop yields. Adaptation through Organic farming with 57 farming households, belonging to different districts of the Yasothorn Province. The results showed that decline of rice production for farmers in the project was 16 %, while farmers outside of the project suffered a decline of 40%
- Impact assessment of climate change on rice production in Khon Kean province, Thailand, aims to analyze the impacts of climate change on rice production, profitability of rice farming, and adaptation practices to climate change for rice farmers. Trend of climate change in the future will affect rice yields. These results highlights the need to implement adaptation to climate change strategies for rice farmers, which are as follows: 1) develop rice growing techniques by using appropriate local rice varieties with higher yield under water shortage; 2) improvement of soil fertility by using crop residues from farms and green manure for farm environment and reducing CO₂ emissions; 3) operation and maintenance of irrigation systems for enough allocation of water demand in the dry season and water storage in the rainy season; and 4) insure crop yield for small farmers (Kawasaki and Herath, 2011)
- The UASID Mekong ARCC Climate Change Impact and Adaptation Study was conducted by International Centre for Environment Management (ICEM), adopting six GCMs. The objective of the study aims to undertake a climate vulnerability and adaptation study on water resources, food security, livelihoods and biodiversity of the Lower Mekong Basin. Chiangrai and Sakon Nakhon are the hot spot areas. By 2050, a 2°C increase in annual mean temperature, the average daily maximum temperature will rise from 42°C to 44°C. The annual rainfall will increase from 1,600 mm/yr to 1,740 mm/yr (+140mm/yr). In Sakon Nakhon, a 2°C increase in annual mean temperature, the average daily maximum temperature will rise from 33°C to 35°C. The annual rainfall will increase from 2,365 mm/yr to 2,670 mm/yr (+305mm/yr). In Chiangrai, the increase above 35°C during October ripening stage reduces number of grain, while heat stress (10% of days above optimal zone) in wet season could slightly decrease yield of lowland rain fed rice in Sakon Nakhon. The increased precipitation during cassava growing season likely to result in flooding, water logging and increased incidence of fungus disease and pests. Livestock; small commercial chickens and pigs both in Chiangrai and Sakon Nakhon, heat stress will reduce reproduction and immunity. Besides, heat stress impacts fodder availability and reproduction rates, while flood events increase the spread of disease and herd loss (ICEM, 2013).
- In addition, the International Center for Tropical Agriculture-CIAT conducted the study on Climate Change and its Impact on Agriculture, using the seven GCMs for the medium time 2050. Figure 2-3 to 2-6 presented the projected changes in temperature and

precipitation from 2010 to 2050. By 2050, the annual mean temperature is expected to increase 1.45°C across the country but change is higher in the North (+1.53°C) than in the South (+1.36°C). Annual minimum temperature is expected to be by 1.59°C throughout the country, however, change is higher in the North (+1.76°C) than in the South (+1.38°C). Annual maximum temperature is predicted to increase by 1.29°C in the North region to 1.34°C in the South. In 2050 the annual precipitation looks quite similar to the current average. The Central part of the country will likely get drier, with a decrease in rainfall of up to 250mm, while the Northern mountainous region and the extreme South display an increase in rainfall of up to 300 and 600 mm, respectively. Besides, the study also projected the effect of climate change on soil suitability that affected the yield. The results showed that fruits crops are the most vulnerable as presented in table 2-1 (CAIT, 2012).

- Evaluation and reducing Nitrous oxide in main agriculture product (Department of Agriculture, MOAC)
- Convince the public to stop the practice of burning in agricultural land (Department of Agriculture Extension, MOAC)
- Project: Research in improving water and fertilizers efficiencies in high land
- Examining the “Alternate wet and dry” water management system and proper management in rice field
- Extend the use of “Alternate wet and dry” water management system in irrigated area

Figure 2-3 Evolution from 2010 to 2050 for Annual mean maximum temperature



Annual mean temperature (a) evolution from 2010 to 2050 for the 4 regions (Solid lines represent the average value for the region and broken lines linear regression trendline with equation and R2 value) (b) Map for current, 2020 and 2050 climate. These results are the average value of prediction from 7 models with A1B scenario. Source: CIAT, 2012

Figure 2-4 Evolution from 2010 to 2050 for Annual average minimum temperature

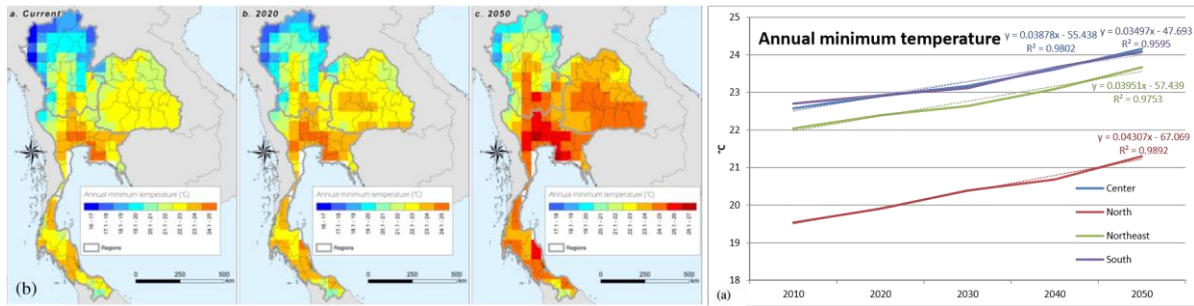
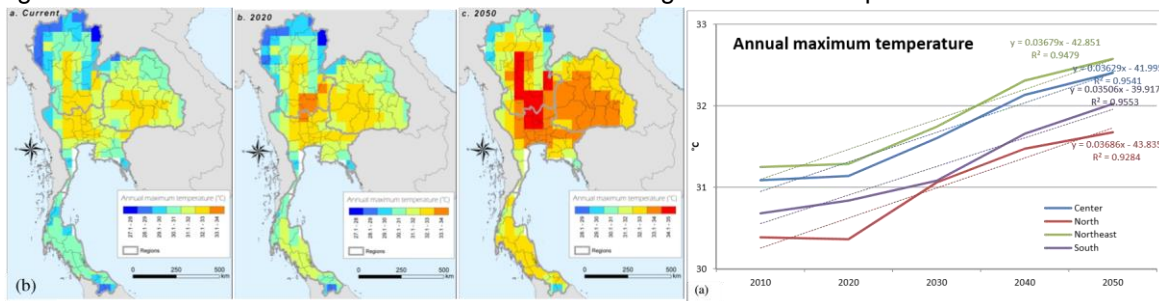


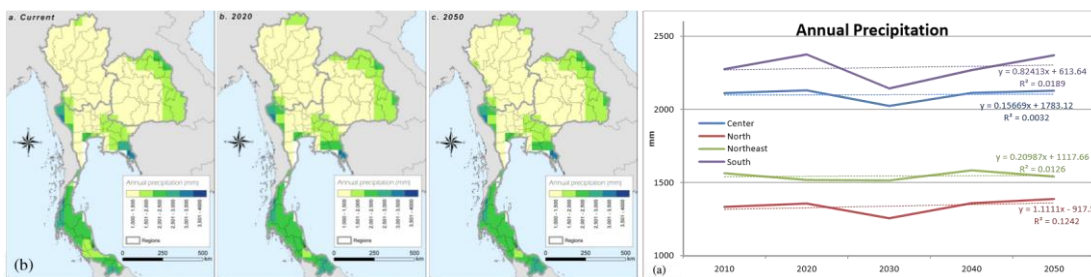
Figure 2.25 Annual minimum temperature (a) evolution from 2010 to 2050 for the 4 regions (Solid lines represent the average value for the region and broken lines linear regression trendline with equation and R2 value) (b) Map for current, 2020 and 2050 climate. These results are the average value of prediction from 7 models with A1B scenario. Source: CIAT, 2012

Figure 2-5 Evolution from 2010 to 2050 for Annual average maximum temperature



Annual maximum temperature (a) evolution from 2010 to 2050 for the 4 regions (Solid lines represent the average value for the region and broken lines linear regression trendline with equation and R2 value) (b) Map for current, 2020 and 2050 climate. These results are the average value of prediction from 7 models with A1B scenario. Source: CIAT, 2012

Figure 2-6 Evolution from 2010 to 2050 for Annual precipitation



Annual precipitation (a) evolution from 2010 to 2050 for the 4 regions (Solid lines represent the average value for the region and broken lines linear regression trendline with equation and R2 value) (b) Map for current, 2020 and 2050 climate. These results are the average value of prediction from 7 models with A1B scenario. Source: CIAT, 2012

Table 2-1 Annual yield change between 2010 and 2050 at regional level

Crop	Region 1 Northeastern	Region 2 Northern	Region 3 Southern	Region 4 Eastern	Region 5 Western	Region 6 Central	Region 7 Bangkok and Vicinity	Total change 2010-2050
Cassava	0.01%	0.053%		-0.01%		0.20%		0.7%
Durian	-2.48%	-0.99%	-0.23%	-0.42%			-2.05%	-13.0%
Longan	-3.69%	-3.02%		-1.27%	-2.67%		-1.63%	-55.3%
Lychee	-0.61%	-0.13%		-0.69%	-0.60%			-7.2%
Maize	-0.28%	-0.17%		-0.45%	-0.28%	-0.23%		-8.1%
Mango	-0.01%	0.01%	0.01%	-0.09%	-0.01%	-0.01%	-0.01%	-0.8%
Mangosteen	-0.12%		-0.08%	-0.24%	-0.24%		-0.31%	-5.8%
Oil palm	-0.16%	-0.28%	-0.04%	-0.05%	-0.09%	-0.10%		-1.7%
Orange	-0.15%	-0.13%	-0.22%	-0.20%	-0.29%	-0.57%	-0.78%	-5.4%
Pineapple	-0.62%	-0.42%	-0.29%	-0.44%	-0.41%			-15.6%
Rambutan	0.05%		-0.07%	-0.02%	-0.03%			-1.0%
Rice KDML	0.02%	0.09%	0.15%	0.02%	0.17%			1.3%
Rice other	0.00%	0.03%	0.01%	0.00%	0.02%			0.4%
Rubber	-2.01%	-2.01%	-5.69%	-2.26%	-3.73%			-80.1%
Soybean	0.20%	0.09%		-0.01%	0.07%	-0.05%		4.6%
Sugarcane	-0.13%	-0.14%		-0.12%	-0.08%	-0.10%	-0.08%	-4.6%

Durian, pineapple, longan and rubber are the most affected crops with a respective total reduction of yields from 2010 to 2050 of 13%, 16%, 55% and 80% for the country. In a less extend, lychee, maize, mangosteen, and orange, also suffer a decline of yields from 5 to 8%. On the contrary, cassava, rice KDML 105 and other varieties, and soybean present a small total increase in yield between 2010 and 2050 from 0.4% (rice other varieties) to 4.60% (soybean).

Source: CIAT, 2012

Bold values emphasize on productivity change higher than 0.1%

In order to response to climate change, the government established National Committee on Climate Change (NCCC) in 2007, is responsible for national climate change policy, which is ONEP is the national focal point. A number of steps have been taken by the RTG for such as National Research Council of Thailand (NRCT) and its partners developed and are using a National Strategy for Climate Change Research. The Ministry of Agriculture and Cooperatives produced a Strategic Plan on Climate Change for the Agriculture Sector 2012-2016. Besides, NGOs and international agencies have implemented the activities related to climate change in term of mitigation, adaptation and capacity buildings. In addition, applying His Majesty King Bhumibol Adulyadej “Sufficiency Economy Philosophy and New Theory” in the context of the agricultural sector, Sufficiency Economy encourages a holistic farm management system that aims to minimize farmers’ vulnerability and promote sustainability, food security, water conservation, and biodiversity also support to adapt to climate change. Figure 2-7 present FAO experiences adaptation in agriculture and land-use sectors.

Figure 2-7 FAO experiences Adaptation in Agriculture and Land-use Sectors.

Adaptation in Agriculture and Land -use Sectors

					
DRR & Resilience	Crop Production & Protection	Livestock	Forestry	Water	Fisheries
<ul style="list-style-type: none"> Disaster risk assessment and planning Vulnerability mapping Climate Farmer Field Schools 	<ul style="list-style-type: none"> Integrated plant pest management Conservation agriculture Stress tolerant crops (genetic management) Crop diversification 	<ul style="list-style-type: none"> Pasture management Improved feed management Livestock health 	<ul style="list-style-type: none"> Assisted Natural Regeneration (ANR) Sustainable forest management Leasehold forestry & livestock system (Silvopasture) 	<ul style="list-style-type: none"> Irrigation modernization Water harvesting/saving technologies Reduced water technologies 	<ul style="list-style-type: none"> Coastal management Aquaculture infrastructure investments Weather-based insurance

Source: FAO, October 2016

2.2. Context for Adaptation in Agriculture Sectors

2.2.1. Institution

Figure 2-8 shows the institution arrangement on climate change which is mainly at the national level and ministries level. At the national level, the National Climate Change Committee (NCCC), has been set up under the Prime Minister’s Office (PMO) to coordinate climate change issues. The NCCC was established (2007 and chaired by the Prime Minister with the Minister of Natural Resources and Environment (MoNRE) serving as deputy chairperson. Other committee members include Permanent Secretaries from relevant ministries, as well as the National Economic and Social Development Board (NESDB). The NCCC is responsible for formulating the national climate change policy, coordination of climate change strategy, and determining the country’s position in international negotiations under the UNFCCC.

The Office of Natural Resource and Environmental Policy and Planning in the Ministry of Natural Resources and Environment (ONEP) is the designated national focal point for climate change, is responsible for formulating policies, strategies, and climate change-related issues. ONEP set up the Climate Change Coordination Office to serve as the Secretariat of the NCCC. It also coordinates operations with other public agencies, academic and research institutes, as well as non-governmental and private organizations.

In addition to agriculture sectors, the MoAC is responsible for the preparation of strategies, policies, and plans in MoAC. The Committee on Policy and Planning for Agriculture and Cooperatives Development (CPPACD) is chaired by the Minister and has senior officials from each department, plus representatives from the private sector and external experts. The CPPACD appoints sub-committee to address specific issues (including one for climate change) and these sub- committees work with departments to ensure that their budgets are in line with sub-sector policies.

Figure 2-8 Institution Arrangement on Climate Change

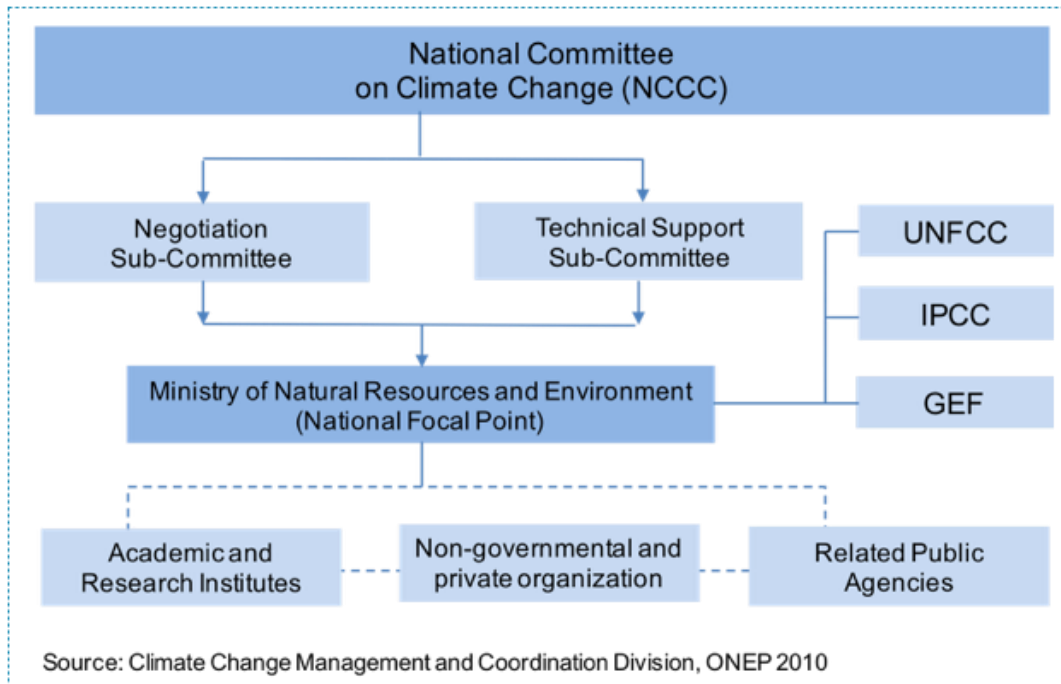
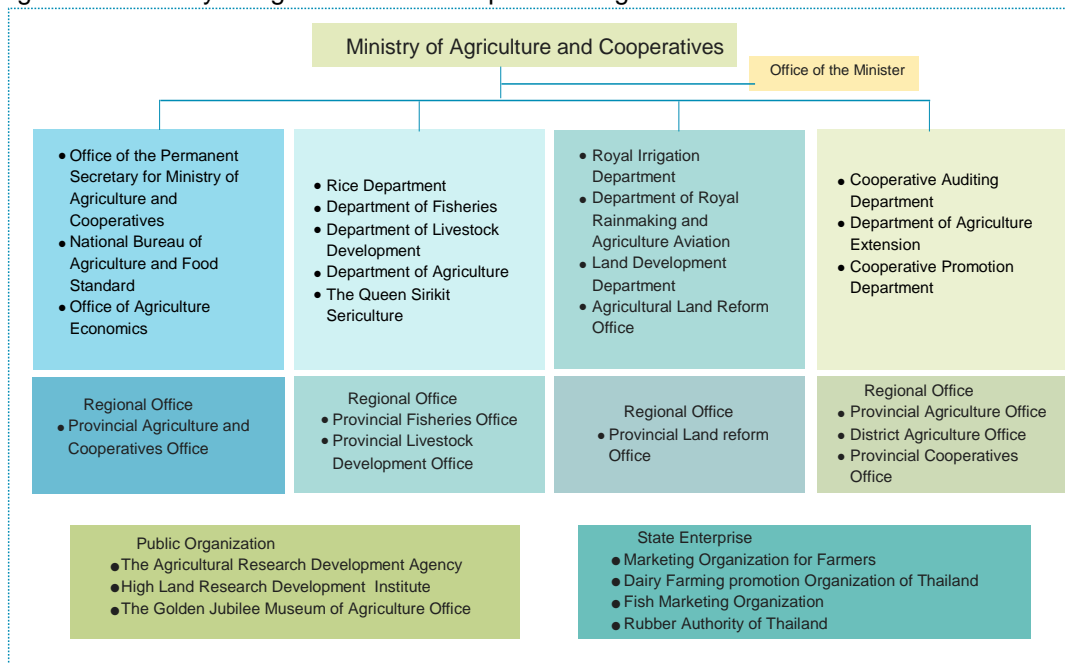


Figure 2-9 Ministry of Agriculture and Cooperative organization structure



The Office of Agricultural Economics (OAE) serves as the secretariat to CPPACD and is responsible for compiling the MoAC budget proposal, based on departmental proposals, and for the submission of this proposal to Bureau of Budget, including the justification of the proposal by relating the budget to the sectoral and national strategies and arguing for the effectiveness of the proposed budget. Each Department in MoAC has its own Departmental Planning Committee (DPC) responsible for planning and budget preparation and provincial and local level units in MoAC have Provincial and Local Planning Committees (Country brief, Strengthening the Governance of Climate Change Finance in Thailand, 2014).

2.2.2. Relevant Policies for Adaptation

As indicated in the INC (initial national communication⁷), Thailand has integrated climate change issues into the national development planning process since the 7th Plan (1992-1996).

Under the 8th Plan (1997-2001), the development vision focused on the people’s welfare as its core objective in order to achieve a balance among the economic, social and environmental sectors. The 8th Plan defined a new paradigm for sustainable development. Besides, Public participation was widely recognized, inspiring the preparation of the national constitution (B.E. 2540), which laid an important social foundation that served as key mechanism for national development.

In the 9th Plan (2002-2006), sufficiency economy was adopted as a philosophy to guide the conduct of national development, based on a holistic development vision. Key improvements were seen in enhanced public health and sanitation services. Natural resources management improved, especially concerning forest resources, environmental protection did not achieve its target, especially with regards water quality and hazardous waste disposal.

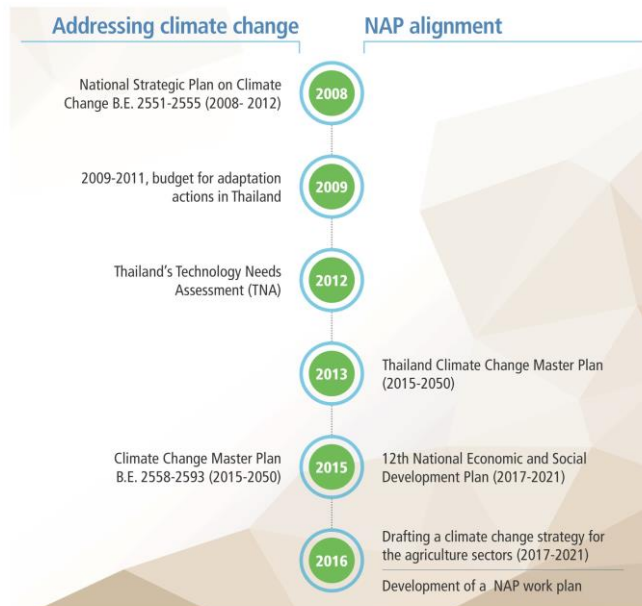
The 9th was being continued up to the present time. Under this policy, Thailand formulated national policies on energy, forest, and water resources and so on, in order to enhance GHG mitigation directly and indirectly. Public awareness through formal education and information campaigns was developed to enhance adaptation to climate change, especially concerning agriculture and water resources.

Under the 10th Plan (2007-2011), the sufficiency economy philosophy has been maintained to guide national economic and social development and people have remained as the center of development, a balance among the economic, social and environmental aspects of development is ensured, alongside the strengthening of self-reliance among the Thai people. Guided by a vision of sustainable happiness for the Thai society, the 10th Plan emphasizes the development of economic, social and natural resource and environmental capitals. These capitals are vital to strengthen and enhance the benefits of the Thai people.

Thailand recognizes climate change issues at the international and national level. The 11th Plan (2012-2016) cites global warming as a key concern that influences future national development. Thailand’s 20-year development vision has identified approaches to enhance efficiency in energy conservation, expansion of biomass energy and adaptation to climate change. Key factors that will determine the country’s development strategy are global warming and climate change, an aging society, and competition for resource use.

In the 11th Plan (2012-2016), the developed vision focused on “happy and harmonious society, through equitability, justice and resilience towards change”. The 11th Plan (2012-2016) cites global warming as a key concern that influences future national development. Thailand’s 20-year development vision has identified approaches to enhance efficiency in energy conservation, expansion of biomass energy and adaptation to climate change. Key factors that will determine the country’s development strategy are global warming and climate change, an aging society, and competition for resource use.

Figure 2-10 National Policies to Address Climate Change and Adaptation



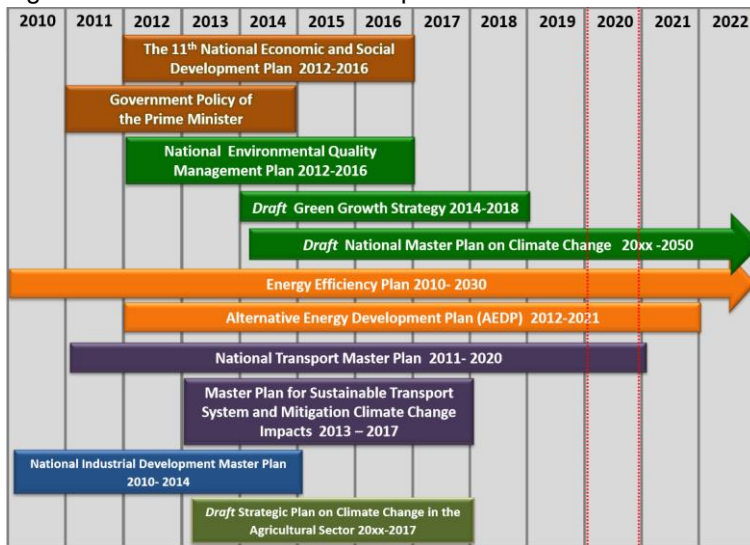
Source: FAO

In addition to climate change plan was initiated since 2008 “Thailand’s Responses National Strategic Plan on Climate Change B.E. 2551-2555 (2008-2012)”. A vision was focused on Thailand is a climate-resilient society and cooperates with the global community to mitigate climate change based on the principle of sustainable development. It was composed of six strategies as follows;

1. Build capacity to adapt and reduce vulnerabilities to climate change impacts
2. Promote greenhouse gas mitigation activities based on sustainable development
3. Support research and development to better understand climate change, its impacts and adaptation and mitigation options
4. Create awareness and participation of problem solving on climate change
5. Build capacity of relevant personnel and institutions and establish a framework of coordination and integration
6. Support international cooperation to achieve the common goal of climate change mitigation and sustainable development

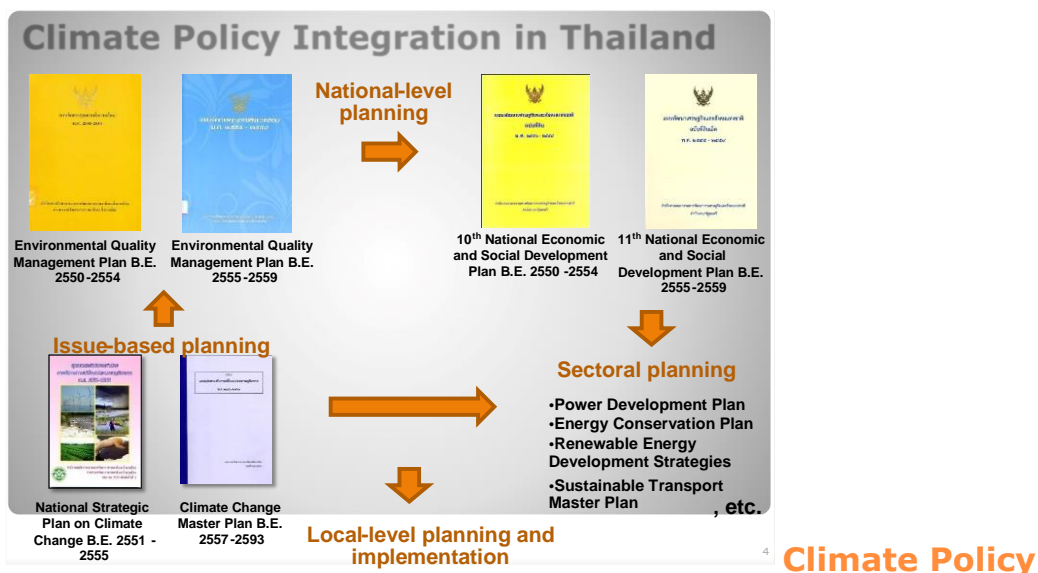
Thailand Climate Change Master Plan 2011-2050, is a framework of integrated policies and action plans relating to climate change. Its purpose is to support climate change preparedness initiatives so that they are in line with Thailand’s economic and socio-cultural contexts as well as sufficiency economy philosophy. A vision is focused on Thailand has a framework and guideline on climate change preparedness, adaptation, appropriate and efficient application of as well as enhancing competitiveness and development toward sufficiency economy and low carbon society. Figure 2-11 and 2-12 show timeframe of related policies and climate policy integration in Thailand.

Figure 2-11 Timeframe of related policies



Source: Thailand Greenhouse Management Organization

Figure 2-12 Climate policy integration in Thailand



Integration in Thailand

Source: ONEP

The Climate Change Master Plan (CCMP) 2015-2050 is composed of three approaches; Adaptation to climate change consequence, GHG Mitigation and Low-Carbon Development and Capacity Building (Figure 2-13 to 2-15). Climate Change Master Plan Responsibilities;

- Actions or Support Other Organization as Assigned
- Policies Strategies and Implementation Plans-Research and Studies in Climate Change
- Directions, Regulations, and Implementation Mechanism/Negotiation Position Collaborative Measures
- Monitoring and Coordination
- Actions as the Secretariat of the National Board of Climate Change Policy Figure 2-13

Linkage of NAP to climate change master plan 2050

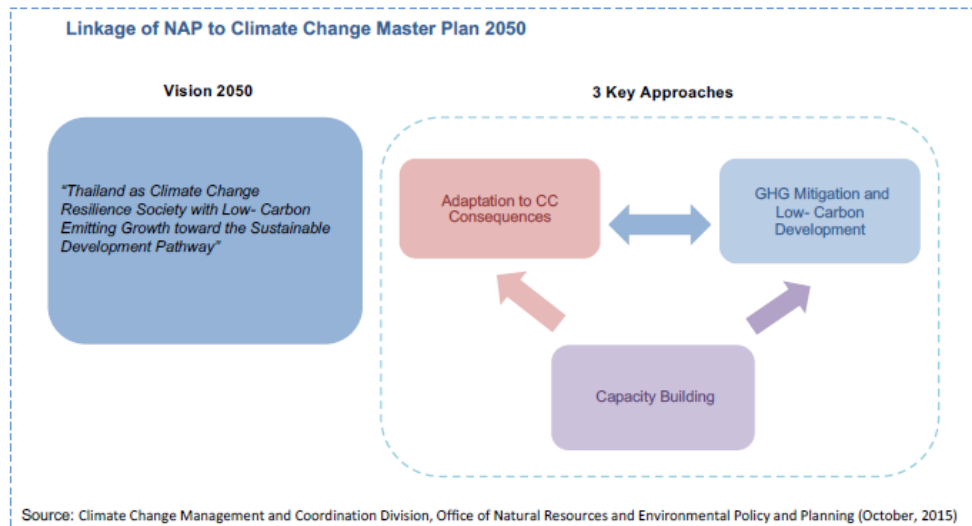
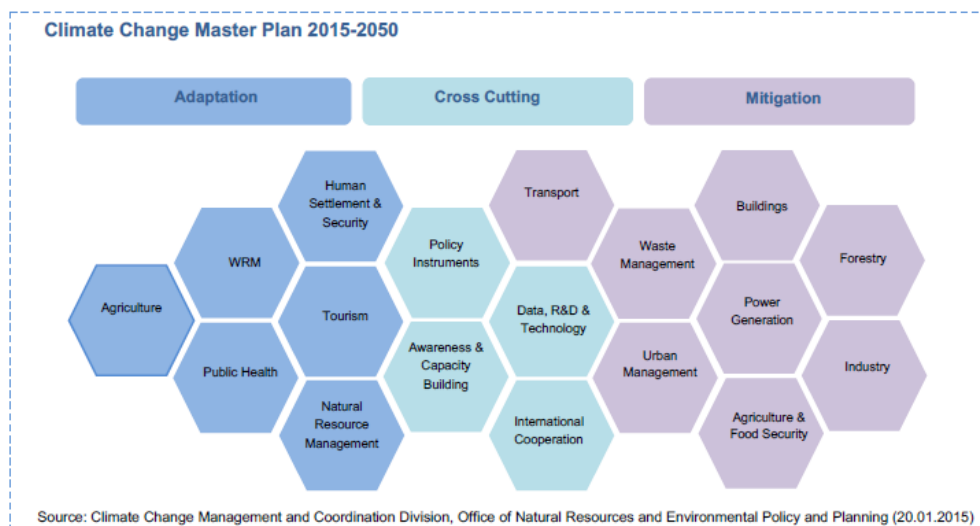


Figure 2-14 Climate change master plan 2050



The Climate Change Master Plan (CCMP 2015-2050). The elaboration of the CCMP was supported by the International Climate Initiative (IKI), and approved by the Cabinet on July 14th, 2015. It defines short-, medium- and long-term mitigation, adaptation and capacity development targets for different sectors. The adaptation components in CCMP are: 1) Flood, drought and water management, 2) Agriculture and food security, 3) Tourism, 4) Public health, 5) Natural resource management, 6) Human settlement and security.

Regarding MoAC policies, the Agriculture Development Plan (ADP) 2012-2016 defines into three strategies; 1) Development farmers’ quality of life 2) Building competitiveness in agriculture production, agricultural commodity management and food security and 3) Efficiency, balance and sustainable management of agricultural resources. The Strategies plan on climate change for agricultural sector 2012-2016; 1) Create adaptive capacity which response to the impact of climate change 2) Reduction in the emission of greenhouse gas in the agricultural sector and 3) Driven of climate change strategies. The example of project related to climate change for agriculture sector are as follows;

- Agricultural Economic studies of climate change (OAE)

- Analyze of the climate change, adaptation and impact on plant productions
- Research and development on crop productions and alternated energies in context of climate change
- Studies on the impact of climate change on River Kwai Dam
- Improvement of rice harvesting technologies as adaptation for climate change
- Campaign to the practice of burning of rice stubble 2.2 Project: Research on the using of bio-charcoal to reduce the methane emission in paddy field 2.3 Project: Carbon foot print and carbon emission in livestock
- The evaluation of energies usage of GHG emission per production units
- Establish the demonstration side for Shrimp breeding farm that help reduce energy use
- Preparation for UNFCCC meeting 3.2 Project: International Alliance for GHG in agriculture research
- Raise awareness to the impact of climate change on agriculture
- Raise awareness to the GHG emission in agriculture

Major Project Implemented under INDC Goal 2030 are;

- Evaluation and reducing Nitrous oxide in main agriculture product (Department of Agriculture, MOAC)
- Convince the public to stop the practice of burning in agricultural land (Department of Agriculture Extension, MOAC)
- Project: Research in improving water and fertilizers efficiencies in high land
- Examining the “Alternate wet and dry” water management system and proper management in rice field
- Extend the use of “Alternate wet and dry” water management system in irrigated area

2.3. Complimentary projects and programs

Regarding complimentary projects and programmes related to climate change in Thailand are as follows;

1. The king’s approach to self-reliant agriculture crystallized in “New Theory Agriculture”. Thailand has more than 50 Climate Smart Agriculture (CSA) projects funded by His Majesty King Bhumibol Adulyadej. They focus on the following: 1) conservation and rehabilitation of water reservoirs and resources; 2) soil amelioration practices; 3) income generating livelihood programs; 4) sufficiency economy; 5) socio agro-forestry; 6) reforestation; 7) diversification (New Theory Farming in Agriculture -30:30:30:10). The theory is based on the division of the agricultural land of each rural household, which averages 10 to 15 rai (=1.6 ha to 2.4 ha), into four zones according to use in the proportion of 30:30:30:10. This New Theory of Farming in Agriculture allocates 30 percent for digging a pond to store 19,000 cubic metres of water for cultivation in the dry season and to raise fish; 30 percent for rice cultivation sufficient for year-round home consumption; 30 percent for other crops and fruit; and 10 percent for housing, raising livestock and other activities.
2. Strengthening Thailand’s capacity to link climate change policy and public finance. The Project was launched in 2013 by UNDP and ONEP with the aim to support Thailand in strengthening its institutional capacity to link a climate change policy with its budgetary allocations, and to report and measure over time the effectiveness of those policies and expenditures. The project strategically focuses on the agriculture and energy sectors as a

stepping stone for broader interventions at the national level. The project supports interventions at two levels:

A bottom-up process through a series of workshops organized for the Ministry of Agriculture and Cooperatives (MoAC) and Ministry of Energy (MoEN), to strengthen their capacities to effectively address climate change within their functional mandates and monitor their climate change related expenditure, by integrating ‘the Climate Change Benefit Analysis’ into their budget proposals, monitoring and evaluation mechanisms, and project approval criteria.

A top-down process through facilitating a national-level policy dialogue among key policy and planning agencies as well as scale policy and budget related agencies, and key functional agencies, jointly design a ‘Climate Change Benefit Analysis’ Guidelines to help line ministries integrate the climate dimension in their policy appraisals prior to their submission to the Bureau of Budget, and also help the Bureau of Budget understand the benefits and costs of climate change actions as well as making strategic decision regarding any requested shift

- 3 ASEAN Climate Resilience Network, through the ASEAN-German Programme on Response to Climate Change (GAP-CC), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports the ASEAN-CRN to foster ASEAN cooperation on key topics of climate change in agriculture and to promote the dissemination of climate-smart agriculture (CSA) practices in member states. The *ASEAN-CRN* is established to ensure that ASEAN member states are in a better position to adapt their agricultural sector to climate change and optimize its mitigation potential. The network promotes climate resiliency through exchange of information, expertise, and experiences on CSA amongst ASEAN member states.
4. Green Climate Fund pipeline development / readiness. The programme seeks to maximise the effectiveness of the Fund by empowering developing countries to: 1) engage across government at various levels, and with civil society and private sector stakeholders 2) develop strategic frameworks for engagement with the Fund 3) enable their regional, national and sub-national institutions to meet the accreditation standards of the Fund 4) develop initial pipelines of programme and project proposals aligned with the objectives and investment criteria of the Fund. The programme is driven by recipient country governments through their National Designated Authorities (NDAs) or focal points. It seeks to build on ongoing initiatives to strengthen developing country capacity to make effective use of climate finance. Supporting countries to access resources from the Green Climate Fund (the Fund) is a strategic priority.
5. The Mekong Adaptation and Resilience to Climate Change (Mekong ARCC) Project is a five-year program (2011-2016) funded by the USAID Regional Development Mission for Asia (RDMA) in Bangkok and implemented by DAI and subcontractors the International Centre for Environmental Management (ICEM) and the World Resources Institute (WRI). The project addresses information and policy gaps to provide communities in the Mekong River Basin with the guidance and support they need to develop sustainable integrated adaptation plans that will increase their ability to cope with the negative impacts of climate change. Mekong ARCC is headquartered in Bangkok and supports climate change research and adaptation initiatives in Thailand, Vietnam, Cambodia, and Lao PDR.
6. Mainstreaming Climate Change Adaptation and Disaster Risk Reduction (MADRID) Project, is an integrated multi-sectoral and multi-donor project that aims to integrate both

disaster risk reduction and climate change adaptation into national and sub-national development policies, plans and budgets. The main activities are involved with relevant stakeholders to conduct disaster risk assessments, develop risk maps, sensitize the usage of risk assessment results in disaster risk reduction and risk management planning. In addition, develop disaster risk assessment methodological guidelines for potential expansion by relevant government agencies. The project engaged with various sectors in to collect essential gender and age disaggregated data for hazard exposure, vulnerability and capacity assessments taking into account of socio-economic aspects for the risk assessment. Discussions through the Disaster Risk Reduction (DRR) expenditure review exercise to inform analysis and improvements in the policy process and institutional framework for more effective DRR mainstreaming. Develop and implement Climate Change Adaptation /DRR social innovations for at-risk communities with involvement of private sectors.

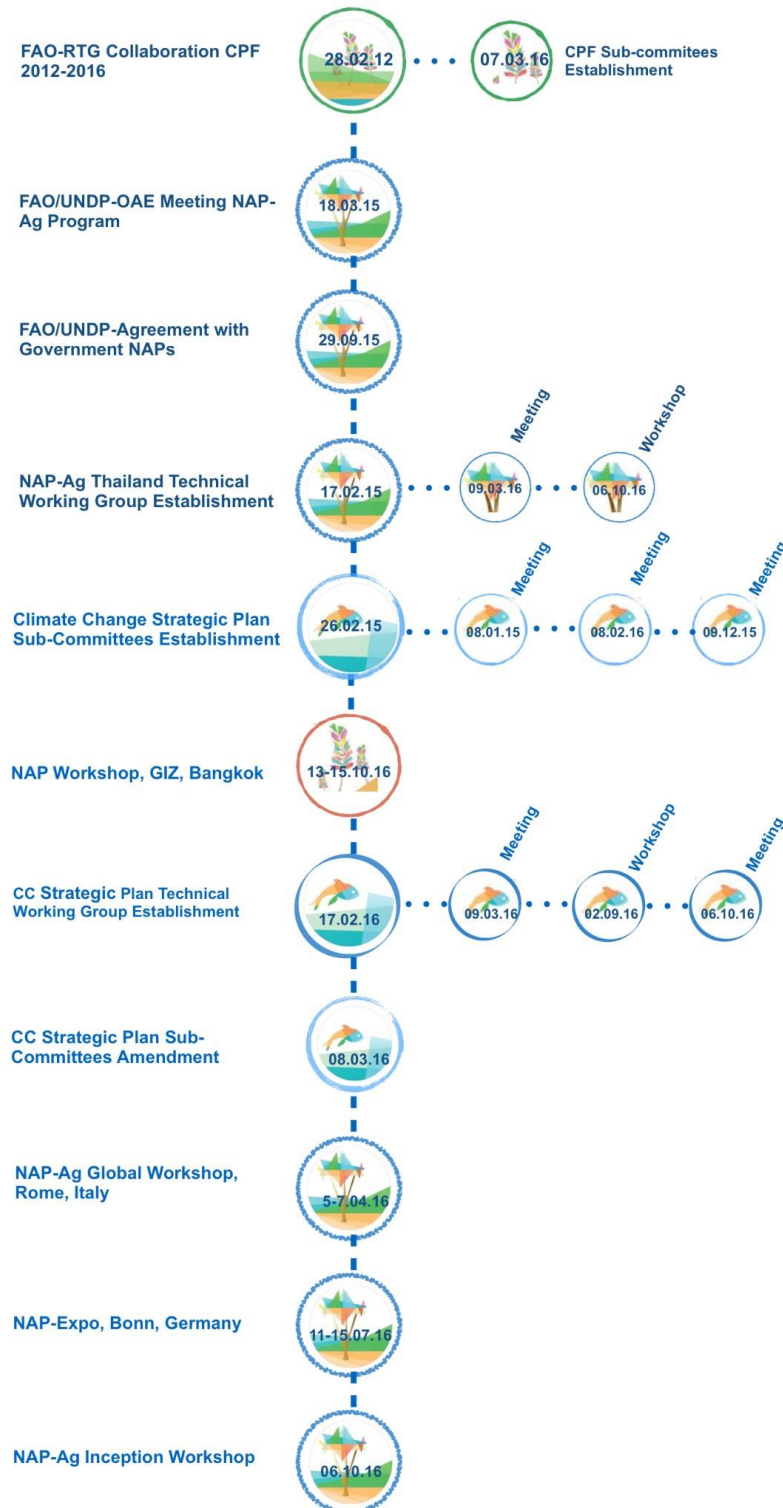
7. Integrated Study Project on Hydro-Meteorological Prediction and Adaptation to Climate Change in Thailand (IMPAC-T). The Project aimed at developing water-related information platform, including observation data, integrated model and impact assessment results, in order to address water-related issues especially those caused by climate change. Project activities included earth observation enhancement, development of simulation models that deal with both of the hydrological cycles and human activities, impact assessment and production of a hydrological information system that integrates earth observation and model output.
8. Building resilience through translocality. Climate change, migration and social resilience of rural communities in Thailand (TransRe). The project focus on 1) Vulnerability against environmental risks 2) The role of social networks for resilience building 3) The effects of multiple embeddedness on resilience and 4) The role of policy and stakeholders on resilience building.
9. Risk-based national adaptation plan (Risk-NAP). The project aims to support Thailand in developing and implementing a National Adaptation Plan (NAP). Firstly, future climate risks and the associated economic and business costs will be quantified and then evaluated with reference to the co-benefits of various adaptation scenarios. This information will be drawn on to develop a NAP and a monitoring and evaluation system. Using a manual on risk-based management strategies in urban planning, the project will help draft municipal adaptation plans and targeted adaptation measures in pilot cities. Support will be provided for establishing a corresponding financing mechanism.
10. Improved management of extreme events through ecosystem-based adaption in watersheds (ECOSWat). The objectives of the project are 1) To support the local water departments in the Chi and Tha Di basin in planning ecosystem-based adaptation measures against the effects of extreme events. 2) To facilitate in implementing ecosystem-based adaptation measures for the prevention of flooding and drought in the Chi and Tha Di catchment. 3) To reflect experiences into the national adaptation strategy for the water sector and 4) To support staff of the relevant water authorities to be able to design and evaluate ecosystem-based adaptation measures.

3. Approach - NAP-Ag Program in Thailand

This section mainly focuses on the activities during the inception phase and different committees. At the same time, it includes, drafting Climate Change Strategic Plan for the Agricultural Sector (2017-2021), coordination, NAP process, gender, and DRR.

3.1. Inception Phase Activities

Figure 3-1 Timeframe Inception activities



The NAP-Ag Programme in Thailand is under the CPF; the collaboration between the Kingdom of Thailand and The Food and Agriculture Organization of the United Nations on CPF 2012-2016. The overall objective of CPF is to provide a strategic guideline for future work programme to be implemented by Royal Thai Government and FAO in close partnership with other UN agencies and development partners. The activities related to NAP-Ag have been done during the inception phase such as workshops and meetings that organized in Thailand and in other countries.

A brief of Global Capacity Development Workshop on How to integrate Agriculture among eight Countries National Adaptation Plans held in Rome, Italy from 5-7 April 2016. FAO together with the United Nations Development Programme (UNDP) had hosting the named workshop. Representatives of Ministries of Agriculture and Ministries of the Environment from Nepal, Kenya, the Philippines, Thailand, Uganda, Uruguay, Viet Nam and Zambia are for the first time actively engaged in discussing how to ensure the integration of the agriculture sectors and sub-sectors in national adaptation planning processes.

70 Participants attained the workshop were

- Representatives from Ministries of Agriculture and Environment,
- FAO and UNDP Country focal points,
- Partner organizations – Oxfam, NAP Global Network
- Lead experts of the agriculture sectors
- Touch of Technical Points
- Developing a common understanding on the NAP process
- Challenges related to sector and sub-sector integration
- Boosting national capacity and
- How to build evidence and get support for implementation

It was also part of the peer-to-peer exchange between countries on adaptation strategies and approaches. The workshop also looked at building an evidence base for climate change adaptation in agriculture and leveraging support for NAPs.

Number of thematic sessions discussed on-

- Climate change adaptation (CCA) and food security
- Mainstreaming CCA into development planning
- Building an evidence base for climate change adaptation in agriculture
- Leveraging support for NAP
- Supplements to the NAP Technical Guidelines

Peer-to-Peer Exchange

- Country Poster Session – Overview of key issues for NAPs
- Buddy system – peer-to peer-exchange on select thematic
- Sharing of workplans and milestones for 2016

NAP Expo on Establishing Baselines for NAPs and Scaling up Adaptation Options-

Experience of Thailand, a Parallel Sessions held in UN Campus, Bonn from 11-15 July 2016.

Key points

- Establishing baselines for NAPs and scaling up adaptation action (UNDP, UNEP, FAO, BMUB, GCF (Representative from Gambia, Thailand, Philippines, Kenya and Zambia)

- Experiences on ecosystem-based approaches under the Convention on Biological Diversity (CBD, FAO)
- Technical guidance on NAPs (Representative from the Philippines)

NAPs workshop in Thailand highlights path to climate resilient strategies held in Thailand from 13-15 October 2015

- Thailand’s NAP process kicked off at a 3-day workshop hosted by GIZ and the Office of Natural Resources and Environmental Policy Planning (ONEP). There, over 20 government officials were introduced to the roadmap, tools, and next steps anticipated for the elaboration of strategies to fully embed climate adaptation into sectoral plans and to join this up to the national master plan on climate change, approved by the Thai Cabinet.
- Participants through the process of better understanding the costs and benefits of a major new investment planned in improved water distribution and flood water diversion being planned by the Royal Irrigation Department (RID). This innovative demonstration activity, designed to help MoAC (Ministry of Agriculture and Cooperatives) and its agencies rethink climate change as a key risk factor when planning and budgeting major new investments, was used as an illustrative case study to show to improved cost-benefit and climate risk analysis could be used shield agricultural production from a high future cost of flooding along the Chao Phraya river.
- A core component of the “Integrating Agriculture into NAPs project” will be the provision of technical support, training, and capacity building to help MoAC and its Office of Agricultural Economics analyze and elaborate effective strategies and bankable programmes that link actions on the ground to centralized planning, monitoring, and budget development. Among these could include climate-proofed flood protection infrastructure, integrated watershed and sustainable land management activities, and investing in early warning systems linked to mobile communication platforms.
- Practical methods and tools for developing more bankable programmes and proposals to budget agencies that promote resiliency is a strong need in countries like Thailand. This came through clearly in moderated discussions and exercises at a regional workshop on NAP best practices late last year. At this event, the UNDP experts including Pradeep Kurukulasuriya, Rohini Kohli participated as resource persons and identified common challenges and opportunities between countries such as Thailand, Cambodia, Laos, Vietnam, and the Philippines.

As a result of such advice and inputs at workshops, key national and sector stakeholders will be in a better position to develop climate-wise strategies that make social, environmental, and economic sense.

Regarding drafting Climate Change Strategic Plan for the Agricultural Sector (2017-2021), there were a series of meeting between OAE-led NAP-Ag Thailand, technical working group and Dr. Witsanu Attavanich, Kasetsart University for formulating the plan. In addition, OAE held 1st focus group seminar and consultation on September 2, 2016. There were approximately 40 farmers, 30 representatives from private companies, and 30 representatives from government officers attended the seminar. For the group of farmers attended the seminar and came from all regions in Thailand. There were farmers who grow crops including rice, corn, cassava, sugarcane, oil palm, rubber tree, durian, mangoesteen, papaya, and coffee and also

farmers produce livestock including hog, poultry and live cattle. For the group of private companies, there were representatives a variety of industries related to agricultural sector including livestock, food, fruit juice, animal feed, aquaculture, cooking oil, rice export, and rice mill. For the group of government officers, a majority of them were from departments and offices under the authority of Ministry of Agriculture and Cooperatives. Officers from other organizations related to the climate change also attended such as officers from the Office of Natural Resources and Environmental Policy and Planning, Department of Meteorology, the Office of National Economic and Social Development Board, and Thailand Greenhouse Gas Management Organization (Public Organization). Dr. Witsanu gave a presentation on potential impacts of climate change in Thailand’s agricultural sector, technologies and approaches, projects implemented in support of the 2013-16 Strategy, the performance of the 2013-16 Strategy and comparative analysis of the 2013-16

Strategy with other sector, assessment of key lessons learned from implementation of the 2013-16 and opportunities to enhance the implementation of the 2017-21 Strategy. The objective of presenting this information is aimed to build the background information related to climate change and improve the knowledge of all participants so that they can reveal the information about the problems they have faced and given their opinions related what they want and recommendations to the government. The information was collected and will be used to draft the 2017-21 Strategy.

The majority of famers reported that the impact of climate change impacted to their crop (rice, corn, cassava, fruit trees, rubber and oil palm) due to water shortage, low level of soil moisture, pest and insect problem and salt water intrusion that led to reducing of yield. Several strategies have been used to adapt and reduce the climate change impacts; use organic fertilizer, improve water management and adjust planting date. For the needs assistant from government, farmers would like to get knowledge of appropriate rice cultivar’s selection, how to improve the soil quality and demanded the well-water management.

The representative from private sector mentioned that they have been affected by climate change especially the shortage of agricultural products supplied to the factories. Also the price volatilities of agricultural products induced by climate change affect the cost of their production. The increase in temperature and its volatility also create more waste and loss along the agricultural supply chains. Aquaculture is also affected by the climate change due to the flood and drought conditions, which finally reduce the production efficiency. The adaptation strategies, they have adapted to the changing climate by reducing the cost of production and creating additional income from by-products of agricultural production. For coconut processed firms, they have attempted to find the new planted area to avoid the pest and insect. They also have adapted by providing the knowledge to the farmers to improve farmers’ adaptive capability so that the firms can have the stability of the raw materials. Furthermore, doing the research with academic institutes is another important adaptation strategy. They need assistance from the government that should support the research studies related to climate change for all crop and livestock and the analysis should cover all food system activities with the participation from all parties. They also asked the government to use more public relations to convey innovations, technologies, and local wisdom to enhance the knowledge for adaptation. They also asked the government to set up the committees responsible for monitoring, forecasting, and preventing the potential measures on trade and investment barriers. In addition, developing the central database to convey the technological and innovative knowledge for climate change may be needed.

The representative from public sector revealed that that almost all of them did not have the budget plan for projects related to climate change. They also revealed that climate change

projects were usually the last priority for them since they were not included in the normal workplan. The group also provided the opinion that the climate change projects under the 2013-16 Strategy had the crossing cutting problem in term of communication among organizations and each organization worked on the projects of climate change separately. There was no integration of climate change planning in organizations. Lastly, for monitoring and evaluation, it is disclosed that the 2013-16 Strategy did not have well- designed and unclear indicators to facilitate the monitoring and evaluation process. Driving the policies related to climate change. They reported that there was a slow progress of driving the policies related to climate change because their head/administrative of the organizations usually give the first priority to their normal workplan and will drive the projects related to climate change as the last priority. Moreover, they think that the climate change is the long-term problem and they need to give the first priority to the short-term problems.

Regarding obstacles of driving the policies related to climate change. The budget shortage because almost all organizations did not have projects under the 2013-16 Strategy. The indicators and objectives of the 2013-16 Strategy were not well- designed and unclear. The head/administrative of the organizations usually give the last priority to the projects related to climate change since they were not included in the normal workplan. There were a few meetings/seminars related to the climate change issues. There was no integration of climate change policy and planning among all organizations and no joint KPI related to climate change projects among organizations. Lastly, the lack of central database related to technological knowledge and innovation related to climate change and agriculture. To solve the problems of policy implementation, it is recommended that the climate change projects should be included in the normal workplan of the organization both TOR and agenda. Moreover, to obtain continue annual budget, the climate change projects should be included in the strategic plan of the Ministry of Agriculture and Cooperatives. New organization/unit should be set up to take care of all issues related to climate change and agriculture. Furthermore, well-designed and clear indicators on the climate change strategic plan may be needed. In addition, enhancing the recognition of the head or administrative of organizations regarding the climate change impacts may be needed. The action plan to drive the climate change strategic plan should be drafted and implemented. Collecting the knowledge from local wisdom related to adaptation strategies / technology may be important.

The NAP-Ag Thailand project start-up tasks including the signing project agreement, establishment of the steering committees and technical working group, recruitment of project personnel including hiring project consultants.

The Agricultural and Cooperatives Policy and Planning Development Board has approved the establishment of MoAC Climate Change Strategic Plan for Agricultural Sector Sub- committees on February 26, 2015 and signed by Mr. Pitipong Pungboon na Ayutthaya, Minister of Agriculture and Cooperatives. The amendment was added on March 8, 2106 and signed by General Chatchai Sarikulya, Minister of Agriculture and Cooperatives. The Subcommittees consisted of representatives from various departments under MoAC and other ministries.

On 18th March 2015, UNDP and FAORAP representatives had a meeting and consultation with OAE officials about the NAP-Ag programme funded by BMUB, IKI Germany. The NAP-Ag aims to integrate climate change risks and opportunities as they related to agriculture sector-related livelihood options within existing national planning and budgeting process. The duration of the programme is 4 years (2015-2018) with the total budget 15 million Euro.

Permanent Secretary, MOAC has been approved the OAE to countersign the agreement on

September 29, 2015. The agreement was signed by Vili Ki-Apifoou Fuavao, FAO Deputy Regional Representative for Asia and the Pacific and Focal Point of FAO’s Programme in Thailand and Mr. Lersak Rewtarkulpaiboon, Secretary General of OAE on behalf of the Government of the Kingdom of Thailand under the CPF-FAO, the cooperation and partnership between Royal Thai Government and, Food and Agriculture Organization. OAE appointed Ms. Sairak Chailanggar, Economist, Senior Professional Level as a National Project Coordinator to collaborate with FAO for the NAP-Ag Thailand.

The NAP-Ag Thailand Technical Working Group was established on February 17, 2016, and appointed by Mr. Lertviroj Kowattana, Deputy Permanent Secretary for the MOAC. On February 26, 2016, OAE, a lead department in MoAC held a meeting at Uraikul Meeting Room, OAE office to brief the participants the background of NAP-Ag Programme, project progress, project working areas and to get feedback and recommendations from the participants to develop the project workplan. There were some highlights of recommendations;

- All concerned departments should participate in drafting climate change workplan
- Organize training on climate model for project analysis and climate change economic valuation tools
- Organize the workshop to develop the climate change action plan and should be invited the representative from Ministry of Science and Technology, ONEP, Ministry of Interior Bureau of Budget and NESDB to participate in this meeting.
- Project should concern on climate change information and knowledge
- NAP-Ag Thailand should provide high benefit to farmers
- Adjust the workplan

The Cooperation between FAO and Foreign Agricultural Relations Board was approved to establish the steering committees under the CPF-cooperation between RTG and FAO. The document was signed by Mr. Theeraphat Prayoonsithi, Permanent Secretary, MOAC on March 7, 2016.

OAE had a consultation with FAORAP again on March 4. After that OAE organized a meeting and invited concerned departments to join the meeting on March 28, 2016 to update the NAP-Ag Thailand project. FAORAP and UNDP representatives also joined the meeting. The resolutions of the meeting agreed on the update workplan and OAE proceed the actions as follow;

- Notification appointment of NAP-Ag Thailand technical working group will be included Fisheries Department, Cooperative Promotion Department and Agricultural Land Reform Department
- Stocktaking the vulnerable area to climate change in sub-district and district level
- Personal engagement; hiring full time or part time climate change expert or consultant to coordinate and support the project

Mrs. Wimonporn Thitisak, Secretary General CPF has appointed the technical working group for the Supporting the integration of agriculture sector in the National Adaptation Plans in Thailand (NAP-Ag Thailand) on May 12, 2016.

3.1.1. Inception Workshop



Figure 3-2 Inception workshop

Inception workshop preparation was included contacting the hotel to arrange the meeting room for the workshop issuing invitation letters, translating workplan into Thai and presentation preparation.

The OAE staffs had a meeting with FAO and UNDP to set up a date and workshop agenda, then contacted the hotel to reserve the meeting room on October 6, 2016. OAE issued the formal invitation letter and signed by Deputy Director,

Secretary General of OAE and sent to the Director General of each technical working group departments. NAP-Ag Thailand project background and workplan were printed as a handout for the participants.

The inception workshop was held on the 6th of October 2017 in Bangkok at Centara Grand Ladprao Hotel, Thailand. The purpose of the inception workshop was to present the stakeholders the progress of the NAP-Ag and for the approval of the workplan. There were 35 participants from the key departments in MoAC and other concerned stakeholders participated in this workshop. The workshop was composed of 3 sessions, the 1st session was opening the workshop by OAE deputy secretary, Mrs. Chanthida Meedech, a chairman opened the workshop and welcomed remarks and the briefed on the CPF collaboration between FAO and MoAC, the NAP-Ag Thailand and the progress of MoAC Climate Change Strategic Plan for the Agriculture Sector (2017-2021). The 2nd session was led by UNDP representatives; Glenn Hodes and Pawin Talerngsri, and Beau Damen, from FAO. Hodes briefed the overview of the NAP-Ag global programme, Thailand NAP road map and the NAP process to integrate the agriculture sector into the national adaptation plan. Then Ms. Ienkate Saenghkaew presented NAP-Ag workplan covering 4 outcomes, outputs and activities.

The last session was about Climate Change Screening and Appraisal presented by Dr. Areeya Obidiegwu and Ray Purcell.

Participants raised questions and recommendations concerning to the project budget as well as the benefit of NAP-Ag to MoAC and farmers. Regarding those questions, Glenn and Beau explained them the total budget is 15,000,000 Euro for 11 countries which is including NAP-Ag Thailand USD700,000. Within this amount budget will be used for hiring staffs and consultants. NAP-Ag is not a research development project but it a process for mainstreaming climate change adaptation into agriculture sector policies, plan, budgets, monitoring and evaluation. However, the project will not implement the activities directly with the farmer, but farmers will receive the benefits which depend on the effectiveness of policies and planning. MoAC will design the implementing activities accordance with the workplan, UNDP and FAO will provide budgets and experts to support MoAC to implement those activities.

In addition, participants also gave a recommendation on the workplan outcome 1 related to vulnerability analysis and adaptation that ONEP already did the assessment and could use the results for the site section. The workplan should be indicated who should participate in which activities as well as the linkage of activities under each outcome.

Pawin, UNDP explained more about economic valuation and investment appraisal tools such as Cost Benefit Analysis (CBA) to determine whether the proposed project is a sound decision or investment compare alternative project options and make a decision on the preferred option with climate change or without climate change consideration. CBA tool is practiced by RID, Fisheries department and Livestock department.

3.2. Country Team Coordination and Communication

30 Agencies have been working for NAP Thailand as climate change coordinators. 19 Ministries and 11 Agencies together are under an umbrella of Prime Minister Office. Each ministries and agencies are connected in branches with the sub-national board. From policy, planning, technical supports, negotiation board, management coordination to Thai Green House Gas organization (TGO) national focal point, secretary are nested strength to work together for NAP Thailand. National Structure of Climate Change chaired by Prime Minister. Sub national board on Technical Support chair by Office of Natural Resources and Environmental Policy and Planning (ONEP) Secretary General. Sub national board on policy integration and negotiation both are chaired by MoNRE Permanent Secretariat. Likewise, secretary of climate change management coordination division (CCMC) and Thai TGO are also body of managerial connection leading by Prime Minister as chair of MoNRE & MoFA.

Figure 3-3 National structure of climate change

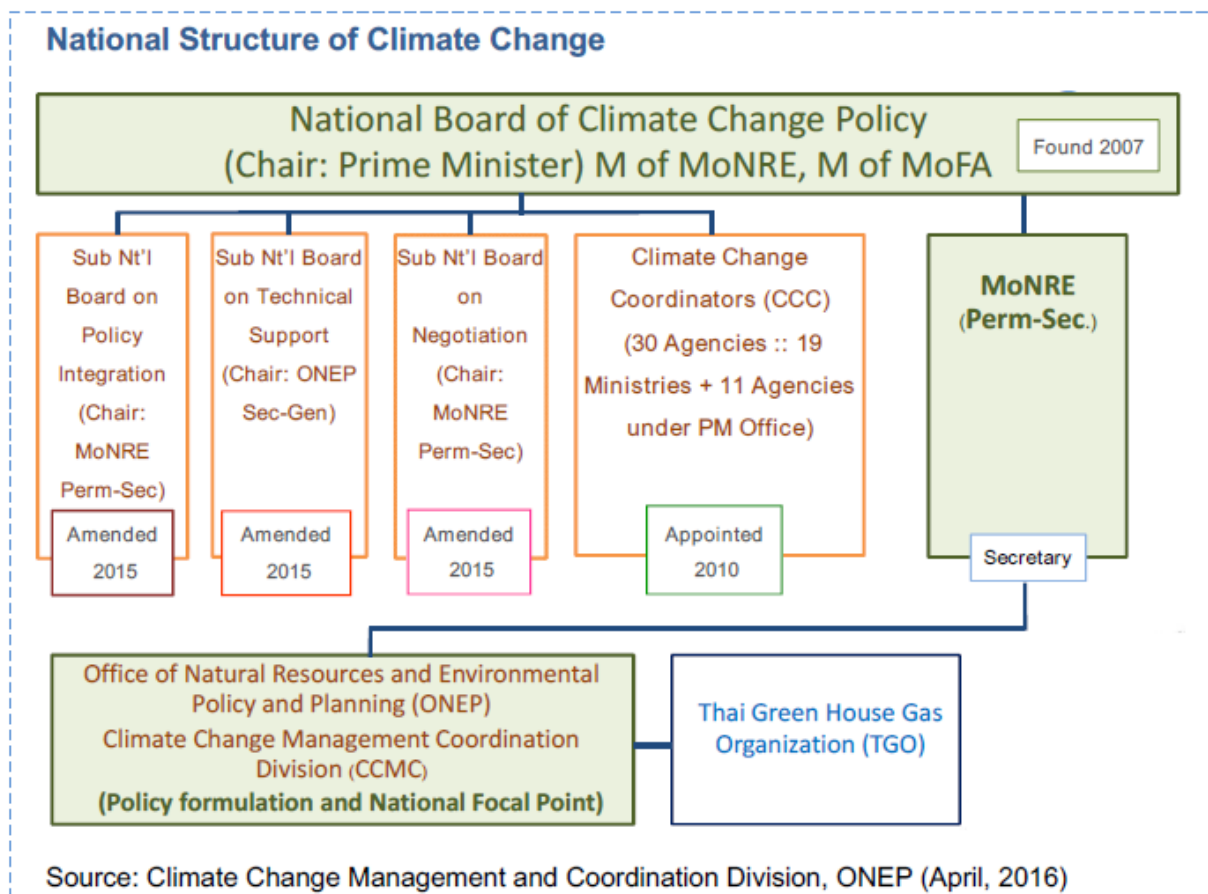
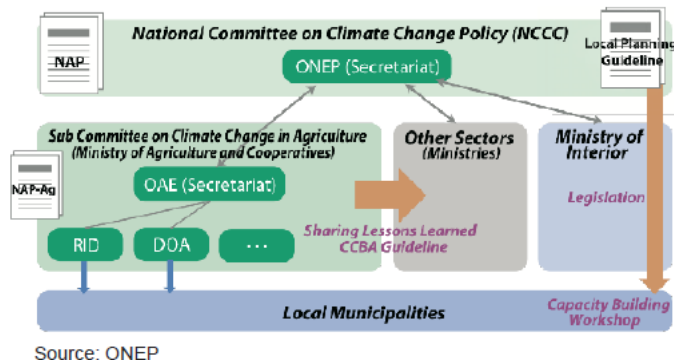


Figure 3-4 Inception workshop

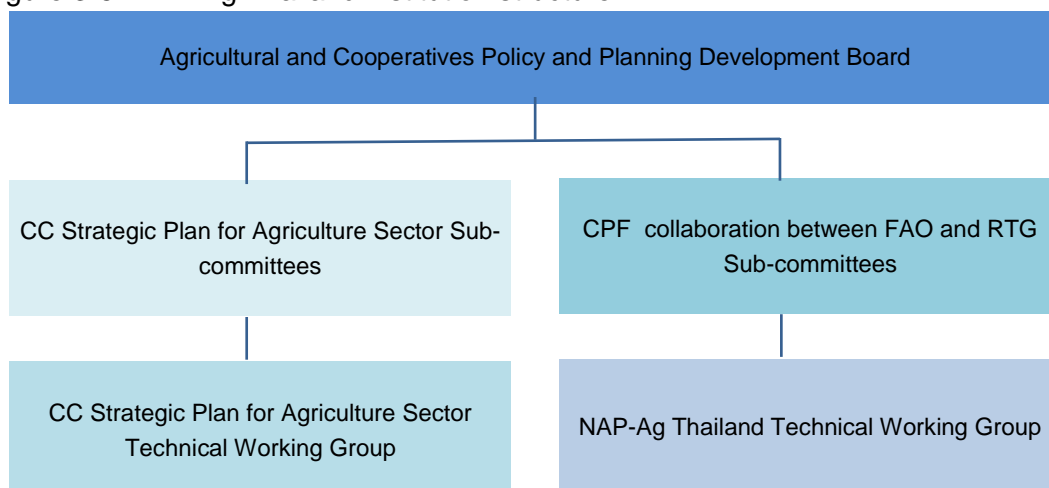


Source: ONEP

OAE is the secretariat of MoAC for NAP-Ag Thailand. The National Project Coordinator was appointed to collaborate with FAO for the NAP-Ag Thailand. FAO also assigned the service provider to be based at the OAE officer to support the project and responsible for taking action according to the workplan. The service provider

and the National Project Coordinator have a team meeting every month in order to update the project activities and the National Project Coordinator will coordinate or organize a meeting with other departments in MoAC for up to date the progress of the project. The NAP-Ag Thailand is also supported by the committees (Figure 3-4, 3-5).

Figure 3-5 NAP-Ag Thailand institution structure



Source: OAE, MoAC

3.2.1. CPF Sub-committee

The CPF-Sub-committee was established on March 7, 2016 and consisted of representatives from the departments of MoAC, other ministries under the CPF-cooperation between RTG and FAO. Roles and Responsibilities of CPF will support the NAP-Ag project as follow;

- Provide guidance and coordinate with stakeholders or related activities as CPF-cooperation between RTG and FAO
- Identify criteria and guideline to receive support from FAO
- Consideration and prioritization of the cooperated project
- Seek for funding sources in order to implement the project activities
- Appoint the technical working group
- Others assigned activities

1.	Secretary of The Cooperation between FAO and Chairperson International Agriculture Board	
2.	Ministry of Interior	Member
3.	Ministry of Public Health	Member
4.	Ministry of Education	Member
5.	Ministry of Social Development and Human Security	Member
6.	NESDB Member	
7.	Thailand International Cooperation Agency	Member
8.	Royal Forest Department	Member
9.	Department of Marine and Coastal Resources	Member
10.	Ministry of Natural Resources and Environment	Member
11.	Rice Department	Member
12.	Royal Irrigation Department	Member
13.	Fisheries Department	Member
14.	Livestock Department	Member
15.	Land Development Department	Member
16.	Department of Agriculture	Member
17.	Agriculture Extension Department	Member
18.	Cooperatives Promotion Department	Member
19.	The Queen Sirikit Department of Sericulture	Member
20.	Agricultural Land Reform Department	Member
21.	National Bureau of Agricultural Commodity and Food Standard	Member
22.	Office of Agricultural Economic	Member
23.	FAOROAP	Member
24.	Director of Foreign Agricultural Relations Division	Member
25.	Chief of International Cooperation, Foreign Agricultural Relations Division	Committee/Deputy/Secretary
26.	Officers of Foreign Agricultural Relations Division	Committee/Deputy/Secretary

3.2.2. NAP-Ag Thailand Technical Working Group

It has been stated in the CPF-cooperation between RTG and FAO on May 12, 2016. Mrs. Wimonporn Thitisak, Secretary General CPF appointed the NAP-Ag Thailand Technical Working Group and consisted of members in MoAC and other ministries in order to support the NAP-Ag Thailand project;

- Provide recommendation to the project
 - Regulate and supervise project implementation on consensus basis of regulations, conditions and project framework
 - Coordinate and support related information to the project
- | | | |
|----|---|-------------|
| 1. | Deputy Director, Secretary General of OAE | Chairperson |
| 2. | Rice Department | Member |
| 3. | Royal Irrigation Department | Member |
| 4. | Live Stock Department | Member |
| 5. | Land Development Department | Member |
| 6. | Department of Agriculture | Member |

7. Agriculture Extension Department	Member	
8. Cooperatives Promotion Department	Member	
9. Fisheries Department	Member	
10. Agricultural Land Reform Office	Member	
11. Royal Forest Department	Member	
12. ONEP	Member	
13. Policy and Planning Division, OAE	Member	
14. Centre for Agricultural Information, OAE	Member	
15. Centre for Project and Programme Evaluation, OAE	Member	
16. Bureau of Agricultural Economic, OAE	Member/Secretary	
17. Division of Agricultural Resources Economic Research, OAE	Member/Deputy	Secretary

3.2.3. Climate Change Strategic Plan for Agricultural Sector Sub-committees

According to the resolution of the meeting on January 8, 2015, the Agricultural and Cooperatives Policy and Planning Development Board has appointed the Climate Change Sub-committees on February 26, 2015 to formulate the Climate Change Strategic Plan for Agricultural Sector. The Sub-committees are mainly consisted of representatives from interdepartmental MoAC and other ministries to support NAP-Ag Thailand. The main tasks of the Sub-committees are;

- Driven the concerned departments under MOAC to formulate Climate Change Strategic Plan for Agricultural Sector 2013-2016 including f develop further formulating Climate Change Strategic Plan for Agricultural Sector to be in line with Climate Change Master Plan 2012-2050.
- Provide recommendation in negation and coordination between related organizations both in Thailand and international to build resilience in agricultural sector due to climate change and greenhouse gas emission.
- Monitor and evaluate the MOAC Climate Change Strategic Plan for Agricultural Sector 2013-2016
- Cooperate, governance, follow up and report the progress of the MOAC Climate Change Strategic Plan for Agricultural Sector to the Agricultural and Cooperatives Policy and Planning Development Board
- Appoint the Technical Working Group for Climate Change Strategic Plan for Agricultural Sector.

1. Deputy Permanent Secretary of the MOAC	Chairperson
2. National Science Technology and Innovation Policy Office	Member
3. ONEP	Member
4. TGO	Member
5. NESDB	Member
6. Thai Meteorological Department	Member
7. Bureau of the Budget	Member
8. Rice Department	Member
9. Royal Irrigation Department	Member

10. Fisheries Department	Member
11. Live Stock Department	Member
12. Land Development Department	Member
13. Department of Agriculture	Member
14. Agriculture Extension Department	Member
15. Cooperatives Promotion Department	Member
16. Agriculture Extension Department	Member
17. Agricultural Land Reform Office	Member
18. National Bureau of Agricultural Commodity and	Member Food Standard
19. Agricultural Research Development Agency	Member (Public Organization)
20. The Thai Chamber of Commerce and Board of	Member Trade of Thailand
21. Director of Office of Agricultural Economic, OAE	Member
22. Department of Royal Rainmaking and Agricultural	Member Aviation
23. The Federal of Thai Industries	Member
24. Agricultural Economic Resources Research OAE	Member/Deputy Secretary Expert,
25. Bureau of Agricultural Economic, OAE	Member/Deputy Secretary

3.2.4. Climate Change Strategic Plan for Agricultural Sector Technical Working Group

The Climate Change Strategic Plan for Agricultural Sector Sub-committees had a meeting on December 9, 2015 agreed upon the appointment the Climate Change Strategic Plan Technical Working Group in order to formulate the MoAC Climate Change Strategic Plan for Agriculture Sector 2017-2021 to be in line with the National Economic and Social Development Plan and Climate Change Master Plan. The Climate Change Strategic Plan Technical Working Group is composed of the representatives of MoAC and other ministries. The technical working group will support the NAP-Ag Thailand;

- Formulate MoAC Climate Change Climate Change Strategic Plan and Action Plan for Agricultural Sector to be harmonized with National Economic and Social Development Plan and Climate Change Master Plan 2016-2050
- Formulate the action plan by involving concerned stakeholders both public and private sector, civil society and technical experts through participatory process
- Collect climate change and climate change-related to use for policies issuing and planning and
- Report the NAP-Ag Thailand activities to Climate Change Strategic Plan for Agricultural Sector Sub-committees

The Agricultural Sector Technical Working Group is composed of members as follow;

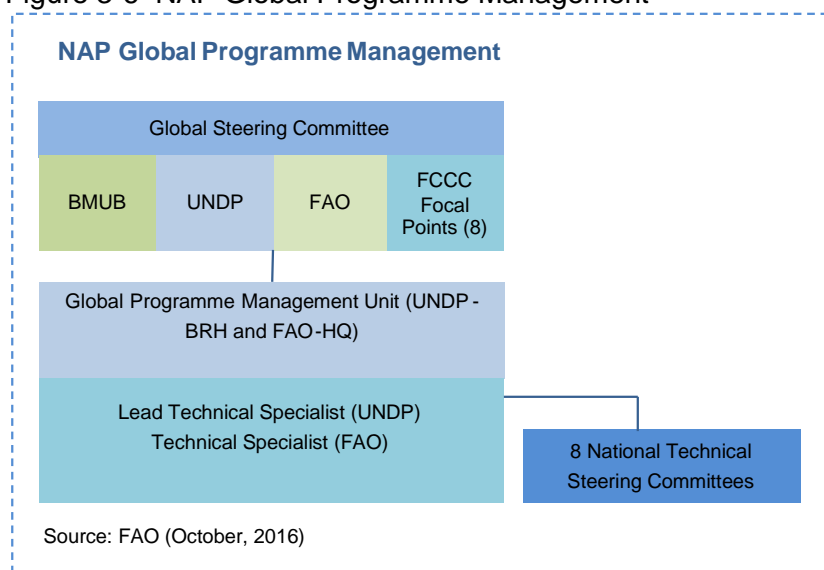
1. Deputy Director, Secretary General of OAE	Chairperson
2. Rice Department	Member
3. Royal Irrigation Department	Member
4. Fisheries Department	Member
5. Live Stock Department	Member
6. Land Development Department	Member
7. Department of Agriculture	Member
8. Agriculture Extension Department	Member

9. Cooperatives Promotion Department	Member
10. Agricultural Land Reform Office	Member
11. National Bureau of Agricultural Commodity and Food Standard	Member
12. Department of Royal Rainmaking and Agricultural Aviation	Member
13. ONEP	Member
14. National Science Technology and Innovation Policy Office	Member
15. The Thai Chamber of Commerce and Board of Trade of Thailand	Member
16. The Federation of Thai Industries	Member
17. Policy and Planning Division, OAE	Member
18. Centre for Agricultural Information, OAE	Member
19. Bureau of Agricultural Economic, OAE	Member/Secretary
20. Division of Agricultural Resources Economic Research, OAE	Member/Deputy Secretary

3.3. Use of Global Program Experts

FAO and UNDP implement the programme through their network of specialized technical staff. UNDP staff brings expertise in climate-compatible development, disaster risk reduction, governance, as well as central planning/budgeting. FAO, as the UN specialized agency in food and agriculture, will bring its expertise in providing policy advice and sharing best practices in the agriculture, forestry and fisheries sectors under a changing climate. At the country level, these experts will form a technical team with representatives from the Ministries of Agriculture and Environment/UNFCCC focal points to meet country-specific needs. A Steering Committee will review the progress and annual benchmarks achieved. It is composed of the BMUB, FAO, UNDP, Programme Countries and key partners, e.g. the UNFCCC Adaptation Committee and the Least Developed Countries Expert Group (LEG). Additional partners and donors will be integrated into the structure of the programme as appropriate (Figure 3-6)

Figure 3-6 NAP Global Programme Management



The team of NAP-Ag programme implementation stages with the support and correlation with experts. Experts are from both ends in country and global. In working process and implementation there has committee for the project work. With the reference to workplan, the team will need the support from the global technical specialists as remarks in section 5 (detailed implementation plan). Regarding outcome 1, the global technical specialist will support to revise and provide a recommendation on the vulnerability assessment methods and tools that will be used to conduct the field work. Moreover, identifying economic valuation and investment appraisal tools including training will also need support from the global technical specialist. Additional outcome 2, training MoAC on budget coding/tagging and expenditure tracking method as well as revising of internal MoAC project preparation and budget guideline, project team will request the global technical experts to assist those activities. Under outcome 3, development of M&E tools, program monitoring framework and training module preparation, the team may need the global technical specialist to revise. Lesson learned materials, knowledge management and communication under outcome 4, will also need assistance from the global technical specialist for instance support engagement of Thai agriculture sector decision-makers in global NAP dialogues.

3.4. Coordination with NAP Processes

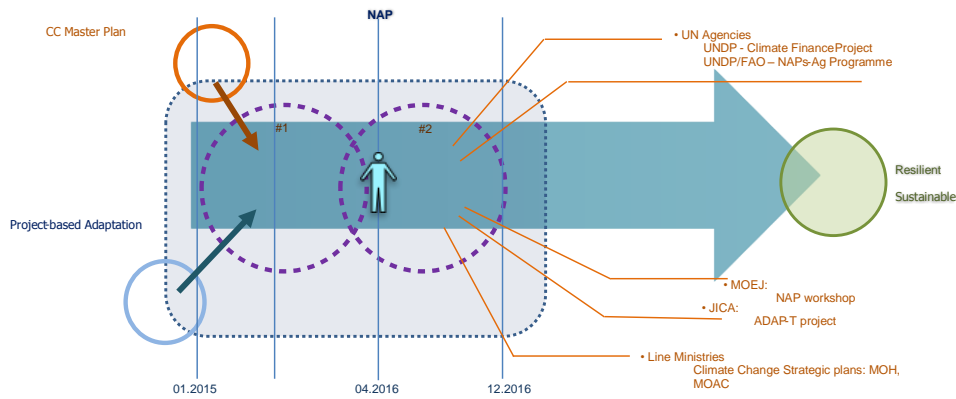
The NAP process was established by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010 and is a component of the Cancun Adaptation Framework. Climate change risks intensify development challenges for least developed countries (LDCs). The NAP process is intended to reduce vulnerability, build adaptive capacity and mainstream adaptation into all sector-specific and general development planning. The Least Developed Countries Expert Group (LEG) has developed NAP Technical Guidelines, which determine the NAP process from its early design to the monitoring of its implementation. The NAP process is an opportunity for country to be able to;

- Address risks and vulnerabilities in climate-sensitive sectors; and
- Identify and prioritize response actions
- Coordinate and integrate these with wider policy, planning and budgeting process
- Strengthen capacities to use domestic and international climate finance more effectively to reduce loss and damage in the sector.

In Thailand, the Office of Natural Resources & Environmental Policy and Planning (ONEP), under the Ministry of Natural Resource and Environment (MONRE), has launched the process for the National Adaptation Plan (NAP). The 1st Phase ended in January 2016 and the 2nd Phase is from February 2016 until the end of 2016. Outcomes of the 2nd Phase will be: 1) 1st NAP Draft: Guideline & Direction (Sector-based & Area-based), 2) Database of Existing Adaptation Measures/Options to reduce vulnerability (Learning Process, Implementing Procedures, Benefits (Social-Economic-Environmental), and 3) Suggestions for Monitoring and Evaluation (M&E) Systems (Figure 3-4, 3-5, 3-6).

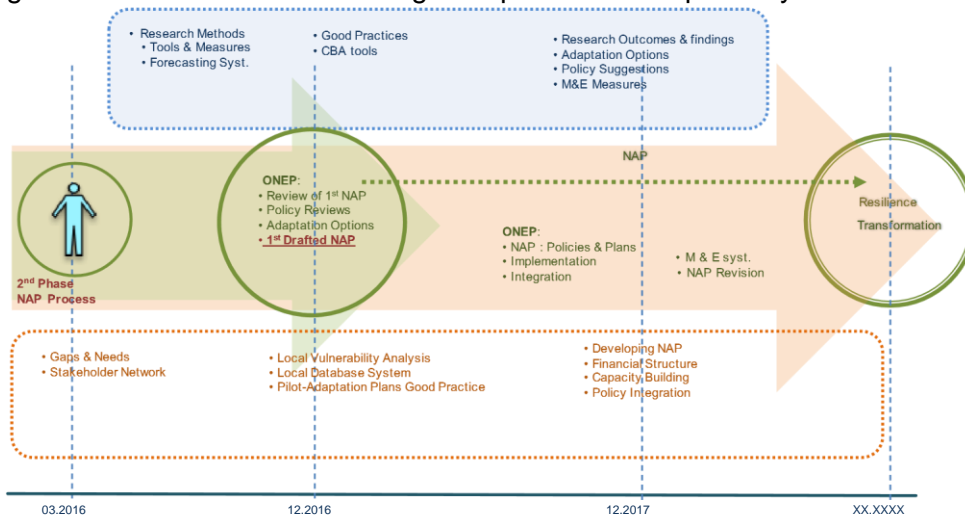
Figure 3-7 Thailand climate change adaptation: adaptation roadmap.

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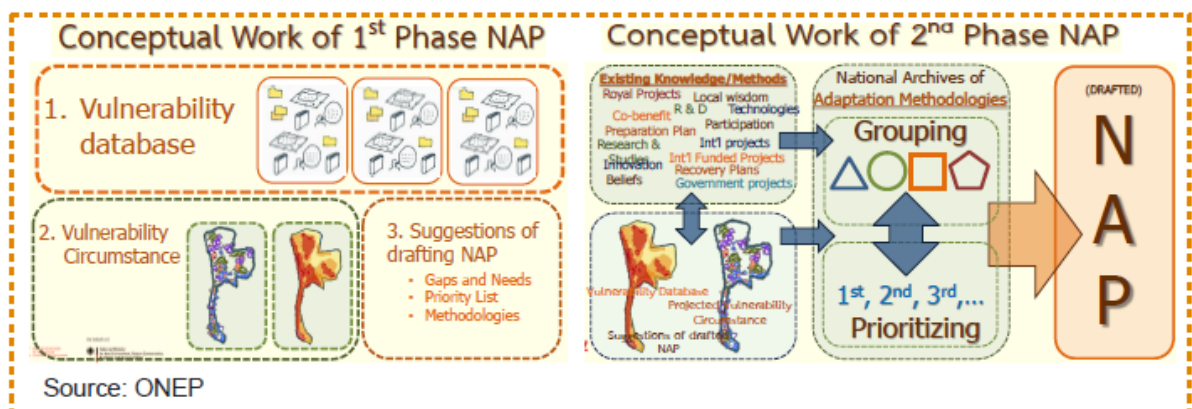
Source: Climate Change Management and Coordination Division, Office of Natural Resources and Environmental Policy and Planning (April, 2016)

Figure 3-8 Thailand climate change adaptation ONEP pathway with international collaboration



Source: Climate Change Management and Coordination Division, Office of Natural Resources and Environmental Policy and Planning (April, 2016)

Figure 3-9 Conceptual work of 1st and 2nd phase NAP



Source: ONEP

The NAP-Ag process was adapted from “Overview of GIZ approaches and tools to facilitate the NAP process” (Figure 3-7). The process started with Element A-Lay the ground work and address gaps. In fact, FAO and UNDP engaged and consultation with OAE-secretariat of MoAC as an entry point. Then, take stock of the existing data and information and activities by reviewing, meeting and organizing workshop with interdepartmental MoAC. Considering information and activities, the team will analyze current and future climate hazard, climate

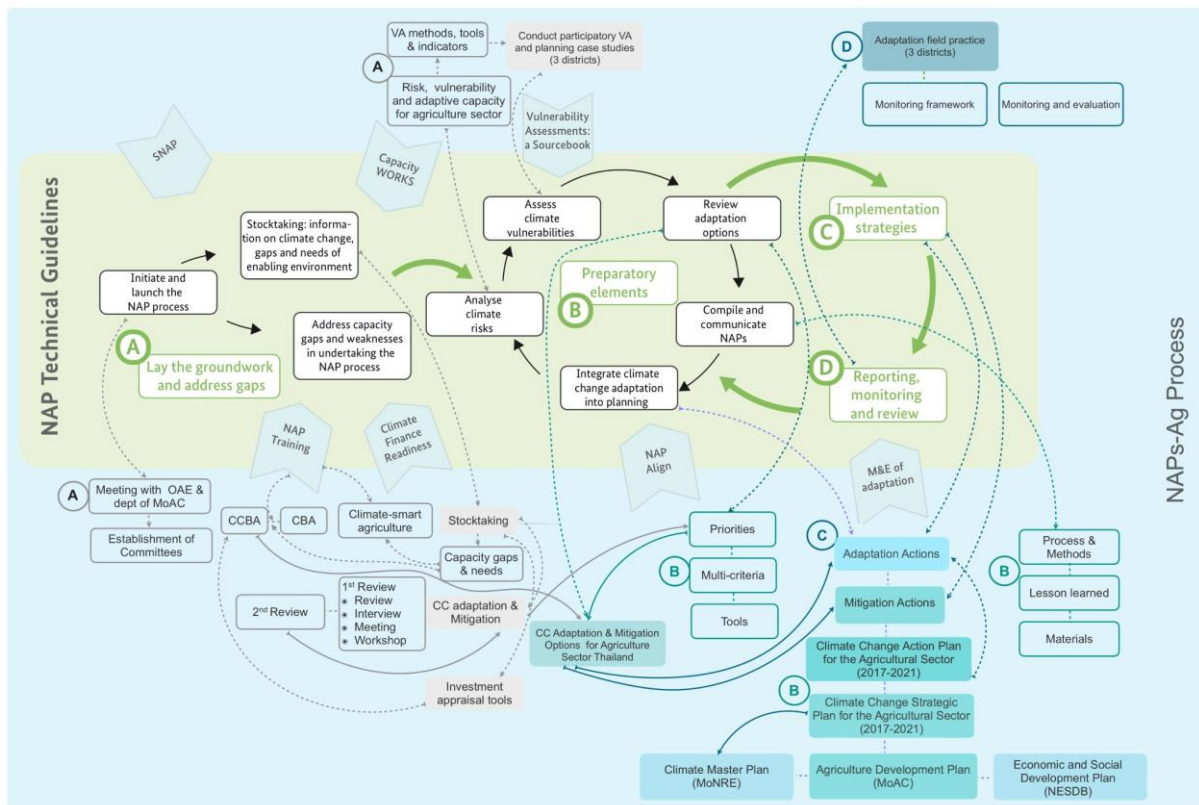
change impacts and adaptation activities. Apart from this, the team will look at gaps and needs for capacity building.

With the reference to Element B-Preparatory elements, the team will follow the workplan by analyzing risk, vulnerable analysis of current climate hazard and future scenario, identify and prioritize adaptation options. The team will work with the consultants and support by the global technical specialist. At the same time, the team will conduct the vulnerability assessment through participatory process in three targeted districts. The climate risk and vulnerabilities including adaptation options will be documented and will be used and integrate with district plan/ agriculture sectoral plan, climate master plan and to develop lessons learned materials. Ranking methods such as Multi Criteria Analysis and Cost-effectiveness analysis will be applied in prioritization.

In addition to Element C-Implementation strategies, the Climate Change Action Plan will be implemented in three districts as a demonstration site. At the same time, the team will support the district/provincial office to develop a long-term implementation strategy.

In term of Element D-Reporting monitoring and review, monitoring and evaluation methods will be trained to MoAC monitoring unit and monitor and assess the progress of the implementation activities regularly.

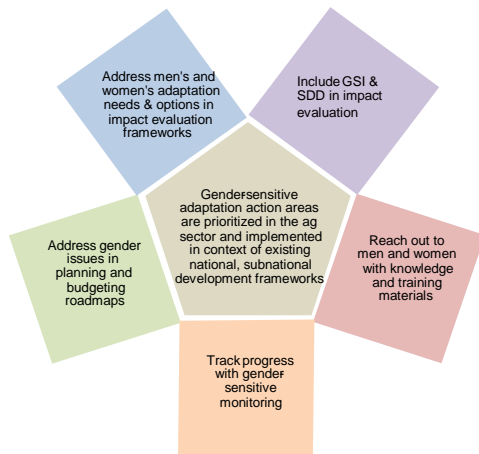
Figure 3-10 NAP-Ag process



Adapted from: Overview of GIZ approaches and tools to facilitate the NAP process, June 2014

3.5. Gender

Figure 3-11 Climate change effect on agriculture-based livelihoods in integrated in planning and budgeting process



Gender mainstreaming in NAP-Ag will be considered at the beginning of the project in order to create a partnership with different stakeholders in MoAC and other ministries. Gender balance of project staffs, men and women will participate in project management, design workplan and activity implementation. Climate change effects on agriculture sector-base livelihoods integrated planning and budgeting process will be applied in implementation phase (Figure 3-11).

Source: UNDP (October, 2016)

1. Seek gender balance among stakeholders will be applied. The project team will use the finding results from vulnerability analysis and potential adaptive capacity to climate change for the agricultural sector to conduct the vulnerability assessment and planning through participatory process. Participants who are vulnerable groups, including women will be participated in NAP-Ag process and join climate-smart training of trainers. Apart from this, they will join training in activity 1.2.1, 1.2.2, 2.1.1-2.1.2 including preparing a programme monitoring framework and indicators (3.1.3) and materials for CCA for monitoring and evaluation methods (3.2.2). Lesson learned and knowledge contribution to MoNRE-led NAP in outcome 4.
2. Synthesize the usage results of vulnerability assessment adaptive capacity to climate change in the targeted districts to address gender issues in planning and budgeting roadmap to develop Action Plan prioritizes action to vulnerable group; for instance vulnerable groups number of women participate in climate-smart agriculture training will be more considered than men or in project preparation and project proposal development will be focused on women, if women are more vulnerable to climate change (1.1.5, 2.1.2-2.3.4).
3. Address men's and women's adaptation needs & options in impact evaluation frameworks. The project team will look at the status on women and men in climate change adaptive capacity in agriculture sector, what are their roles in implementing activities participate in decision-making in planning and budgeting process including what are their constraints and opportunity which can help and intervention that can address the needs for both men and women (1.1.5-1.1.6, 2.1.1-2.1.2, 3.2.1-3.1.2)
4. Include GSI & SDD in impact evaluation frameworks will be mainly focusing on outcome 3 and training activities in outcome 1, 2 and 3. Gender-sensitive adaptation action areas are prioritized by the agriculture sectors and implemented in the context of existing national and subnational development frameworks, measuring progress on gender equality (Number of women's groups participating in development of NAP-Ag roadmap, percentage of trainees, document on men and women' roles in agriculture sector, perception, belief and attitude).
5. Reach out to men and women with knowledge and training materials that will focus on outcome 4 and other training activities in outcome 1-3.
6. Track progress with gender-sensitive monitoring that will be focused on outcome 1-4, for example percentage of trainees, disaggregated by sex that men and women will be counted separately.

3.6. Integration of Disaster Risk Reduction

Mainstream climate change adaptation and disaster risk reduction into agriculture sector plans, policies, budgets (both national and provincial) is 1 of 6 priorities across country workplans. Under NAP-Ag Thailand’s workplan, DRR and CCA share common in vulnerability reduction, activities, approach and tools. However, Climate change adaptation focuses on long-term, multi-year programme whereas DRR focuses more on shorter-term responses. Integrating DRR and CCA into agriculture sector are including, planning, implementation, monitoring and evaluation. Activities under outcome 1 and outcome 3 1.1.11.1.6, 3.1.1 related to risk, vulnerability analysis and potential adaptive capacities including stocktaking of existing risk and climate change hazard to identify and reduce the vulnerabilities to various hazards faced, whether related and/or unrelated to climate change. This step DRR and CCA will share approach, tools for example hazard map, resource map, seasonal calendar and vulnerable group. Both DRR and CCA will be conducted through participatory process. They may share the same results on risk and climate hazard (flood and drought) and the impact to agriculture sector; drought can make crop yield decrease.

They may also share the similarity in adaptation options such as climate-smart agriculture (1.1.5).

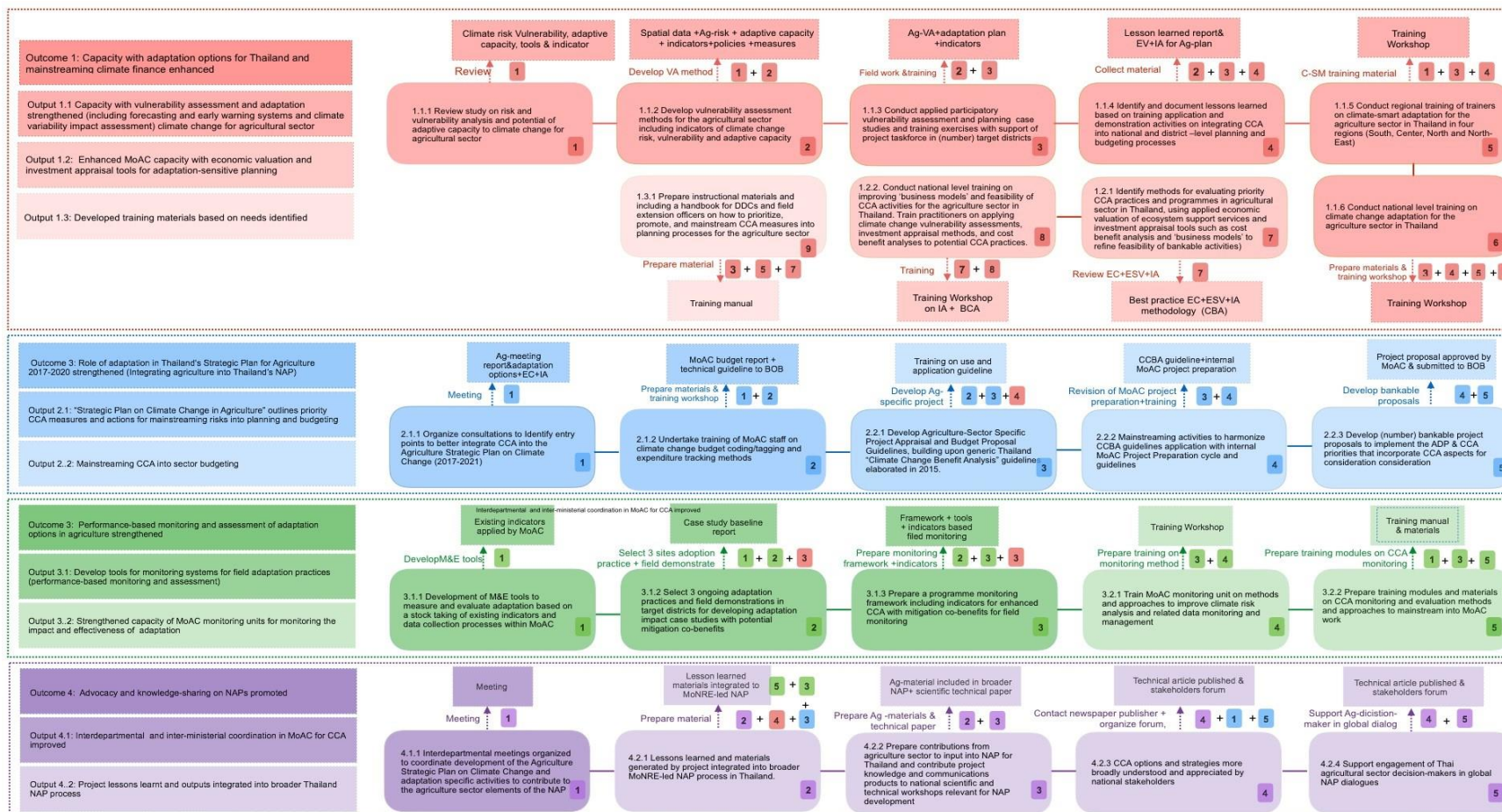
Planning and budgeting process activities will be used applied economic valuation and investment appraisal tools. Regarding integrating CCA into the Agriculture Strategic Plan should be arranged in prioritize level of disaster and climate change impact through accounting consideration of disaster risk assessment as well as estimating of cost-benefit analysis for agriculture sector (1.2.1-1.2.3,1.2.1-1.2.3, 2.1.1-2.1.4).

Monitoring and evaluation presents in outcome 3 which are included development of M&E tools, field demonstration, M&E training and programme monitoring framework, The activities related to DDR are; 1.1.4-1.1.6, 1.2.2, 1.3.1, 1.2.2-1.2.3, 2.1.1-2.2.1, 3.2.1-3.2.2 and outcome 4.

Training modules and materials will be included both DRR and CCA such as vulnerability assessment and climate-smart agriculture training in outcome 1 and CBA in outcome 2.

4. Approach - NAP-Ag Program in Thailand

Figure 4-1 Linkage between activities



This section provides a brief discussion about the implementation plan, a brief overview of linkage between outputs and activities, integrated delivery of field level activities, geographical focus, communication and stakeholders’ engagement including capacity building.

4.1. Linkages between Outputs and Activities

Figure 4-2 Linkage between outputs and activities

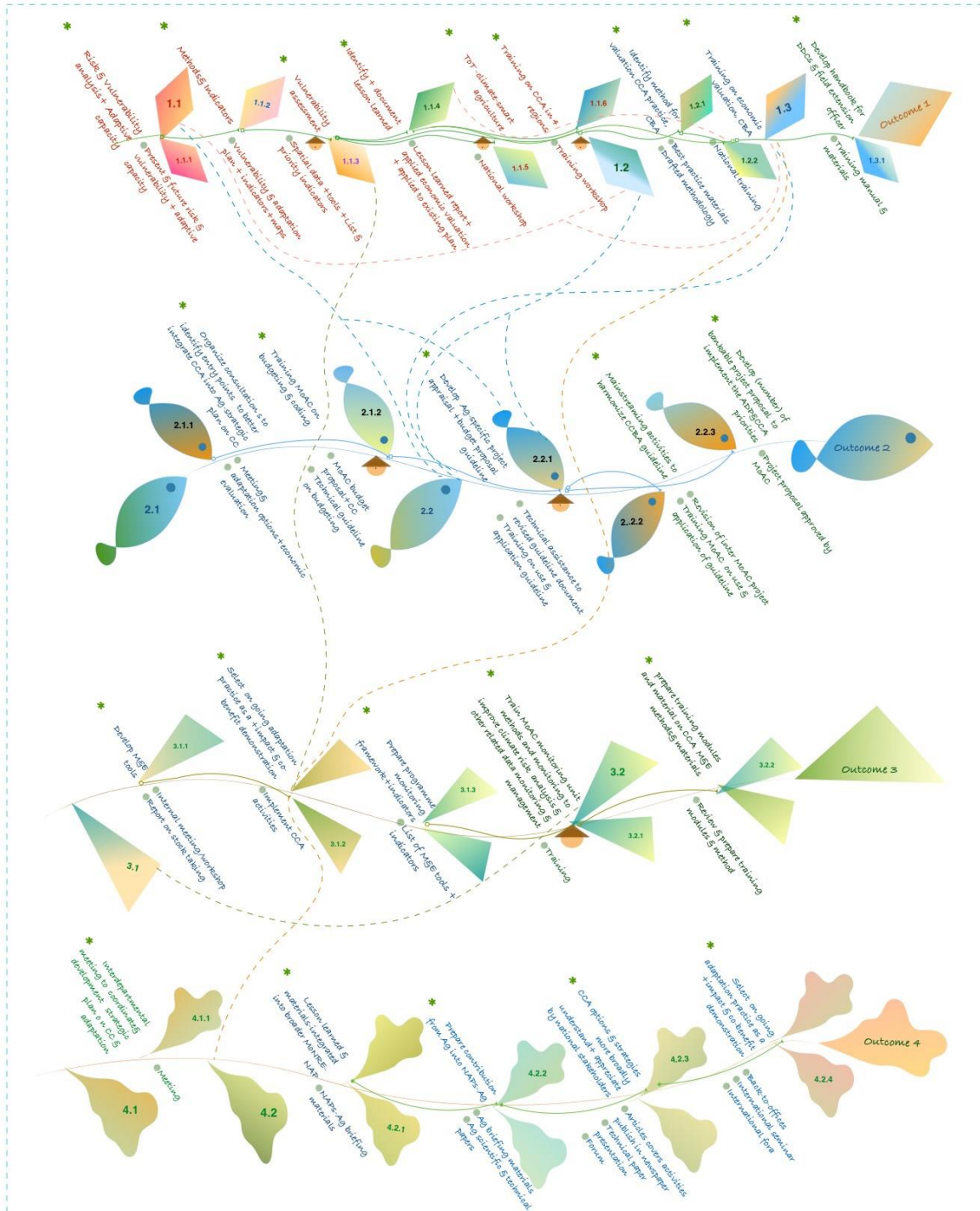


Figure 4-1 and Figure 4-2 illustrate how the linkage between outputs and activities under four outcomes. It can be summarized that the activities are focusing on four aspects; 1) vulnerability

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analysis and adaptive capacity in agriculture sector 2) economic valuation and investment appraisal 3) monitoring and evaluation and 4) lesson learned materials. Those activities will enhance MoAC knowledge on climate change and build their capacities in planning and budgeting process. The output 4.1, 1.1 and activity 2.1.1 are laying the groundwork, related to coordinate, consultation to identify the entry points and risk, vulnerability assessment and adaptation to climate change. Regarding economic valuation and appraisal under output 1.2 that link with output 2.1, 2.2 as well as output 1.1 related to training and applying economic valuation tools on vulnerability assessment. Those outputs also link with output 4.2, lesson learned materials. In addition to monitoring and evaluation is mainly under outcome 3 links with output 1.1 and output 4.2. In term of lesson learned materials are mostly linkage with all outputs that related to process documentation, material preparation, training modules and guidance including scientific technical papers.

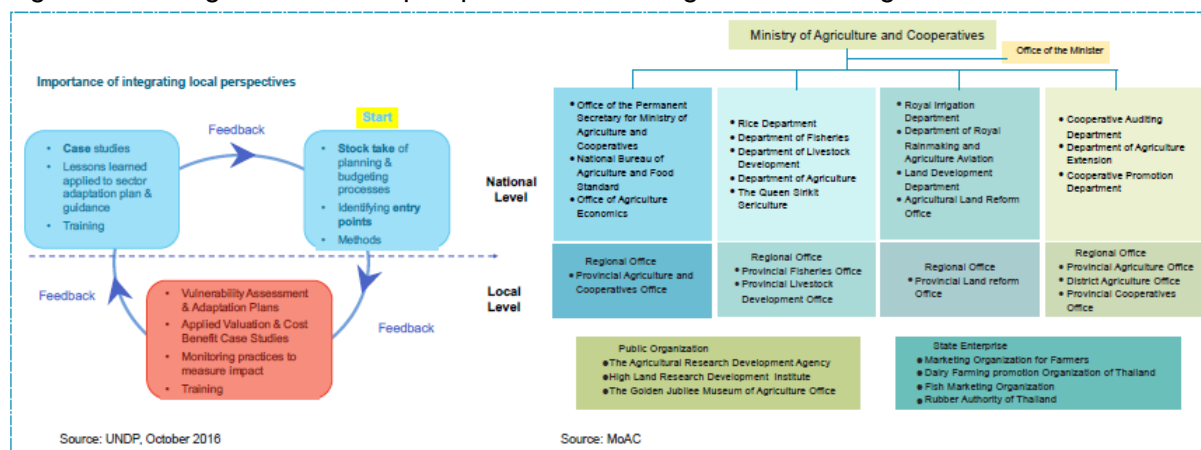
4.2. Integrated delivery of field level activities

In Thailand, NAP-Ag agreement was signed under the CPF with the collaboration between RTG and FAO. Figure 4-2 showed the importance of integrating local perspectives and MoAC organization chart. NAP-Ag start at the national level with stocktaking of the existing planning and budgeting process to identify and entry points to better integrate CCA into the Agriculture Strategic Plan. Methods and tools will be developed as well as economic valuation and investment appraisal; cost-benefit analysis will be trained. At the local level, the team will conduct risk, vulnerability assessment and adaptive capacity in 3 targeted districts. The process and results will be documented as case studies or lesson learned for further applied to adaptation plans and guidance. Furthermore, the results from the fieldwork will be integrated into provincial or district sector plan.

In term of training or capacity building, project team will provide training to MoAC staffs or other relevant stakeholders both in national and sub-national level in order to enhance their knowledge and understand climate change, impacts and adaptation. A learning by doing process for conducting risk, vulnerabilities and adaptive capacity in the field through participatory process, government representatives at the regional office such as provincial agriculture office and district offices will be participated in the training. Collecting baseline data, monitoring and evaluation will be trained and practicing.

In addition to lesson learned materials will be obtained from the training and during the field work for further technical/scientific knowledge or communication products development and will be shared at national, sub-national or global levels.

Figure 4-3 Integration of local perspective in NAP-Ag and MoAC organization chart

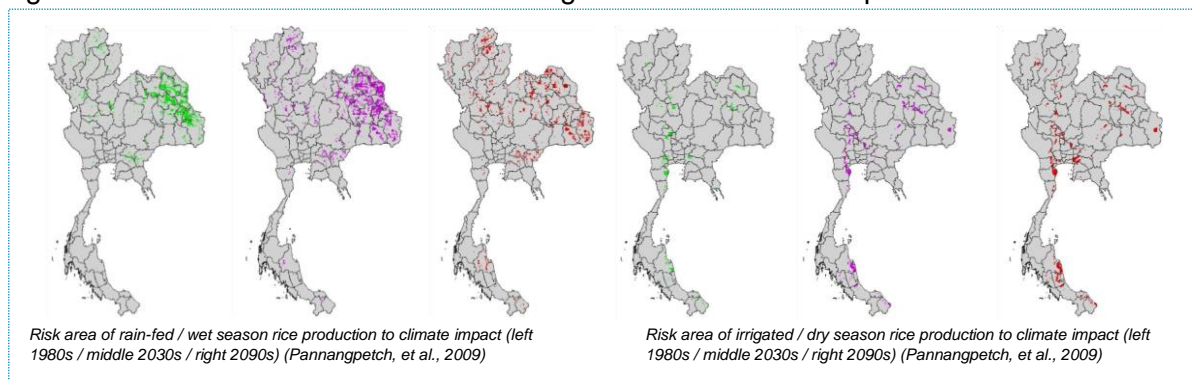


4.3. Geographical Focus

Vulnerability assessment is one of the important steps that will be taken in the 3 districts. The geographical and/or administrative units, the number of key institutions will be engaged for conducting field activities and/or economic appraisals. The team has not selected the pilot sites yet, however, the selected sites will be based on different criteria such as climate-hazard prone area, drought, and floods or climate change projection and its impact on crops. The example of the studies, the project may select to conduct vulnerability assessment in three districts which based on the “Preparation of Climate Change Scenarios for Climate Change Impact Assessment in Thailand” (Southeast Asia START Regional Center 15 January 2010) or from may be select based on other study sources.

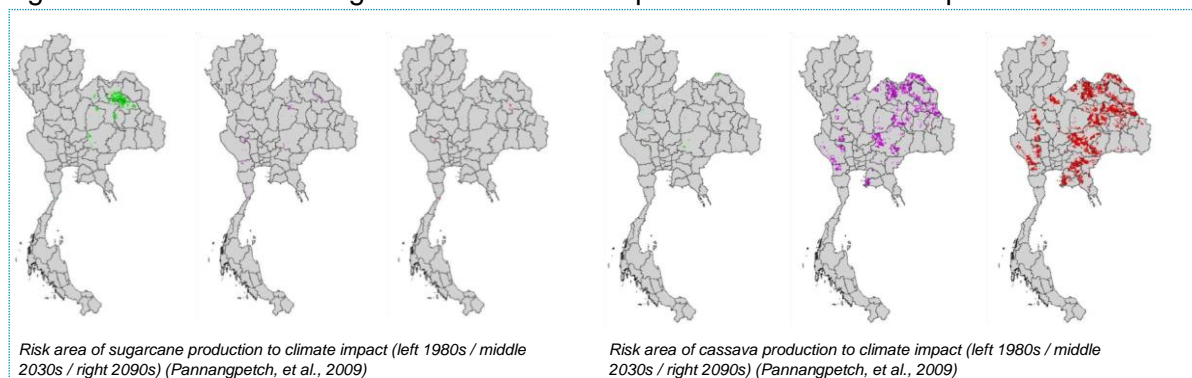
According to the climate projection shows that the critical area of rain-fed / wet season rice is mostly Nongbualumpuu, Udonthani, Sakonnakorn, Nakornpanon, Kalasin, Roiet, Mukdaharn, Yasothon, Amnatchareon, Surin, and Srisaket. For the irrigated/dry season rice, which average productivity tends to decrease throughout the country, the critical area to climate impact are wide spread in various provinces, e.g. Chiangmai, Phitsanulok, Nakornsawan, Chainat, Singburi, Suphanburi, Saraburi, Petchaburi, Ratchaburi, Nakornpatom, Ayudthaya, Nakornnaypk, Chachoengsao, Sakonnakorn, Khonkaen, Mahasarakham, Kalasin, Songkhla, Pattani, Yala and Narathiwat (Pannangpetch, et al., 2009).

Figure 4-4 Risk area of rain-fed rice and irrigated-rice to climate impact



For sugarcane production to climate impact is in northeastern region of Thailand, especially Kalasin and Udonthani as well as part of Mahasarakham, Khonkaen and Nakornrachasima. In the future, climate change tends to favor sugarcane production and risk area tends to decline. Besides, cassava production, the production area at risk to climate impact is minimal. However, in the future, climate change will induce risk area to expand significantly wider. Most of the risk areas are in Nongkai, Udonthani, Nongbualumpuu, Khonkaen, Kalasin, Sakonnakorn, Nakornrachasima, Rachaburi, Kanjanaburi, Uthaithani and Rayong.

Figure 4-5 Risk area of sugarcane and cassava production to climate impact



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For maize production, risk area to climate impact in the near term future will decline. However, in the long term future, risk area will significantly expand. The critical area can be divided into 4 zones.

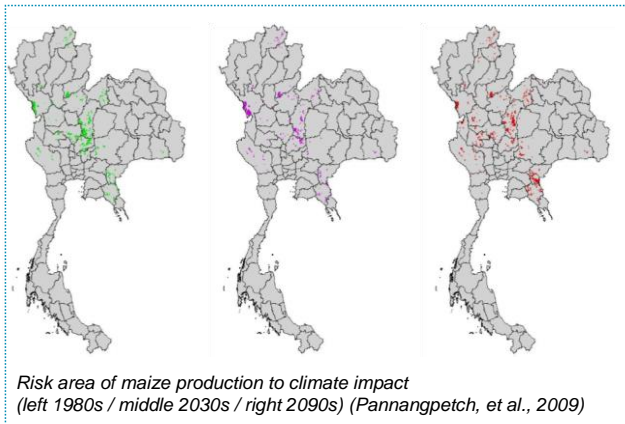


Figure 4-6 Risk area of maize production to climate impact

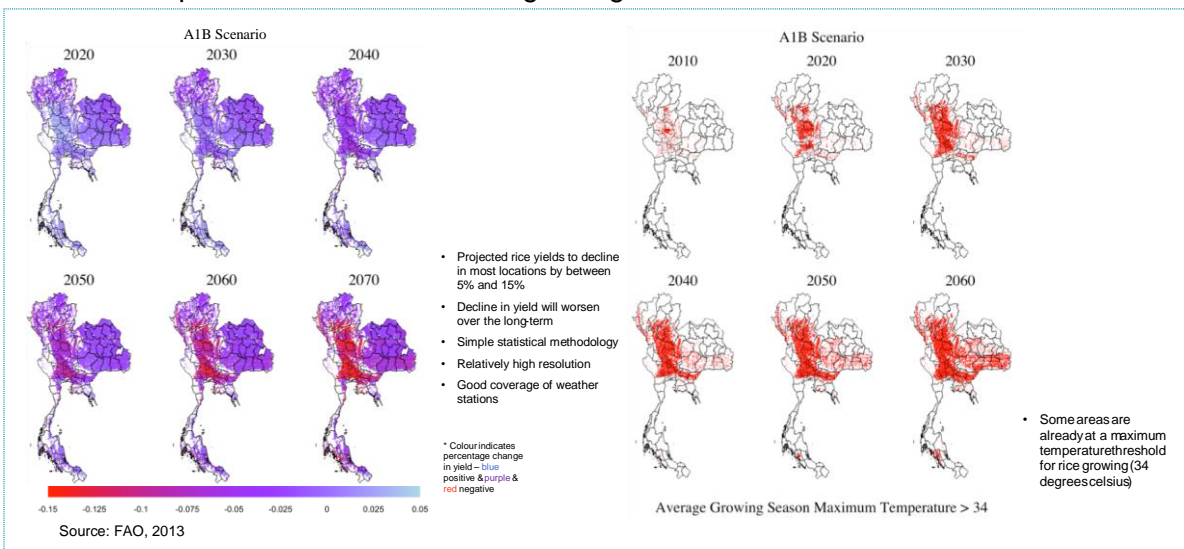
Zone 1: Loei, Petchaboon and Nakornrachasima

Zone 2: Nakornsawan, Uthaithani, Kanjanaburi, Kampangpetch, Tak and Lumpoon

Zone 3: Sa-kaew and Chantaburi

Zone 4: Chiengrai, Payao, Lampang and Phrae

Figure 4-7 Climate projection rice, Projected changes in rice yields with A1B scenario and maximum temperature threshold for rice growing with A1B scenario



The USAID Mekong ARCC Climate Change Impact and Adaptation Study for the Lower Mekong Basin is projected on crop suitability (Figure 4-6) and summarized in Table 4-1.

Figure 4-8 Coffee Robusta and Rubber suitability in the Lower Mekong Basin

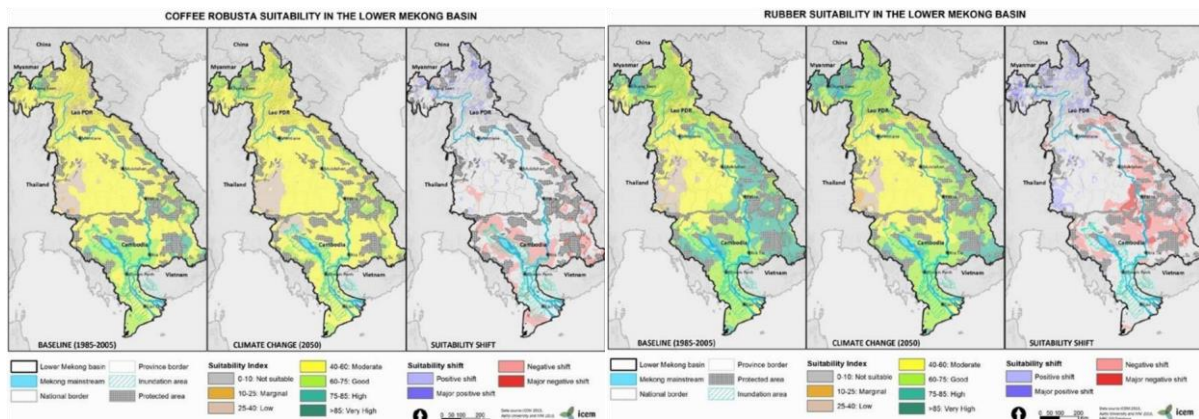


Table 4-1 Crops change in suitability in the Lower Mekong Basin

	Main change in Suitability	Location	Relevance to actual Agrosystem
Rubber	Increased suitability due to increased precipitation	Northern Thailand (Chang Rai) and Northern Lao PDR (LoaungNamtha, Phongsali; Oudomxai)	High
	Decreased suitability due to increased rainfall	Cambodia (Kratie, PreahVihear) and Central and Southern Lao PDR (Champasack) and Chi Bun Basin In Northeast Thailand (UbonRatchatani)	Medium
	Increased suitability due to higher temperature	High elevation areas: Northern Thailand (Chang Rai), Lao PDR (LoaungNamtha, Phongsali; Oudomxai), Central Highlands (Kom Tum)	High (more area to cultivate)
Cassava	Increased suitability due to higher temperature	High and mid elevation eco-zone (Northern Lao PDR in Louangprabang, Louangnamtha, Xyaburi and Central Highlands, Kontum)	High
	Decreased suitability due to higher temperature	Low elevation eco-zones (Lao PDR, Cambodia and Central Highlands)	High
	Increased suitability due to increased precipitation	Northern Thailand (Chang Mai, Chang Rai)	High
	Decreased suitability due to increased precipitation	Low moist eco-zone, mid and high elevation eco-zone (Lao PDR in Champasack) and Cambodia (Stung Treng, PreahVihear, Battambang); and Central Highlands (Gia Lai)	High
Maize	Decreased suitability due to increased precipitation	Louangnamtha; Vientiane, Khamouane and Phongsaly province (Lao PDR), DakLak in Central Highlands (Vietnam)	Low
Soya	Decreased suitability due to increased precipitation	Low elevation (moist and dry) eco-zone: Kampong Chhnang, Battambang, PreahVihear, Pursat, Kampong Cham Siem Reap, Kratie and Kampong Thom (Cambodia)	Low in moist eco-zone; Medium in dry eco-zone (Cambodia and Northeast Thailand)
Robusta Coffee	Increased suitability due to higher temperature	Medium and high elevation eco-zones: Chang Mai, Chang Rai, North Lao PDR	High for Lao PDR (Northern regions)
	Increased suitability due to increased precipitations	Medium and high elevation eco-zones: Chang Mai, Chang Rai, North Lao PDR	High for Lao PDR (Northern regions)
	Decreased suitability due to higher rainfall and temperature	Medium and high elevation ecozones: Lao PDR (Champasack and Attapeu) and Western Cambodia (Mondulkiri,	Low / Medium

Source: USAID Mekong ARCC, 2013

4.4. Communication and Stakeholder Engagement

The team will develop and disseminate project knowledge products such as fact sheet, a summary of key findings, reports, poster Thai and English and lessons learned materials. At the field sites, the team will shoot photos, maps and site profiles development. Training materials for example budgeting, coding and tracking as well as M&E tools and approach will be developed for a guideline and disseminate to interdepartmental MoAC. The team will need support from the global technical specialist for assisting in press release, social media, international seminar, forum and NAP global dialogue. The communication channels will be through the websites, press release, newspapers, newsletters, seminar, and forum. Table 41 shows the example of knowledge capture and dissemination.

Branding will be put on banners and presentations to make people understand about the programme that is funded by Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) of the Federal Republic of Germany via International

Climate Initiative (ICI), while FAO and UNDP are presenting the implementing partners and support MoAC for NAP-Ag project.

Table 4-2 Knowledge capture and dissemination

Activities	Explicit knowledge capture from	Disseminate what to whom	Tacit knowledge capture from	Disseminate what to whom
<ul style="list-style-type: none"> ‣ Risk, vulnerability analysis and potential adaptive capacity to climate change for agriculture sector 	<ul style="list-style-type: none"> ‣ Reports ‣ Research 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ FAO, UNDP 		
<ul style="list-style-type: none"> ‣ Conduct vulnerability assessment through participatory process 			<ul style="list-style-type: none"> ‣ Fieldwork training ‣ Experiences ‣ Lesson learned 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ FAO, UNDP ‣ NAPs-Ag global ‣ District Administrative Office ‣ MoAC regional offices
<ul style="list-style-type: none"> ‣ Regional training of trainer on climate-smart agriculture ‣ National training on climate change adaptation for the agriculture sector 			<ul style="list-style-type: none"> ‣ Training ‣ Experiences ‣ Lesson learned 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ FAO, UNDP ‣ MoAC regional offices
<ul style="list-style-type: none"> ‣ Training on economic valuation and investment appraisal tools 			<ul style="list-style-type: none"> ‣ Training 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs
<ul style="list-style-type: none"> ‣ Develop budget proposal guideline 	<ul style="list-style-type: none"> ‣ Guideline 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ BOB 	<ul style="list-style-type: none"> ‣ Training 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ BOB
<ul style="list-style-type: none"> ‣ Develop M&E tools & framework ‣ M&E manual 	<ul style="list-style-type: none"> ‣ Report 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ MoAC monitoring unit 	<ul style="list-style-type: none"> ‣ Training 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC staffs ‣ MoAC monitoring unit
<ul style="list-style-type: none"> ‣ Share lessons learned and materials integrated into broader MoNRE-led NAP process in Thailand 	<ul style="list-style-type: none"> ‣ Report ‣ Guideline 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ BOB 	<ul style="list-style-type: none"> ‣ Fieldwork training ‣ Experiences ‣ Lesson learned 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ BOB
<ul style="list-style-type: none"> ‣ CCA options and strategies more broader understood by national stakeholders 	<ul style="list-style-type: none"> ‣ Report ‣ Guideline ‣ Case study 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ BOB 	<ul style="list-style-type: none"> ‣ Fieldwork training ‣ Experiences ‣ Lesson learned 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ BOB
<ul style="list-style-type: none"> ‣ NAP dialogue 	<ul style="list-style-type: none"> ‣ Report ‣ Guideline ‣ Case study 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ NAP global 	<ul style="list-style-type: none"> ‣ Fieldwork training ‣ Experiences ‣ Lesson learned 	<ul style="list-style-type: none"> ‣ Customized materials to MoAC ‣ FAO, UNDP ‣ ONEP ‣ NAP global

4.5. Capacity Building

Capacity building for NAP-Ag will be focused on enhancing scientific climate change knowledge in local and national areas, economic valuation and investment appraisal including monitoring and training. Capacity building and networking under NAP-Ag project will be taken through different methods such as vulnerability assessment will be conducted through learning-by-doing (Table 4-2).

Capacity needs assessment will be conducted in MoAC in order to build their capacities related to climate change and adaptation. The assessment may be taken at the same time during stocktaking workshop in order to understand individual and organization's needs. Table 4-3 Capacity building activities

Activities	Capacity Building	Target group	Method
<ul style="list-style-type: none"> ▶ Conduct vulnerability assessment through participatory process 	<ul style="list-style-type: none"> ▶ Apply vulnerability assessment tools and practice participatory approach 	<ul style="list-style-type: none"> ▶ MoAC staffs at national, regional and local levels 	<ul style="list-style-type: none"> ▶ Training (learning by doing)
<ul style="list-style-type: none"> ▶ Regional training of trainer on climate-smart agriculture ▶ National training on climate change adaptation for the agriculture sector 	<ul style="list-style-type: none"> ▶ Enhance knowledge on climate change adaptation and smart-agriculture ▶ Enhance scientific knowledge on risk, vulnerability and adaptation on climate change and applying vulnerability assessment tools for agriculture sector 	<ul style="list-style-type: none"> ▶ MoAC staffs at national, regional and local levels 	<ul style="list-style-type: none"> ▶ Training ▶ Learning by doing
<ul style="list-style-type: none"> ▶ Training on economic valuation and investment appraisal tools ▶ Budget coding/tagging and tracking 	<ul style="list-style-type: none"> ▶ Enhance knowledge on economic valuation and investment appraisal tools such as cost-benefit analysis ▶ Enhance knowledge on climate budgeting/coding. 	<ul style="list-style-type: none"> ▶ MoAC staffs 	<ul style="list-style-type: none"> ▶ Training
<ul style="list-style-type: none"> ▶ M&E tools & framework ▶ M&E manual 	<ul style="list-style-type: none"> ▶ Enhance knowledge on monitoring and evaluation 	<ul style="list-style-type: none"> ▶ MoAC staffs at national, regional and local levels ▶ MoAC monitoring unit 	<ul style="list-style-type: none"> ▶ Training

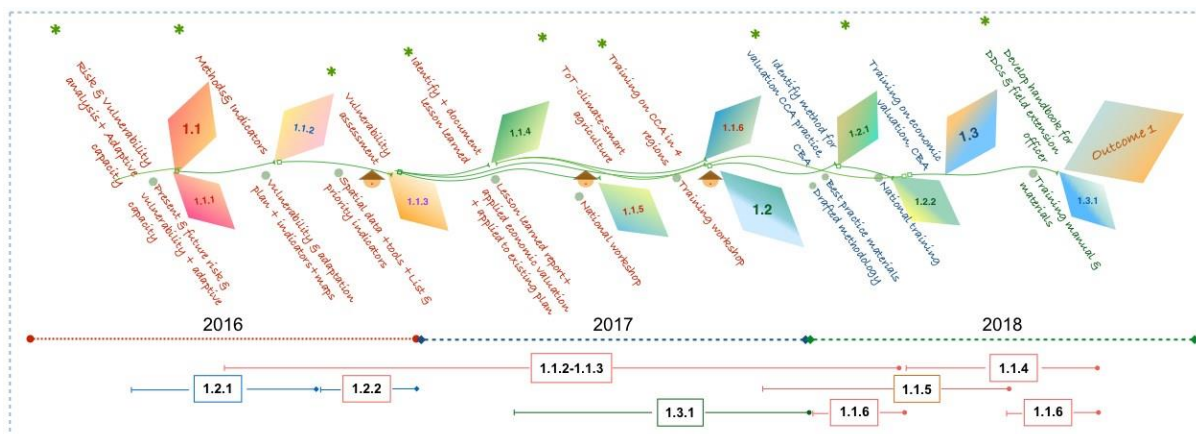
5. Detailed Implementation Plan

This section mainly describes about the detailed implementation plan for each outcome. In this regard, it focuses on the activities, linkage of outputs, and activities. The NAP-Ag Thailand has about 26-month time, with the end date of December 30, 2018. It is composed of 24 activities, 9 outputs and 4 outcomes;

5.1. Outcome 1

The outcome one, is *Capacity with adaptation options for Thailand and mainstreaming climate finance enhanced*. The activities under the outcome 1, is designed to lay a groundwork for NAP-Ag. It is focusing on enhancing MoAC capacity with vulnerability assessment and adaptive capacity including economic valuation and investment appraisal tools (Figure 5-1 and Table 5-1).

Figure 5-1 Activities implementation and linkage outcome 1



In terms of vulnerability assessment, is concerned on risk, vulnerability analysis and adaptive capacity to climate change in the agriculture sector. Policies and measures for coping with the climate change will be noted. Methods, tools, and indicators will be listed out and will be used in conducting the vulnerability assessment and adaptive capacity in the targeted areas. MoAC staffs at regional offices will participate in the training, participatory approach will be applied in this process. In addition to economic valuation and investment appraisal tools for adaptation planning will be focused on identifying method for evaluating CCA practice in agriculture sector

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such as CBA. Then, organizing national level training on applying investment appraisal methods to MoAC officials. Climate-smart as one of the adaptation options will be organized training of trainers in four regions.

Vulnerability assessment and adaptive capacity secondary data and field work activities will be documented for a lesson learned materials. building capacities on vulnerability assessment and adaptive capacity, applied economic valuation and investment appraisal are the foundation of planning and budgeting process. Results, training process, materials and lesson learned will be documented. The workplan and activities implementation shows in Table 5-1.

Table 5-1 Overview of Outcome 1 and corresponding results/outputs

Outcome/Outputs/Activities	Results/Outputs	2016				2017				2018			
		1	2	3	4	1	2	3	4	1	2	3	4
Outcome 1 Capacity with adaptation options for Thailand and mainstreaming climate finance enhanced													
Output 1.1 Capacity with vulnerability assessment and adaptation strengthened (including forecasting and early warning systems and climate variability impact assessment)													
1.1.1 Review study on risk and vulnerability analysis and potential of adaptive capacity to climate change for agricultural sector	<ul style="list-style-type: none"> Synthesis report of risk and vulnerability for agricultural sector in the present and future (physical, social and economic) Report on adaptive capacity analysis for agricultural sector in the present, including policies and measures for coping with climate change 		x	x	x								
1.1.2 Develop vulnerability assessment methods for the agricultural sector including indicators of climate change risk, vulnerability and adaptive capacity	<ul style="list-style-type: none"> Initial report on spatial data, which are geographical data, impact, risk, adaptive capacity in physical, economics and social, including related policies of adaptation to climate change List and the priority of indicators for risk, vulnerability and adaptive capacity 				x	x	x						
1.1.3 Conduct applied participatory vulnerability assessment and planning case studies and training exercises with support of project taskforce in (number) target districts	<ul style="list-style-type: none"> Vulnerability assessment and adaptation planning reports in (number) districts/provinces including indicator priority (by weighting and maps for vulnerable areas) 						x	x	x	x			
1.1.4 Identify and document lessons learned based on training application and demonstration activities on integrating CCA into national and district –level planning and budgeting processes	<ul style="list-style-type: none"> Lessons learned report identifying key findings from applied case studies for integrating adaption into existing agricultural planning processes. Incorporate lessons learnt from applied economic valuation and investment appraisal of CCA options in demonstration activities/cases. 									x	x	x	
1.1.5 Conduct regional training of trainers on climate-smart adaptation for the agriculture sector in Thailand in four regions (South, Center, North and North-East)	<ul style="list-style-type: none"> Four regional-level training workshops 									x	x	x	
1.1.6 Conduct national level training on climate change adaptation for the agriculture sector in Thailand	<ul style="list-style-type: none"> National-level training workshop 								x				x
Output 1.2 Enhanced MoAC capacity with economic valuation and investment appraisal tools for adaptation-sensitive planning													
1.2.1 Identify methods for evaluating priority CCA practices and programmes in agricultural sector in Thailand, using applied economic valuation of ecosystem support services and investment appraisal tools such as cost benefit analysis and ‘business models’ to refine feasibility of bankable activities)	<ul style="list-style-type: none"> Synthesis of best practice materials and institutional stock taking. Draft methodology for applied economic valuation of ecosystem support services to the agriculture sector and cost benefit analysis of agricultural adaptation practice 		x	x									
1.2.2 Conduct national level training on improving ‘business models’ and feasibility of CCA activities for the agriculture sector in Thailand. Train practitioners on applying climate change vulnerability assessments, investment appraisal methods, and cost benefit analyses to potential CCA practices.	<ul style="list-style-type: none"> One national-level training workshop involving practitioners from all sub-regions/provinces 				x								
Output 1.3 Developed training materials based on needs identified													
1.3.1 Prepare instructional materials and including a handbook for DDCs and field extension officers on how to prioritize, promote, and mainstream CCA measures into planning processes for the agriculture sector	<ul style="list-style-type: none"> Training manuals and materials 		x	x	x								

Table 5-2 Outcome 1 activities implementation

Outcome/output/activity	Activity Implementation/Results	Remarks
Outcome 1 Capacity with adaptation options for Thailand and mainstreaming climate finance enhanced		
Output 1.1 Capacity with vulnerability assessment and adaptation strengthened (Including forecasting and early warning systems and climate variability impact assessment)		
1.1.1 Review study on risk and vulnerability analysis and potential of adaptive capacity to climate change for agricultural sector	<ul style="list-style-type: none"> Review secondary data on risk and vulnerability in the country in present and future; climate hazard and possible future climate scenarios including policies and measures for coping with climate change. In addition, the team will note on the impact of climate change to agriculture sectors, such as crop production and agriculture land use, livestock and fisheries. The adaptive capacity will be reviewed on adaptation options. List out the existing vulnerability assessment methods and tools, indicators as a compliment information to develop and will be used for case studies and training exercises in the target areas (1.1.3). Draft vulnerability assessment and adaptive capacity report including methods and tools. Secondary data will be obtain mainly from MoAC activities, project, research and from other sources. 	
1.1.2 Develop vulnerability assessment methods for the agricultural sector including indicators of climate change risk, vulnerability and adaptive capacity	<ul style="list-style-type: none"> Vulnerability assessment methods will be applied in the targeted districts Conducting field work on vulnerability assessment and adaptive capacity step will be designed, to prepare for on site training (1.1.3) List out the indicators for risk, vulnerability and adaptive capacity. Produce report on climate change impact, risk and adaptive capacity in term of physical, economics and policies. 	
1.1.3 Conduct applied participatory vulnerability assessment and planning case studies and training exercises with support of project taskforce in (number) target districts	<ul style="list-style-type: none"> The project team will conduct vulnerability assessment, adaptation and planning through participatory process learning by doing to build capacities the MoAC officials both national and provincial level. The step will be followed in 1.1.2. Field process, materials will be documented for lesson learned, to develop/improve for the four regional training (1.1.5). Produce vulnerability assessment and adaptation planning report from case studies as a lesson learned districts/provinces 	
1.1.4 Identify and document lessons learned based on training application and demonstration activities on Integrating CCA into national and district-level planning and budgeting processes	<ul style="list-style-type: none"> Revise vulnerability assessment and adaptive capacity lesson learned based on training exercise and develop material including methodology/guide Apply economic valuation and investment appraisal incorporate with lesson learnt case studies for integrating CCA into district plan and budgeting process Organize meeting at the provincial level, inviting related stakeholders and present the VA and CCA methodology, tools and process, lesson learned case studies for further related climate change provincial development plan Produce lesson learned report 	
1.1.5 Conduct regional training of trainers on climate-smart adaptation for the agriculture sector in Thailand in four regions (South, Center, North and North-East)	<ul style="list-style-type: none"> Review document related to climate-smart agricultural sector including consultation with MoAC to seek for resource person Organize training of trainer workshop on climate-smart adaptation and case studies in Thailand in four regions. 	
1.1.6 Conduct national level training on climate change adaptation for the agriculture sector in Thailand	<ul style="list-style-type: none"> The team will prepare for the training, contact resource person, participants training modules and venue. Organize training on CCA for agriculture in Thailand. 	
Output 1.2 Enhanced MoAC capacity with economic valuation and investment appraisal tools for adaptation-sensitive planning		
1.2.1 Identify methods for evaluating priority CCA practices and programmes in agricultural sector in Thailand, using applied economic valuation of ecosystem support services and investment appraisal tools such as cost benefit analysis and 'business models' to refine feasibility of bankable activities)	<ul style="list-style-type: none"> Review methods for evaluating priority CCA practices and programmes in agricultural sector Review with MoAC on the conversion of CC national policy and strategy into sectoral and sub-sectoral strategies, actions and budgets including the existing planning and budget processes Draft a synthesis report advising on tools and processes for CCA planning and budgeting and recommendation to conduct training for MoAC government officials in order to strengthen their knowledge and understanding of these when formulating budget request 	
1.2.2 Conduct national level training on improving 'business models' and feasibility of CCA activities for the agriculture sector in Thailand. Train practitioners on applying climate change vulnerability assessments, investment appraisal methods, and cost benefit analyses to potential CCA practices.	<ul style="list-style-type: none"> Identify target participants to participate in training on economic valuation and investment appraisal tools Conduct national for practitioners on applying climate change vulnerability assessments, investment appraisal methods 	
Output 1.3 Developed training materials based on needs identified		
1.2.3 Prepare instructional materials and including a handbook for DDCs and field extension officers on how to prioritize, promote, and mainstream CCA measures into planning processes for the agriculture sector	<ul style="list-style-type: none"> Review lesson learned materials Synthesis of best practice materials Develop and handbook for DDCs and field extension officers 	

- Review - Report - Material - Meeting/Training/Workshop - Field work - Implementation team - Service provider - Global specialist

5.2. Outcome 2

With the reference of outcome two, is “Role of adaptation in Thailand's Strategic Plan for Agriculture 2017-2021 strengthened (Integrating agriculture into Thailand's NAP)”. It is considered on building capacity to MoAC staffs on applying the economic valuation and investment appraisal tools for planning and budgeting process (Figure 5-2 and Table 5-3). Figure 5-2 Activities implementation and linkage outcome 2

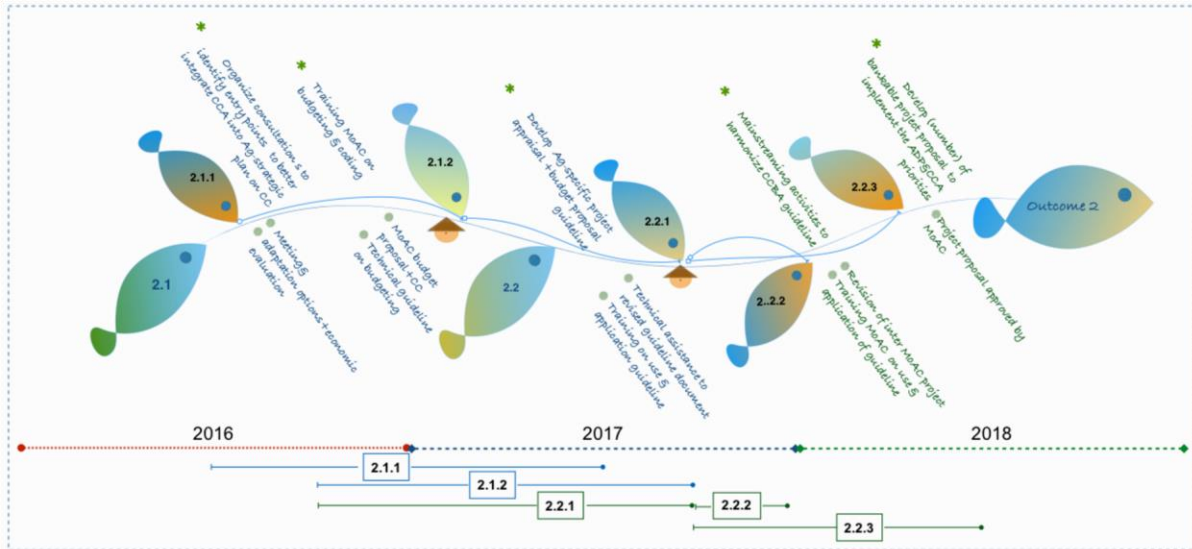


Table 5-3 Overview of Outcome 2 and corresponding results/outputs

Outcome/Outputs/Activities	Results/Outputs	2016				2017				2018				
		1	2	3	4	1	2	3	4	1	2	3	4	
Outcome 2 Role of adaptation in Thailand's Strategic Plan for Agriculture 2017-2020 strengthened (Integrating agriculture into Thailand's NAP)														
Output 2.1 “Strategic Plan on Climate Change in Agriculture” outlines priority CCA measures and actions for mainstreaming risks into planning and budgeting														
2.1.1 Organize consultations to identify entry points to better integrate CCA into the Agriculture Strategic Plan on Climate Change (2017-2021)	<ul style="list-style-type: none"> Meeting reports Report on adaptation option strategies for agricultural sector, including the results of evaluation for economic and investment, in policy level and regional level 		x	x	x	x								
2.1.2 Undertake training of MoAC staff on climate change budget coding/tagging and expenditure tracking methods	<ul style="list-style-type: none"> MoAC Budget Reports begin to reflect climate spending Facilitate MoAC input to BOB policy/technical guidelines on climate budgeting coding and tracking with “bottom-up” sector viewpoint 			x	x	x	x							
Output 2.1 Mainstreaming CCA into sector budgeting														
2.2.1 Develop Agriculture-Sector Specific Project Appraisal and Budget Proposal Guidelines, building upon generic Thailand “Climate Change Benefit Analysis” guidelines elaborated in 2015.	<ul style="list-style-type: none"> Technical assistance to revised guideline document Training on use and application of guidelines in (number) demonstration areas based on selected priority ADP & CCA projects/programmes 				x	x	x							
2.2.2 Mainstreaming activities to harmonize CCBA guidelines application with internal MoAC Project Preparation cycle and guidelines	<ul style="list-style-type: none"> Potential revision of internal MoAC project preparation and budget review guidelines Training OAE and other relevant MoAC departments on use and application of guidelines 								x					
2.2.3 Develop (number) bankable project proposals to implement the ADP & CCA priorities that incorporate CCA aspects for consideration	<ul style="list-style-type: none"> Project proposals approved by MoAC and submitted to BOB 									x	x	x	x	

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Table 5-4 Outcome 2 activities implementation

Outcome/output/activity	Activity implementation/Results	Remarks
Outcome 2 Role of adaptation in Thailand's Strategic Plan for Agriculture 2017-2020 strengthened (Integrating agriculture into Thailand's NAP)		
Output 2.1 “Strategic Plan on Climate Change in Agriculture” outlines priority CCA measures and actions for mainstreaming risks into planning and budgeting		
2.1.1 Organize consultations to identify entry points to better integrate CCA into the Agriculture Strategic Plan on Climate Change (2017-2021)	<ul style="list-style-type: none"> ▶ Organize meeting/consultation with OAE, or workshop of within interdepartmental MoAC to identify entry points to better integrate CCA into the Agriculture Strategic Plan on Climate Change (2017-2021) ▶ Organize meeting/workshop with interdepartmental MoAC to find out the available information on climate change, impacts, vulnerability and adaptation, including the meeting with planning and budgeting units, to look for planning and budgeting process 	
2.1.2 Undertake training of MoAC staff on climate change budget coding/tagging and expenditure tracking methods	<ul style="list-style-type: none"> ▶ Organize training on budget coding/tagging and expenditure tracking methods for MoAC staffs 	
Output 2.1 Mainstreaming CCA into sector budgeting		
2.2.1 Develop Agriculture-Sector Specific Project Appraisal and Budget Proposal Guidelines, building upon generic Thailand “Climate Change Benefit Analysis” guidelines elaborated in 2015.	<ul style="list-style-type: none"> ▶ Develop agriculture -sector specific project appraisal and budget guidelines 	
2.2.2 Mainstreaming activities to harmonize CCBA guidelines application with internal MoAC Project Preparation cycle and guidelines	<ul style="list-style-type: none"> ▶ Prepare training manuals and materials ▶ Training MoAC staffs to use the application of the guideline 	
2.2.3 Develop (number) bankable project proposals to implement the ADP & CCA priorities that incorporate CCA aspects for consideration	<ul style="list-style-type: none"> ▶ Develop project proposals prepare project proposals to implement the ADP & CCA priorities that incorporate CCA aspects by MoAC 	

= Review
 = Report
 = Material
 = Meeting/Training/Workshop
 = Field work
 = Implementation team
 = Service provider
 = Global specialist

Table 5-4 shows the activities that will be implemented by the team. The first step is organizing a meeting with OAE or organize a workshop with other departments under MoAC to identify the entry points to better integrate CCA into the Agriculture Strategic Plan on Climate Change 2017-2021. Meeting with planning and budgeting units for reviewing and appraising adaptation options for example adaptation option strategies in the agriculture sector, using any economic valuation, investment appraisal tools for those adaptation options. Prepare guidance and training on budgeting, coding and tracking expenditure will be provided to MoAC staffs to improve the existing system. Then, mainstreaming activities applying economic valuation and investment appraisal for project preparation cycle linking with outcome one. Develop project proposals prepare project proposals to implement the ADP & CCA priorities that incorporate CCA aspects by MoAC and submit to BOB.

5.3. Outcome 3

The third outcome is *“Performance-based monitoring and assessment of adaptation options in agriculture strengthened”* aims to build capacity on monitoring and evaluation and to formulate the M&E framework (Figure 5-3 and Table 5-5).

With the reference to outcome 3, the team will list out the existing the M&E tools as well as indicators during the stocktaking process. After that, develop M&E tools and indicators that will be used to implement the climate change activities that linkage with outcome 1 and 2. However, the team will collect more data to use as a baseline data. Case study baseline report at each site will be produced. Monitoring framework will be prepared including guidance M&E tools and indicators will be developed to train the MoAC M&E units as well as to mainstream into MoAC work (Table 5-6).

Figure 5-3 Activities implementation and linkage outcome 3

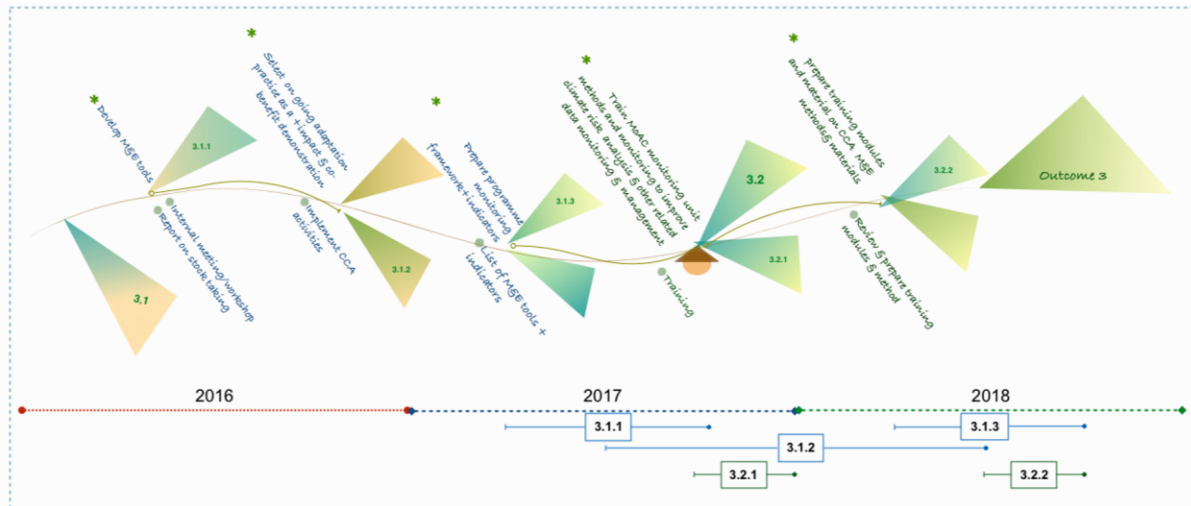


Table 5-5 Overview of Outcome 3 and corresponding results/outputs

Outcome/Outputs/Activities	Results/Outputs	2016				2017				2018				
		1	2	3	4	1	2	3	4	1	2	3	4	
Outcome 3 Performance-based monitoring and assessment of adaptation options in agriculture strengthened														
Output 3.1 Develop tools for monitoring systems for field adaptation practices (performance-based monitoring and assessment)														
3.1.1 Development of M&E tools to measure and evaluate adaptation based on a stock taking of existing indicators and data collection processes within MoAC	▶ Summary report of stocktaking on existing indicators applied by MoAC									x	x			
3.1.2 Select 3 ongoing adaptation practices and field demonstrations in target districts for developing adaptation impact case studies with potential mitigation co-benefits	▶ Case study baseline reports for each site and practice									x	x	x	x	
3.1.3 Prepare a programme monitoring framework including indicators for enhanced CCA with mitigation co-benefits for field monitoring	▶ Summary framework report identifying tools for indicator-based, participatory field monitoring												x	x
Output 3.2 Strengthened capacity of MoAC monitoring units for monitoring the impact and effectiveness of adaptation														
3.2.1 Train MoAC monitoring unit on methods and approaches to improve climate risk analysis and related data monitoring and management	▶ National-level training workshop involving participations from all provinces									x			x	
3.2.2 Prepare training modules and materials on CCA monitoring and evaluation methods and approaches to mainstream into MoAC work	▶ Training manuals and materials									x	x	x	x	

Table 5-6 Outcome 3 activities implementation

Outcome/output/activity	Activity implementation/Results	Remarks
Outcome 3 Performance-based monitoring and assessment of adaptation options in agriculture strengthened		
Output 3.1 Develop tools for monitoring systems for field adaptation practices (performance-based monitoring and assessment)		
3.1.1 Development of M&E tools to measure and evaluate adaptation based on a stock taking of existing indicators and data collection processes within MoAC	▶ List out the exiting tools based on stock taking on existing indicators applied by MoAC ▶ Develop M&E tools	
3.1.2 Select 3 ongoing adaptation practices and field demonstrations in target districts for developing adaptation impact case studies with potential mitigation co-benefits	▶ Select the demonstration sites will be the same sites where team conducted vulnerability assessment and adaptive capacity. ▶ Review lesson learned data based on outcome 1 and outcome 2 including prepare questions to collect baseline data	
3.1.3 Prepare a programme monitoring framework including indicators for enhanced CCA with mitigation co-benefits for field monitoring	▶ Prepare monitoring framework based on stock taking of exiting indicator and data collection as well as case studies under outcome 1 ▶ Develop monitoring guidance manual	
Output 3.2 Strengthened capacity of MoAC monitoring units for monitoring the impact and effectiveness of adaptation		
3.2.1 Train MoAC monitoring unit on methods and approaches to improve climate risk analysis and related data monitoring and management	▶ Prepare M&E training materials and logistic ▶ Organize training and train MoAC monitoring unit on methods and approaches to improve climate risk analysis and data management	
3.2.2 Prepare training modules and materials on CCA monitoring and evaluation methods and approaches to mainstream into MoAC work	▶ Review and prepare training manuals and materials on CCA M&E methods and approaches to mainstream into MoAC work	

● = Review 📄 = Report 📁 = Material 🗣️ = Meeting/Training/Workshop 🏠 = Field work 👤 = Implementation team 🧑 = Service provider 🌐 = Global specialist

5.4. Outcome 4

The last outcome “Advocacy and knowledge-sharing on NAPs promoted” is the last outcome, focusing on knowledge and communication products (Figure 5-4 and Table 5-7). The activities will be engaging in meetings and workshops as well as producing lesson learned materials. All those prepared materials will be contributed to MoNRE-led NAP process. Besides, knowledge product articles related to CCA activities will be published in newspapers, while technical or scientific paper will be presented to the academic audience at the seminar in Thailand or global events.

Figure 5-4 Activities implementation and linkage outcome 4

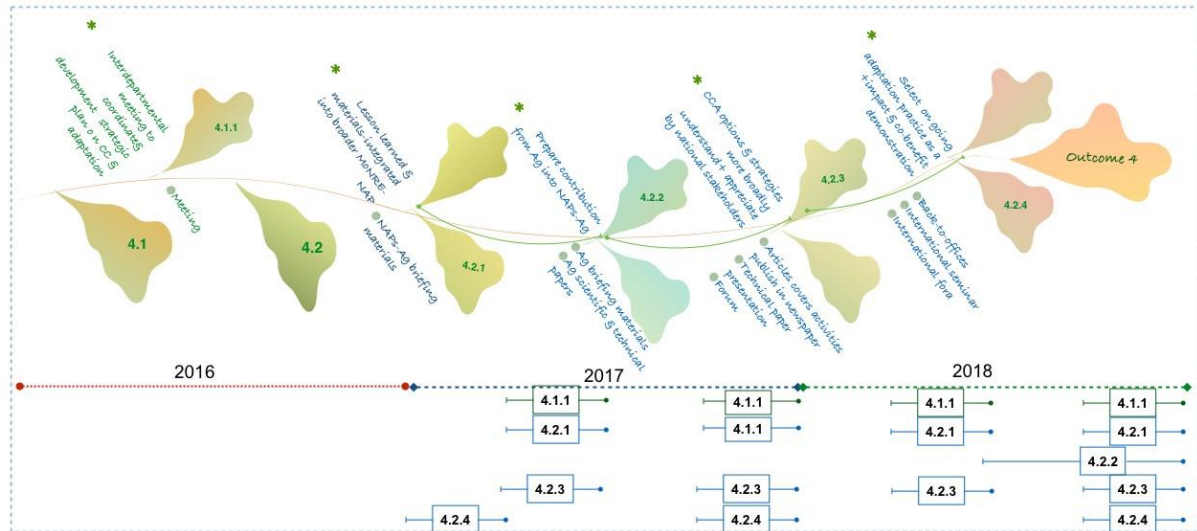


Table 5-7 Overview of Outcome 4 and corresponding results/outputs

Outcome/Outputs/Activities	Results/Outputs	2016				2017				2018			
		1	2	3	4	1	2	3	4	1	2	3	4
Outcome 4 Advocacy and knowledge-sharing on NAPs promoted													
Output 4.1 Interdepartmental and inter-ministerial coordination in MoAC for CCA improved													
4.1.1 Interdepartmental meetings organized to coordinate development of the Agriculture Strategic Plan on Climate Change and adaptation specific activities to contribute to the agriculture sector elements of the NAP	▶ Meetings									x	x	x	x
Output 4.2 Project lessons learnt and outputs integrated into broader Thailand NAP process													
4.2.1 Lessons learned and materials generated by project integrated into broader MoNRE-led NAP process in Thailand.	▶ Agriculture sector elements of the Thai NAP reflects outputs and briefing materials prepared by MoAC					x	x	x	x				x
4.2.2 Prepare contributions from agriculture sector to input into NAP for Thailand and contribute project knowledge and communications products to national scientific and technical workshops relevant for NAP development	▶ Agriculture sector briefing materials to be included in broader NAP ▶ Agriculture sector scientific and technical papers prepared to inform broader NAP process as required												x x
4.2.3 CCA options and strategies more broadly understood and appreciated by national stakeholders	▶ At least 5 national newspaper articles that cover activities and/or technical presentations delivered to broader academic audience on project outputs and knowledge products ▶ Convened Stakeholder Forum to Validate CCA Priority Actions including CSOs, Private Sector, & Community-Based Organizations						x	x	x				x
4.2.4 Support engagement of Thai agricultural sector decision-makers in global NAP dialogues	▶ Back-to-office reports and internal seminars delivered from participants in international fora				x			x					x

Table 5-8 Outcome 4 activities implementation

Outcome/output/activity	Activity implementation/Results	Remarks
Outcome 4 Advocacy and knowledge-sharing on NAPs promoted		
Output 4.1 Interdepartmental and inter-ministerial coordination in MoAC for CCA improved		
4.1.1 Interdepartmental meetings organized to coordinate development of the Agriculture Strategic Plan on Climate Change and adaptation specific activities to contribute to the agriculture sector elements of the NAP	<ul style="list-style-type: none"> ▶ OAE coordinate with other departments and organize meetings to develop CCA Strategic Plan 	🌱🌾🍌
Output 4.2 Project lessons learnt and outputs integrated into broader Thailand NAP process		
4.2.1 Lessons learned and materials generated by project integrated into broader MoNRE-led NAP process in Thailand.	<ul style="list-style-type: none"> ▶ Review project lesson learned project materials ▶ Prepare materials to input into NAP process in Thailand 	🍌🌱🌾🍌
4.2.2 Prepare contributions from agriculture sector to input into NAP for Thailand and contribute project knowledge and communications products to national scientific and technical workshops relevant for NAP development	<ul style="list-style-type: none"> ▶ Prepare project materials to input into NAP for Thailand ▶ Develop project communication products ▶ MoAC officials participate in national and technical workshops to deliver knowledge NAP development process 	🌱🌾🍌
4.2.3 CCA options and strategies more broadly understood and appreciated by national stakeholders	<ul style="list-style-type: none"> ▶ MoAC officials participate in academic institution and other organizations workshop or seminar to present NAP development process ▶ Publish articles in newspapers or technical papers in journals ▶ Organize forum with concerned stakeholder, private sector as well community-based organization to validate CCA priorities action 	🍌🌱🌾🍌
4.2.4 Support engagement of Thai agricultural sector decision-makers in global NAP dialogues	<ul style="list-style-type: none"> ▶ MoAC officials participate in internal meetings/workshops or seminar with other ministries including international seminar to share broader experiences and knowledge in CCA process 	🌱🌾🍌

🍌 = Review
 📄 = Report
 📁 = Material
 🌱 = Meeting/Training/Workshop
 🌾 = Field work
 🍌 = Implementation team
 👤 = Service provider
 🌐 = Global specialist

Annex 1 – Program Results Framework and Preliminary Baseline Information

RESULTS CHAIN	INDICATOR	UNIT	COUNTRYBASELINE start of project	TARGET VALUE end of project	MORE DETAILED EXPLANATIONS ABOUT THE REPORTED VALUES AND FURTHER REMARKS
<p>Goal:</p> <p>Climate change concerns as they affect agricultural sector-based livelihoods are integrated in associated national and sectoral planning and budgeting processes</p>	<p>Number of gender-sensitive adaptation action areas prioritized by the agriculture sectors and commenced implementation in the context of existing national and subnational development frameworks.</p>	<p>action areas</p>		<p>2</p>	
	<p>Medium-term and annual budget for the agriculture sector adjusted to accommodate requirements for addressing climate change concerns.</p>	<p>Budget Adjustments</p>		<p>2 additional Budget Adjustments</p>	
<p>Outcome I:</p> <p>Technical capacity and institution-building on NAPs strengthened</p>	<p>Proportion of technical staff and public service officers supporting agriculture-based livelihood adaptation in relevant ministries trained in national adaptation planning and budgeting, including the technical aspects of formulating roadmaps, and</p>	<p>N. technical staff</p>		<p>At least additional 30% of staff supporting climate change risk management within key ministries.</p>	

RESULTS CHAIN	INDICATOR	UNIT	COUNTRYBASELINE start of project	TARGET VALUE end of project	MORE DETAILED EXPLANATIONS ABOUT THE REPORTED VALUES AND FURTHER REMARKS
	Conducting economics of adaptation assessments. This will be focused largely on Min of Agriculture, Environment, Planning and Finance, Water, Education, Transport, Housing, Community Development, and relevant national meteorological institutes and disaster management authorities.				
Outcome II: Integrated roadmaps for NAPs developed	Number of national and subnational planning and budgeting roadmaps formulated, taking gender into account, to guide the process of integrating climate change concerns affecting livelihoods into the agriculture sector. This includes documents containing current, future scenarios for the agriculture-sector under conditions of climate change (including both slow onset and extremes), cost-benefit	N. roadmaps		1) A consolidated and mandated integrated roadmap for NAPs with a particular focus on the agriculture sector. 2) At least 3 national and 2 sub-national	

RESULTS CHAIN	INDICATOR	UNIT	COUNTRYBASELINE start of project	TARGET VALUE end of project	MORE DETAILED EXPLANATIONS ABOUT THE REPORTED VALUES AND FURTHER REMARKS
	Assessments of adaptation options, documentation of climate-resilient budgeting in the agriculture sector, as well as stocktaking of national and subnational priority adaptation options that also safeguard livelihoods.			planning and budgeting instruments adopted by national/local government per country	
	Number of target institutions with increased technical capacity to manage adverse impacts of climate change on agriculture-based livelihoods.	N. institutions		At least 5 key institutions at national and subnational level.	
	Percentage of the budget of the public institutions (national-sub national) allocated to climate change adaptation concerns of the agricultural sector	% national budget allocation		20% increase in budget allocations dedicated to address climate change adaptation priorities.	

RESULTS CHAIN	INDICATOR	UNIT	COUNTRYBASELINE start of project	TARGET VALUE end of project	MORE DETAILED EXPLANATIONS ABOUT THE REPORTED VALUES AND FURTHER REMARKS
<p>Outcome III: Evidence-based results for NAPs improved</p>	<p>Number of Ministries of Agriculture with impact evaluation frameworks for adaptation in the agriculture sector based on quasi-experimental design principles adopted. These frameworks include the identification of differential needs and adaptation options for men and women and the systematic integration of gender-sensitive indicators or sex-disaggregated data into data collection and analysis systems of the government.</p>	<p>N. impact evaluation frameworks</p>		<p>The Ministry of Agriculture adopt impact assessment frameworks based on quasi experimental design frameworks</p>	
<p>Outcome IV: Advocacy and knowledge-sharing on NAPs promoted</p>	<p>Number of best practices and lessons learned, taking into account gender dimensions, from the project disseminated. This will include dissemination through documentation and relevant communication platforms at national and international levels</p>	<p>N. best practices and lessons learned</p>		<p>4 national exchange consultations and 8 case studies shared per country</p>	

RESULTS CHAIN	INDICATOR	UNIT	COUNTRYBASELINE start of project	TARGET VALUE end of project	MORE DETAILED EXPLANATIONS ABOUT THE REPORTED VALUES AND FURTHER REMARKS
	Number of communication platforms in which best practices and lessons learnt were shared and disseminated at the national and international platforms (south-south exchanges, SSC global supply-demand matching platform, regional forums) and at the UNFCCC, including events organized in partnership with the LEG).	N. comm. platforms/ events			

References

UNDP (2012), Thailand Climate Public Expenditure and Institutional Review, http://www.th.undp.org/content/thailand/en/home/library/environment_energy/CPEIRThailand.html. Retrieved on November 11, 2016.

Dechachete, T., Climate Change: Impact on Thailand's Agriculture .Office of Agricultural Economics (OAE) Thailand, http://uncapsa.org/Document/workshop/2.3_Presentation_Thawatchai.pdf, Retrieved on November 11, 2016.

Tambunlertchai, S., et.al. (2015), An Institutional Analysis of Climate Finance in Thailand, Applied Environmental Research, App. Envi. Res. 37 (2): 59-74, <http://www.tcithaijo.org/index.php/aer>. Retrieved on November 12, 2016.

ONEP, (2011). Thailand's Second National Communication Under the United Nations Framework Convention on Climate Change

ONEP, (2015). Thailand's First Biennial Update Report Under the United Nations Framework Convention on Climate Change

USAID, (2013). USAID Mekong ARCC Climate Change Impact and Adaptation Study for Lower Mekong Basin Main Report.

https://unfccc.int/files/adaptation/application/pdf/leg_four_elements_nap_expo_presentation_2013.pdf, Retrieved from Nov 15, 2016.

Southeast Asia START Regional (2010), Preparation of Climate Change Scenarios for Climate Change Impact Assessment in Thailand http://startcc.iwlearn.org/doc/Doc_eng_15.pdf. Retrieved on November 15, 2016.

FAO (2011), "Strengthening Capacities to Enhance Coordinated and Integrated Disaster Risk Reduction Actions and Adaptation to Climate Change in Agriculture in the Northern Mountain Regions of Viet Nam". <http://www.fao.org/climatechange/340680d42acdf5fb7c4d80f3013c038ab92ce6.pdf>. Retrieved on November 17, 2016.

GIZ (2014), The Stocktaking for National Adaptation Planning (SNAP) Tool http://www.adaptationcommunity.net/?wpfb_dl=148. Retrieved on November 11, 2016

GIZ (2014), Overview of GIZ's support to the National Adaptation Plan (NAP) process http://www.adaptationcommunity.net/?wpfb_dl=200 (GIZ). Retrieved on November 11, 2016.

Sakhakara. K (2015) presentation on " Climate Change Vulnerability Assessment in NAP Phase 1", ONEP <http://www.thai-german-cooperation.info/admin/uploads/publication/ea7c14b244bcf4d00d2fe46e855cf4been.pdf>. Retrieved on November 11, 2016.

Ministry of the Environment, Japan, Thailand’s Effective Adaptation Planning Process based on Data Collection and Risk Assessments,

https://www.env.go.jp/en/earth/cc/casestudy/2016/casestudy_1_5.pdf. Retrieved on November 11, 2016.

FAO (2016), Integrating Agriculture into National Adaptation Plan (NAP-Ag), <http://www.fao.org/3/a-c0197e.pdf>. Retrieved on November 11, 2016.

Inception Workshop Agenda**Supporting the Integration of Agriculture Sector into the National Adaptation Plans (NAPs) in Thailand****Room Krungthep 4, Centara Grand at Central Plaza Ladprao Bangkok**

October 6, 2016		
9.00 - 9.30	Registration	OAE
9.30 - 9.40	Opening	
9.40 -12.00	Subcommittee Notification CPF-FAO Ref. 5/2016 on Appointment of Technical Working Group for Supporting the Integration of the Agriculture Sector into the National Adaptation Plans (NAPs) in Thailand	OAE
	Overview of S Supporting the Integration of the Agriculture Sector into the National Adaptation Plans (NAPs) in Thailand	
	Progress on Climate Change Strategic Plan for Agriculture 2017-2021	
	Integration of the Agriculture Sector into the National Adaptation Plans (NAPs) in Thailand: Background, Global Programme	
	NAPs Workplan	Ienkate (Goong)
	Climate change economic valuation, investment appraisal methods, and cost benefit analyses	Areeya
12.15	Lunch	
*****	Coffee Break at 10.30 am.	

Participants

Department		Number of participants
1	Rice Department	1
2	Royal Irrigation Department	1
3	Department of Fisheries	1
4	Department of Livestock Development	1
5	Land Development Department	1
6	Department of Agriculture	1
7	Department of Agriculture Extension	1
8	Cooperative Promotion Department	1
9	Agricultural Land Reform Office	1
10	Bureau of Agriculture Development Policy and Planning	1
11	Centre of Agricultural Information	1
12	Centre for Project and Programme Evaluation	1
13	Bureau of Agricultural Economic Research	10
14	Bureau of International Agricultural Economics	1
15	Office of National Resources and Environmental Policy and Planning	1
16	Royal Forest Department	1
17	Kasetsart University	4
18	FAO	2
19	UNDP	2



FAO/UNDP – AGREEMENT WITH GOVERNMENT

PROJECT AGREEMENT

1. Upon request from the Government of **the Kingdom of Thailand** (hereinafter referred to as "the Government"), and within the framework of its agreement with the United Nations Development Programme (UNDP) (hereinafter referred to as "the Donor"), the Food and Agriculture Organization of the United Nations (hereinafter referred to as "FAO") will supply assistance for the execution of the following Project once it is also accepted by the Donor.

Project Title: Supporting Developing Countries to Integrate the Agricultural Sectors into National Adaptation Plans (NAPs)

Project Symbol: UNFA/GLO/616/UND

A detailed description of the Project, including background, rationale, project framework, implementation and management arrangements as well as oversight, monitoring, management information and reporting, is provided in the attached Project Document.

FAO OBLIGATIONS

2. FAO shall be responsible for the recruitment, international travel, salaries and emoluments of the international personnel scheduled in the Project Document. The candidatures of these international staff shall be submitted to the Government for clearance following FAO's procedures. FAO shall also be responsible for the recruitment, salaries and emoluments of the national experts, national consultants, and national personnel as scheduled in the Project Document, except for counterpart personnel assigned by the Government.

3. FAO will procure, in accordance with its rules and regulations, the equipment and supplies described in the Project Document. The equipment will remain the property of FAO for the duration of the Project. Its ultimate destination shall be decided by FAO in consultation with the Government and the Donor.

4. FAO will arrange for periodic technical supervisory, support or review missions to the Project, with the full costs to be financed from the Project's budget.

5. All FAO's obligations arising under this Project Agreement shall be subject to: (i) the decisions of its Governing Bodies and to its constitutional, financial and budgetary provisions; and (ii) the receipt of the necessary contributions from the Donor. All financial accounts and statements shall be expressed in United States Dollars and shall be subject exclusively to the internal and external auditing procedures laid down in the Financial Regulations, Rules and directives of FAO.

6. FAO may, in consultation with the Government, execute part or all of the Project by subcontract. The selection of the subcontractors shall be made, after consultation with the Government, in accordance with FAO's procedures.

GOVERNMENT OBLIGATIONS

7. The Government shall take all necessary measures to facilitate the execution of the Project and to assist the FAO staff in obtaining such services and facilities as they may require to fulfil their tasks. The Government shall apply to FAO, its property, funds and assets, its officials and to the persons performing services on its behalf in connection with the Project: (i) the provisions of the Convention on Privileges and Immunities of the Specialized Agencies; and (ii) the United Nations currency exchange rate.

8. The Government shall deal with any claims which may be brought by third parties against FAO, its personnel or other persons performing services on its behalf in connection with the Project, and shall hold them harmless in respect of any claim or liability arising in connection with the project, except when it is agreed by FAO and the Government that such claims arise from gross negligence or wilful misconduct of such persons.

9. The Government shall be responsible for the recruitment, salaries and social security measures of its own national staff assigned to the project. The Government shall also provide as and when required for the Project, the facilities and supplies indicated in the Project Document.

10. The Government shall grant to the staff of FAO and of the Donor and to persons acting on their behalf, access to the Project site and to any material or documentation relating to the Project, and shall provide any relevant information to such staff or persons.

11. The Government shall be responsible for the cost of import and customs clearance of the Project's equipment, its transportation, handling, storage, and related expenses within the country; its insurance, safe custody, and maintenance, after delivery to the project site, as well as replacement if necessary.

REPORTING AND EVALUATION

12. FAO will report to the Government (and to the Donor) as scheduled in the Project Document.

13. The Government shall agree to the dissemination of information, like descriptions of the project and of its objectives and results, for the purpose of educating public opinion.

14. The Project may be subject to independent evaluation according to the arrangements agreed to between the Donor, recipient Government and FAO. The evaluation report will be treated as confidential with restricted access by parties not directly involved in the Project. However, FAO is authorized to prepare a brief summary of the report for the purpose of disseminating broadly its main findings, issues, lessons and recommendations as well as to make judicious use of the report as an input to evaluation synthesis studies.

CLAIMS, AMENDMENTS AND TERMINATION

15. Any dispute, controversy or claim arising out of or in connection with this Agreement or any breach thereof, shall, unless it is settled by direct negotiation, be settled by arbitration in accordance with the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules in force on the date when this Agreement takes effect. The parties hereto agree to be bound by any arbitration award rendered in accordance with this Section as the final adjudication of any disputes.

16. The present agreement shall be governed by general principles of law, to the exclusion of any single national system of law.

17. Nothing in or related to any provision in this Agreement shall be deemed a waiver of the privileges and immunities of FAO.

18. This Project Agreement may be amended or terminated by mutual consent. Termination shall also take effect sixty days after receipt by either party of written notice from the other party. In the event of termination, the obligations already assumed by the Government shall remain in force to the extent necessary to permit orderly withdrawal of the funds and assets of FAO, and of personnel performing services on its behalf.

19. This Project Agreement shall enter into force upon signature by both parties.

On behalf of the Government of the Kingdom
of Thailand:

Name: Lersak Rewtarkulpaiboon

Title: Secretary General

Signature:

Date: 29/9/2015



On behalf of the Food and Agriculture
Organization of the United Nations:

Name: Vili Ki Apifoou Fuavao

Title: Deputy Regional Representative for
Asia and the Pacific
and Focal Point of FAO's Program in
Thailand

Signature:

Date: 1/9/2015

**Attachments: Project Document with
Results Matrix
Work Plan
Budget
Terms of Reference for International and National Personnel**

(สำเนาฉบับ)

คำสั่งคณะกรรมการประสานงานกับองค์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ
ที่ ๑ / ๒๕๕๙

เรื่อง แต่งตั้งคณะอนุกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย - FAO

ตามมติที่ประชุมคณะกรรมการประสานงานกับองค์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ ครั้งที่ ๑/๒๕๕๙ เมื่อวันที่ ๒๙ มกราคม ๒๕๕๙ เห็นชอบให้แต่งตั้งคณะอนุกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย - FAO นั้น

เพื่อให้การดำเนินงานตามกรอบความร่วมมือเป็นไปด้วยความเรียบร้อย มีประสิทธิภาพ และเกิดประโยชน์สูงสุด อาศัยอำนาจหน้าที่ตามข้อ ๒.๓ ของคณะกรรมการประสานงานกับองค์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ ตามมติคณะรัฐมนตรีเมื่อวันที่ ๙ ธันวาคม ๒๕๕๗ จึงแต่งตั้งคณะอนุกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย - FAO โดยมีองค์ประกอบและอำนาจหน้าที่ ดังนี้

องค์ประกอบ

- | | |
|--|------------------|
| ๑. เลขาธิการคณะกรรมการประสานงาน
กับองค์การอาหารและเกษตรแห่งสหประชาชาติ
และการเกษตรต่างประเทศ | ประธานอนุกรรมการ |
| ๒. ผู้แทนกระทรวงมหาดไทย | อนุกรรมการ |
| ๓. ผู้แทนกระทรวงสาธารณสุข | อนุกรรมการ |
| ๔. ผู้แทนกระทรวงศึกษาธิการ | อนุกรรมการ |
| ๕. ผู้แทนกระทรวงพัฒนาสังคมและความมั่นคงของมนุษย์ | อนุกรรมการ |
| ๖. ผู้แทนสำนักงานคณะกรรมการพัฒนาการเศรษฐกิจ
และสังคมแห่งชาติ | อนุกรรมการ |
| ๗. ผู้แทนกรมความร่วมมือระหว่างประเทศ | อนุกรรมการ |
| ๘. ผู้แทนกรมป่าไม้ | อนุกรรมการ |
| ๙. ผู้แทนกรมทรัพยากรทางทะเลและชายฝั่ง | อนุกรรมการ |
| ๑๐. ผู้แทนสำนักงานปลัดกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม | อนุกรรมการ |
| ๑๑. ผู้แทนกรมการข้าว | อนุกรรมการ |
| ๑๒. ผู้แทนกรมชลประทาน | อนุกรรมการ |
| ๑๓. ผู้แทนกรมประมง | อนุกรรมการ |
| ๑๔. ผู้แทนกรมปศุสัตว์ | อนุกรรมการ |
| ๑๕. ผู้แทนกรมพัฒนาที่ดิน | อนุกรรมการ |
| ๑๖. ผู้แทนกรมวิชาการเกษตร | อนุกรรมการ |
| ๑๗. ผู้แทนกรมส่งเสริมการเกษตร | อนุกรรมการ |
| ๑๘. ผู้แทนกรมส่งเสริมสหกรณ์ | อนุกรรมการ |

/๑๙. ผู้แทน...

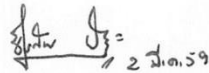
- ๒ -

๑๙. ผู้แทนกรมหม่อนไหม	อนุกรรมการ
๒๐. ผู้แทนสำนักงานการปฏิรูปที่ดินเพื่อเกษตรกรรม	อนุกรรมการ
๒๑. ผู้แทนสำนักงานมาตรฐานสินค้าเกษตรและอาหารแห่งชาติ	อนุกรรมการ
๒๒. ผู้แทนสำนักงานเศรษฐกิจการเกษตร	อนุกรรมการ
๒๓. ผู้แทนสำนักงาน FAO ประจำภูมิภาคเอเชียและแปซิฟิก	อนุกรรมการ
๒๔. ผู้อำนวยการสำนักงานการเกษตรต่างประเทศ สำนักงานปลัดกระทรวงเกษตรและสหกรณ์	อนุกรรมการและเลขานุการ
๒๕. หัวหน้ากลุ่มความร่วมมือกับต่างประเทศ ๑ สำนักงานการเกษตรต่างประเทศ สำนักงานปลัดกระทรวงเกษตรและสหกรณ์	อนุกรรมการและผู้ช่วยเลขานุการ
๒๖. เจ้าหน้าที่สำนักงานการเกษตรต่างประเทศ สำนักงานปลัดกระทรวงเกษตรและสหกรณ์	อนุกรรมการและผู้ช่วยเลขานุการ

อำนาจหน้าที่

- ๑) กำหนดแนวทางและประสานกิจกรรมความร่วมมือให้เป็นไปตามกรอบ CPF
 - ๒) กำหนดหลักเกณฑ์และแนวทางการขอรับความช่วยเหลือจาก FAO
 - ๓) พิจารณากลับกรองและจัดลำดับความสำคัญของโครงการความร่วมมือ
 - ๔) จัดหาแหล่งเงินทุนเพื่อนำมาใช้ในการดำเนินงานโครงการและกิจกรรมความร่วมมือ
 - ๕) แต่งตั้งคณะทำงานได้ตามที่เห็นสมควร
 - ๖) ปฏิบัติงานอื่นตามที่ได้รับมอบหมาย
- ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๗ มีนาคม พ.ศ. ๒๕๕๙



(นายธีรภัทร ประยูรสิทธิ)

ปลัดกระทรวงเกษตรและสหกรณ์

ประธานกรรมการประสานงานกับองค์การอาหาร
และเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ





คำสั่งคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO
ที่ /๒๕๕๙

เรื่อง แต่งตั้งคณะทำงานประสานงานโครงการ Supporting the integration of the agriculture sector
into the National Adaptation Plans (NAPs) in Thailand

ตามคำสั่งคณะกรรมการประสานงานกับองค์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศที่ ๑/๒๕๕๙ แต่งตั้งคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO เพื่อพิจารณากันกรอง กำหนดแนวทางและประสานกิจกรรมความร่วมมือในการดำเนินโครงการภายใต้กรอบความร่วมมือ CPF นั้น

เพื่อให้การดำเนินงานโครงการภายใต้กรอบ CPF เป็นไปด้วยความเรียบร้อย มีประสิทธิภาพและเกิดประโยชน์สูงสุด อาศัยอำนาจหน้าที่ตามข้อ ๕ ของคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO จึงแต่งตั้งคณะทำงานประสานโครงการ Supporting the integration of the agriculture sector into the NAP in Thailand โดยมีองค์ประกอบและอำนาจหน้าที่ ดังนี้

องค์ประกอบ

๑. รองเลขาธิการสำนักงานเศรษฐกิจการเกษตรที่ได้รับมอบหมาย	ประธานคณะทำงาน
๒. ผู้แทนกรมการข้าว	คณะทำงาน
๓. ผู้แทนกรมชลประทาน	คณะทำงาน
๔. ผู้แทนกรมปศุสัตว์	คณะทำงาน
๕. ผู้แทนกรมพัฒนาที่ดิน	คณะทำงาน
๖. ผู้แทนกรมวิชาการเกษตร	คณะทำงาน
๗. ผู้แทนกรมส่งเสริมการเกษตร	คณะทำงาน
๘. ผู้แทนกรมส่งเสริมสหกรณ์	คณะทำงาน
๙. ผู้แทนกรมประมง	คณะทำงาน
๑๐. ผู้แทนสำนักงานปฏิรูปที่ดินเพื่อเกษตรกรรม	คณะทำงาน
๑๑. ผู้แทนสำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม	คณะทำงาน
๑๒. ผู้แทนกองนโยบายและแผนพัฒนาการเกษตร	คณะทำงาน
๑๓. ผู้แทนศูนย์สารสนเทศการเกษตร	คณะทำงาน
๑๔. ผู้แทนศูนย์ประเมินผล	คณะทำงาน
๑๕. ผู้แทนสำนักวิจัยเศรษฐกิจการเกษตร	คณะทำงานและเลขานุการ
๑๖. ผู้แทนส่วนวิจัยเศรษฐกิจทรัพยากรการเกษตร	คณะทำงานและผู้ช่วยเลขานุการ

อำนาจหน้าที่

๑. พิจารณาให้ข้อเสนอแนะ ความเห็นต่อการดำเนินโครงการ Supporting the integration of the agriculture sector into the NAPs in Thailand เพื่อให้การดำเนินงานบรรลุวัตถุประสงค์ของโครงการฯ

/๒. กำกับการ...

สำเนาคู่ฉบับ

คำสั่งคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO
ที่ ๒ / ๒๕๕๙

เรื่อง แต่งตั้งคณะทำงานประสานงานโครงการ Supporting the integration of the agriculture sector
into the National Adaptation Plans (NAPs) in Thailand

ตามคำสั่งคณะกรรมการประสานงานกับองค์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ ที่ ๑/๒๕๕๙ แต่งตั้งคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO เพื่อพิจารณาถ้อยแถลง กำหนดแนวทางและประสานกิจกรรมความร่วมมือในการดำเนินโครงการภายใต้กรอบความร่วมมือ CPF นั้น

เพื่อให้การดำเนินงานเป็นไปด้วยความเรียบร้อย มีประสิทธิภาพ และเกิดประโยชน์สูงสุด อาศัยอำนาจหน้าที่ตามข้อ ๕ ของคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย – FAO จึงแต่งตั้งคณะทำงานประสานงานโครงการ Supporting the integration of the agriculture sector into the NAPs in Thailand โดยมีองค์ประกอบและอำนาจหน้าที่ ดังนี้

องค์ประกอบ

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|---|-----------------------------|
| ๑. รองเลขาธิการสำนักงานเศรษฐกิจการเกษตรที่ได้รับมอบหมาย | ประธานคณะทำงาน |
| ๒. ผู้แทนกรมการข้าว | คณะทำงาน |
| ๓. ผู้แทนกรมชลประทาน | คณะทำงาน |
| ๔. ผู้แทนกรมปศุสัตว์ | คณะทำงาน |
| ๕. ผู้แทนกรมพัฒนาที่ดิน | คณะทำงาน |
| ๖. ผู้แทนกรมวิชาการเกษตร | คณะทำงาน |
| ๗. ผู้แทนกรมส่งเสริมการเกษตร | คณะทำงาน |
| ๘. ผู้แทนกรมส่งเสริมสหกรณ์ | คณะทำงาน |
| ๙. ผู้แทนกรมประมง | คณะทำงาน |
| ๑๐. ผู้แทนสำนักงานปศุสัตว์ที่ดินเพื่อเกษตรกรรม | คณะทำงาน |
| ๑๑. ผู้แทนกรมป่าไม้ | คณะทำงาน |
| ๑๒. ผู้แทนสำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม | คณะทำงาน |
| ๑๓. ผู้แทนกองนโยบายและแผนพัฒนาการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะทำงาน |
| ๑๔. ผู้แทนศูนย์สารสนเทศการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะทำงาน |
| ๑๕. ผู้แทนศูนย์ประเมินผล
สำนักงานเศรษฐกิจการเกษตร | คณะทำงาน |
| ๑๖. ผู้แทนสำนักวิจัยเศรษฐกิจการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะทำงานและเลขานุการ |
| ๑๗. ผู้แทนส่วนวิจัยเศรษฐกิจทรัพยากรการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะทำงานและผู้ช่วยเลขานุการ |

/อำนาจหน้าที่...

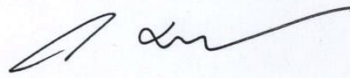
-๒-

อำนาจหน้าที่

๑. พิจารณาให้ข้อเสนอแนะในการดำเนินงานโครงการ Supporting the integration of the agriculture sector into the NAPs in Thailand
๒. กำกับการดำเนินงานโครงการฯ ให้เป็นไปตามข้อกำหนด เงื่อนไข และขอบเขตการดำเนินงาน
๓. ประสานงานและสนับสนุนข้อมูลที่เกี่ยวข้องในการดำเนินงานโครงการฯ
๔. ปฏิบัติงานอื่นตามที่ได้รับมอบหมาย

ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๒ พฤษภาคม พ.ศ. ๒๕๕๙



(นางวิมลพร ริตติกักกี้)

เลขาธิการคณะกรรมการประสานงาน

กบอังก์การอาหารและเกษตรแห่งสหประชาชาติและการเกษตรต่างประเทศ
ประธานคณะกรรมการดำเนินงานตามกรอบความร่วมมือ CPF ระหว่างไทย - FAO



คำสั่งคณะกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์
ที่ ๓ / ๒๕๕๘
เรื่อง แต่งตั้งคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร

ตามที่คณะกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์ ได้มีคำสั่งที่ ๑/๒๕๕๓ ลงวันที่ ๑๒ มกราคม ๒๕๕๓ คำสั่งที่ ๒/๒๕๕๓ ลงวันที่ ๒๒ มีนาคม ๒๕๕๓ และคำสั่งที่ ๑/๒๕๕๕ ลงวันที่ ๒๔ มีนาคม ๒๕๕๕ แต่งตั้งคณะกรรมการจัดทำยุทธศาสตร์และแผนปฏิบัติการว่าด้วยการเปลี่ยนแปลงภูมิอากาศด้านการเกษตร และฉบับแก้ไขเพิ่มเติม ไปแล้วนั้น

เพื่อให้การดำเนินงานเรื่องการเปลี่ยนแปลงภูมิอากาศด้านการเกษตรเป็นไปอย่างมีประสิทธิภาพ สามารถประสานการดำเนินงานภายในและนอกกระทรวงเกษตรและสหกรณ์ได้อย่างเป็นระบบ อาศัยอำนาจตามความในมาตรา ๑๔ แห่งพระราชบัญญัติเศรษฐกิจการเกษตร พ.ศ. ๒๕๒๒ และมติการประชุมคณะกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์ ครั้งที่ ๑/๒๕๕๘ เมื่อวันที่ ๘ มกราคม พ.ศ. ๒๕๕๘ จึงให้ยกเลิกคำสั่งคณะกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์ดังกล่าวข้างต้น และแต่งตั้งคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตรขึ้นใหม่ประกอบด้วย

- | | |
|--|----------------------|
| ๑. รองปลัดกระทรวงเกษตรและสหกรณ์ที่ได้รับมอบหมาย | ประธาน
อนุกรรมการ |
| ๒. ผู้แทนสำนักงานคณะกรรมการนโยบายวิทยาศาสตร์ เทคโนโลยี และนวัตกรรมแห่งชาติ | อนุกรรมการ |
| ๓. ผู้แทนสำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม | อนุกรรมการ |
| ๔. ผู้แทนองค์การบริหารก๊าซเรือนกระจก (องค์การมหาชน) | อนุกรรมการ |
| ๕. ผู้แทนสำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ | อนุกรรมการ |
| ๖. ผู้แทนกรมอุตุนิยมวิทยา | อนุกรรมการ |
| ๗. ผู้แทนสำนักงบประมาณ | อนุกรรมการ |
| ๘. ผู้แทนกรมการข้าว | อนุกรรมการ |
| ๙. ผู้แทนกรมชลประทาน | อนุกรรมการ |
| ๑๐. ผู้แทนกรมประมง | อนุกรรมการ |
| ๑๑. ผู้แทนกรมปศุสัตว์ | อนุกรรมการ |
| ๑๒. ผู้แทนกรมพัฒนาที่ดิน | อนุกรรมการ |
| ๑๓. ผู้แทนกรมวิชาการเกษตร | อนุกรรมการ |
| ๑๔. ผู้แทนกรมส่งเสริมการเกษตร | อนุกรรมการ |
| ๑๕. ผู้แทนกรมส่งเสริมสหกรณ์ | อนุกรรมการ |
| ๑๖. ผู้แทนสำนักงานการปฏิรูปที่ดินเพื่อเกษตรกรรม | อนุกรรมการ |
| ๑๗. ผู้แทนสำนักงานเศรษฐกิจการเกษตร | อนุกรรมการ |

/๑๘. ผู้แทนสำนักงาน...

-๒-

๑๘. ผู้แทนสำนักงานมาตรฐานสินค้าเกษตรและอาหารแห่งชาติ	อนุกรรมการ
๑๙. ผู้แทนสำนักงานพัฒนาการวิจัยการเกษตร (องค์การมหาชน)	อนุกรรมการ
๒๐. ผู้แทนสภาหอการค้าแห่งประเทศไทย	อนุกรรมการ
๒๑. ผู้อำนวยการสำนักวิจัยเศรษฐกิจการเกษตร สำนักงานเศรษฐกิจการเกษตร	อนุกรรมการและ เลขานุการ
๒๒. ผู้เชี่ยวชาญด้านเศรษฐกิจทรัพยากรธรรมชาติทางการเกษตร สำนักงานเศรษฐกิจการเกษตร	อนุกรรมการและ ผู้ช่วยเลขานุการ
๒๓. ผู้แทนสำนักวิจัยเศรษฐกิจการเกษตร สำนักงานเศรษฐกิจการเกษตร	อนุกรรมการและ ผู้ช่วยเลขานุการ

ให้คณะอนุกรรมการดังกล่าวมีอำนาจหน้าที่ดังต่อไปนี้

- ๑) กำกับ ดูแล ขับเคลื่อนการดำเนินงานตามยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร พ.ศ. ๒๕๕๖ – ๒๕๕๙ ของหน่วยงานในสังกัดกระทรวงเกษตรและสหกรณ์ ให้เกิดผลในทางปฏิบัติอย่างเป็นรูปธรรม รวมทั้งจัดทำยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตรอย่างต่อเนื่องสอดคล้องในทิศทางเดียวกับแผนแม่บทรองรับการเปลี่ยนแปลงสภาพภูมิอากาศแห่งชาติ พ.ศ. ๒๕๕๕-๒๕๕๓
- ๒) พิจารณาให้ความเห็นชอบแนวทางการเจรจาและประสานความร่วมมือด้านการเปลี่ยนแปลงภูมิอากาศระหว่างหน่วยงานที่เกี่ยวข้องภายในประเทศและระหว่างประเทศ เพื่อสร้างภูมิคุ้มกันให้ภาคเกษตรรองรับปัญหาการเปลี่ยนแปลงภูมิอากาศและบรรเทาปัญหาการเปลี่ยนแปลงภูมิอากาศจากการเพิ่มขึ้นของก๊าซเรือนกระจก โดยคำนึงถึงผลประโยชน์โดยรวมของเกษตรกรและผลประโยชน์ของประเทศ
- ๓) ติดตามและประเมินผลการดำเนินงานตามยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร พ.ศ. ๒๕๕๖ – ๒๕๕๙ และยุทธศาสตร์ที่ดำเนินการต่อเนื่อง
- ๔) กำกับ ดูแล ติดตามการปฏิบัติงานและรายงานผลการดำเนินงานต่อคณะกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์
- ๕) แต่งตั้งคณะทำงานเพื่อดำเนินงานเกี่ยวกับการเปลี่ยนแปลงภูมิอากาศด้านการเกษตรตามความจำเป็นและเหมาะสม

ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๒๖ กุมภาพันธ์ พ.ศ. ๒๕๕๘

(นายปีติพงษ์ พึ่งบุญ ณ อยุธยา)
รัฐมนตรีว่าการกระทรวงเกษตรและสหกรณ์
ประธานกรรมการนโยบายและแผนพัฒนาการเกษตรและสหกรณ์



คำสั่งคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร

ที่ ๑ / ๒๕๕๙

เรื่อง แต่งตั้งคณะกรรมการเปลี่ยนแปลงภูมิอากาศด้านการจัดทำยุทธศาสตร์ วิชาการ และฐานข้อมูล

ด้วยที่ประชุมคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร ครั้งที่ ๑/๒๕๕๘ เมื่อวันที่ ๙ ธันวาคม ๒๕๕๘ เห็นชอบให้มีการจัดทำยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร ให้สอดคล้องกับแผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ และแผนแม่บทรองรับการเปลี่ยนแปลงสภาพภูมิอากาศ เพื่อใช้เป็นกรอบในการจัดทำแผนปฏิบัติการว่าด้วยการเปลี่ยนแปลงภูมิอากาศด้านการเกษตร และเพื่อให้การจัดทำยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร สามารถดำเนินงานภายใต้การมีส่วนร่วมของผู้มีส่วนเกี่ยวข้อง บรรลุตามเป้าหมายอย่างมีประสิทธิภาพ พร้อมทั้งประสานงานวิชาการและจัดทำฐานข้อมูลเพื่อสนับสนุนการดำเนินงานตามยุทธศาสตร์ต่อไป จึงมีมติให้แต่งตั้งคณะกรรมการเปลี่ยนแปลงภูมิอากาศด้านการจัดทำยุทธศาสตร์ วิชาการ และฐานข้อมูล ดังนี้

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| ๑. รองเลขาธิการสำนักงานเศรษฐกิจการเกษตรที่ได้รับมอบหมาย | ประธานคณะกรรมการ |
| ๒. ผู้แทนกรมการข้าว | คณะกรรมการ |
| ๓. ผู้แทนกรมชลประทาน | คณะกรรมการ |
| ๔. ผู้แทนกรมประมง | คณะกรรมการ |
| ๕. ผู้แทนกรมปศุสัตว์ | คณะกรรมการ |
| ๖. ผู้แทนกรมพัฒนาที่ดิน | คณะกรรมการ |
| ๗. ผู้แทนกรมวิชาการเกษตร | คณะกรรมการ |
| ๘. ผู้แทนกรมส่งเสริมการเกษตร | คณะกรรมการ |
| ๙. ผู้แทนกรมส่งเสริมสหกรณ์ | คณะกรรมการ |
| ๑๐. ผู้แทนสำนักงานการปฏิรูปที่ดินเพื่อเกษตรกรรม | คณะกรรมการ |
| ๑๑. ผู้แทนสำนักงานมาตรฐานสินค้าเกษตรและอาหารแห่งชาติ | คณะกรรมการ |
| ๑๒. ผู้แทนกรมฝนหลวงและการบินเกษตร | คณะกรรมการ |
| ๑๓. ผู้แทนสำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม | คณะกรรมการ |
| ๑๔. ผู้แทนสำนักงานคณะกรรมการนโยบายวิทยาศาสตร์ เทคโนโลยี และนวัตกรรมแห่งชาติ | คณะกรรมการ |
| ๑๕. ผู้แทนสภาหอการค้าแห่งประเทศไทย | คณะกรรมการ |
| ๑๖. ผู้แทนสภาอุตสาหกรรมแห่งประเทศไทย | คณะกรรมการ |
| ๑๗. ผู้แทนกองนโยบายและแผนพัฒนาการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะกรรมการ |

/๑๘. ผู้แทนศูนย์....

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| ๑๘. ผู้แทนศูนย์สารสนเทศการเกษตร สำนักงานเศรษฐกิจการเกษตร | คณะทำงาน |
| ๑๙. ผู้แทนสำนักวิจัยเศรษฐกิจการเกษตร | คณะทำงาน
และเลขานุการ |
| ๒๐. ผู้แทนส่วนวิจัยเศรษฐกิจทรัพยากรการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะทำงาน
และผู้ช่วยเลขานุการ |

ให้คณะทำงานดังกล่าวมีอำนาจหน้าที่ดังต่อไปนี้

๑. พิจารณาจัดทำยุทธศาสตร์และแผนปฏิบัติการว่าด้วยการเปลี่ยนแปลงสภาพภูมิอากาศด้านการเกษตร ของกระทรวงเกษตรและสหกรณ์ ให้สอดคล้องในทิศทางเดียวกับแผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ แผนพัฒนาการเกษตรและสหกรณ์ และแผนแม่บทรองรับการเปลี่ยนแปลงสภาพภูมิอากาศ พ.ศ. ๒๕๕๘-๒๕๙๓
๒. จัดทำแผนปฏิบัติการและจัดเวทีระดมความคิดเห็นจากผู้มีส่วนได้ส่วนเสีย ทั้งภาครัฐ ภาคเอกชน ภาคประชาสังคม ภาควิชาการ เพื่อปรับร่างแผนให้เป็นที่ยอมรับจากทุกภาคส่วน
๓. รวบรวมและพัฒนาข้อมูลและองค์ความรู้ที่เกี่ยวข้องกับการเปลี่ยนแปลงสภาพภูมิอากาศด้านการเกษตร ให้ข้อเสนอแนะต่อแนวทางการพัฒนาองค์ความรู้ทางวิทยาศาสตร์ เทคโนโลยีและนวัตกรรมด้านการเปลี่ยนแปลงสภาพภูมิอากาศในภาคเกษตร พร้อมทั้งเสนอแนะแนวทางการนำข้อมูลและองค์ความรู้ดังกล่าวมาใช้เพื่อกำหนดนโยบายด้านการเปลี่ยนแปลงสภาพภูมิอากาศภาคการเกษตร
๔. พัฒนาการจัดทำบัญชีก๊าซเรือนกระจกภาคการเกษตรของประเทศและจัดทำฐานข้อมูลด้านการเปลี่ยนแปลงภูมิอากาศด้านการเกษตร เพื่อใช้เป็นข้อมูลประกอบการตัดสินใจเชิงนโยบาย และขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร พร้อมทั้งพัฒนาระบบการจัดเก็บข้อมูลบัญชีก๊าซเรือนกระจกภาคการเกษตรของประเทศ
๕. รายงานผลการดำเนินงานต่อคณะอนุกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร
๖. ปฏิบัติงานอื่นที่เกี่ยวข้องตามที่คณะอนุกรรมการมอบหมาย

ทั้งนี้ ตั้งแต่บัดนี้เป็นต้นไป

สั่ง ณ วันที่ ๑๗) กุมภาพันธ์ พ.ศ. ๒๕๕๙



(นายเลิศวิโรจน์ โกวัฒนะ)
รองปลัดกระทรวงเกษตรและสหกรณ์
ประธานอนุกรรมการขับเคลื่อนยุทธศาสตร์
การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร



คำสั่งคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร

ที่ ๑ / ๒๕๕๙

เรื่อง แต่งตั้งคณะกรรมการเปลี่ยนแปลงภูมิอากาศด้านการจัดทำยุทธศาสตร์ วิชาการ และฐานข้อมูล

ด้วยที่ประชุมคณะกรรมการขับเคลื่อนยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร ครั้งที่ ๑/๒๕๕๘ เมื่อวันที่ ๙ ธันวาคม ๒๕๕๘ เห็นชอบให้มีการจัดทำยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร ให้สอดคล้องกับแผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ และแผนแม่บทรองรับการเปลี่ยนแปลงสภาพภูมิอากาศ เพื่อใช้เป็นกรอบในการจัดทำแผนปฏิบัติการว่าด้วยการเปลี่ยนแปลงภูมิอากาศด้านการเกษตร และเพื่อให้การจัดทำยุทธศาสตร์การเปลี่ยนแปลงภูมิอากาศด้านการเกษตร สามารถดำเนินงานภายใต้การมีส่วนร่วมของผู้มีส่วนเกี่ยวข้อง บรรลุตามเป้าหมายอย่างมีประสิทธิภาพ พร้อมทั้งประสานงานวิชาการและจัดทำฐานข้อมูลเพื่อสนับสนุนการดำเนินงานตามยุทธศาสตร์ต่อไป จึงมีมติให้แต่งตั้งคณะกรรมการเปลี่ยนแปลงภูมิอากาศด้านการจัดทำยุทธศาสตร์ วิชาการ และฐานข้อมูล ดังนี้

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| ๑. รองเลขาธิการสำนักงานเศรษฐกิจการเกษตรที่ได้รับมอบหมาย | ประธานคณะกรรมการ |
| ๒. ผู้แทนกรมการข้าว | คณะกรรมการ |
| ๓. ผู้แทนกรมชลประทาน | คณะกรรมการ |
| ๔. ผู้แทนกรมประมง | คณะกรรมการ |
| ๕. ผู้แทนกรมปศุสัตว์ | คณะกรรมการ |
| ๖. ผู้แทนกรมพัฒนาที่ดิน | คณะกรรมการ |
| ๗. ผู้แทนกรมวิชาการเกษตร | คณะกรรมการ |
| ๘. ผู้แทนกรมส่งเสริมการเกษตร | คณะกรรมการ |
| ๙. ผู้แทนกรมส่งเสริมสหกรณ์ | คณะกรรมการ |
| ๑๐. ผู้แทนสำนักงานการปฏิรูปที่ดินเพื่อเกษตรกรรม | คณะกรรมการ |
| ๑๑. ผู้แทนสำนักงานมาตรฐานสินค้าเกษตรและอาหารแห่งชาติ | คณะกรรมการ |
| ๑๒. ผู้แทนกรมฝนหลวงและการบินเกษตร | คณะกรรมการ |
| ๑๓. ผู้แทนสำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม | คณะกรรมการ |
| ๑๔. ผู้แทนสำนักงานคณะกรรมการนโยบายวิทยาศาสตร์ เทคโนโลยี และนวัตกรรมแห่งชาติ | คณะกรรมการ |
| ๑๕. ผู้แทนสภาหอการค้าแห่งประเทศไทย | คณะกรรมการ |
| ๑๖. ผู้แทนสภาอุตสาหกรรมแห่งประเทศไทย | คณะกรรมการ |
| ๑๗. ผู้แทนกองนโยบายและแผนพัฒนาการเกษตร
สำนักงานเศรษฐกิจการเกษตร | คณะกรรมการ |

/๑๘. ผู้แทนศูนย์....