



THAILAND COUNTRY PROGRAMME ON CLIMATE CHANGE

Climate Change Management and Coordination Division
Office of Natural Resources and Environmental Policy and Planning

2017

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1. INTRODUCTION

Thailand joins the global effort on climate change through setting the ambitious strategies and targets under national policies and plans. A key step in turning the country's climate action aspirations into reality is by identifying short-term and long-term projects/programmes, investment priorities, and strategic initiatives that will help realize a paradigm shift in achieving low-emission and climate-resilient development. To provide a strategic framework that sets out national priorities and support areas in the field of climate change, the Thailand Country Programme (TCP) on climate change has been developed based on the Green Climate Fund's (GCF) Country Programming guidelines and relevant national strategies and policies on climate change. Aiming for holistic and sustainable results, the TCP shall not exclusively serve as a framework for engagement with the GCF, but establishes an inclusive framework that provides guidance for any type of stakeholder on needed climate investments in Thailand.

Key national policies underlying the development of Thailand's Climate Change Country Program

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|------|---|
| 1974 | Sufficiency Economy Philosophy (SEP) introduced by His Majesty the late King Bhumibol Adulyadej |
| 2012 | National Industrial Development Master Plan (2012-2031) |
| 2013 | Environmentally Sustainable Transport System Plan (2013-2030) |
| 2015 | Climate Change Master Plan (2015-2050) Power Development Plan (2015-2036) Thailand Smart Grid Development Master Plan (2015-2036) Energy Efficiency Plan (2015-2036) Alternative Energy Development Plan (2015-2036) |
| 2016 | 20 Years National Strategy 12 th National Economic and Social Development Plan (NESDP) National Determined Contributions (NDC) National Adaptation Plan (NAP) Technology Needs Assessment (TNA) and Technology Action Plans (TAP) Ministry of Transport Strategic Plan 2016 |

The TCP is designed as a tool and an overarching reference document for engaging with a broad range of domestic and international stakeholders, including the GCF and other (international) climate funds and donors, to contribute to the achievement of Thailand's long-term vision of a "low-carbon and resilient society". The document will guide any entity - domestic or international - willing to develop and submit project proposals in the fields of climate change mitigation and adaptation as well as in cross-cutting areas. The TCP is expected to contribute to the following outcomes:

- **Strengthened engagement** and collaboration on climate action with a broad range of stakeholders including sector ministries, local institutions, international organizations and donors, private sector and civil society;
- **Consistent matching** of national climate change priorities with appropriate domestic or international climate finance sources; and,
- **Improved alignment** of policies, a better monitoring system of climate action and the mutualization of resources and co-benefits resulting from climate change actions.

The TCP shall be reviewed and adjusted every five years or as appropriate to reflect the latest developments of relevant national and international climate policy regime. As more knowledge becomes available on the implementation mechanisms of the Paris Agreement and as Thailand integrates these into its national (climate) policies, the TCPs' prioritized support areas shall be updated to address the country's most pressing needs in terms of technology transfer, technical assistance and financial support in order to achieve the target of a 20-25% GHG emission reduction by 2030, while increasing the country's resilience to adverse climate risks.

2. NATIONAL CONTEXT AND CLIMATE CHANGE RESPONSE

2.1 National Context

Thailand is located in Southeast Asia with a land area of approximately 514,000 square kilometers (sq.km.). The maritime economic zones cover 72,200 sq.km. in the Andaman Sea and 140,000 sq.km. in the Gulf of Thailand, totaling 212,200 sq.km. Thailand's Gross Domestic Product (GDP) is USD 395.2 billion, and grew at an annual rate of 0.8% in 2014¹ with industry services, communications and agriculture being major economic sectors. With a population of 68 million², Thailand's per capita Gross National Income (GNI) is USD 5,620 and is classified as an upper middle-income country. The Competitive Industrial Performance (CIP) index of Thailand is 0.167 placing the country 26 out of 141 countries³. The Human Development Index (HDI) for Thailand is 0.726 ranking the country at 93 out of 188 countries⁴.

The financial sector in Thailand is relatively large with over 173% domestic credit provided by the financial sector as the percentage of GDP compared to the global average of 180%⁵. Domestic credit to private sector was also fairly high at 151% of the GDP compared to

¹ World Bank, <http://data.worldbank.org>, accessed Aug. 2016

² World Bank, <http://data.worldbank.org>, accessed Aug. 2016

³ UNIDO, 2016, Industrial Development Report 2016

⁴ UNDP, <http://hdr.undp.org> accessed Aug. 2016

⁵ World Bank, <http://data.worldbank.org>, accessed Aug. 2016

the global average of 132%⁶. Thailand was ranked high at 49 out of 181 in ease of doing business in 2016⁷.

According to the Global Climate Risk Index 2016 developed by Germanwatch, Thailand is ranked 9th out of the 10 countries that have been most severely affected by extreme weather events between 1995 and 2014⁸. Especially considering the vulnerability of its geography and economy to climate change, Thailand is at risk of being severely affected by climate change impacts such as the coastal erosion (Thailand has long coastlines of 1,875 and 740 kilometres along the Gulf of Thailand and the Andaman Sea, respectively) and fragile agricultural system and susceptibility to extreme weather events (floods and drought).

2.2 National Climate Response

The country's main emission sectors are energy, agriculture, industrial processes, and waste. The energy sector which includes the usage of energy by the transport sector accounts for 73% of the country's emission (305.529 million tCO₂ eq. in 2011). Therefore, the country has highly ambitious plans to reduce the emission intensity of its energy and transport sector through a significant increase in the share of renewable energy and energy efficiency as well as a modal shift in transportation from road to rail. Not only the country's mitigation plan covers the energy and transport sectors, but also other sectors such as industry and waste. Figure 1 illustrates total GHG emissions in 2011, excluding LULUCF.

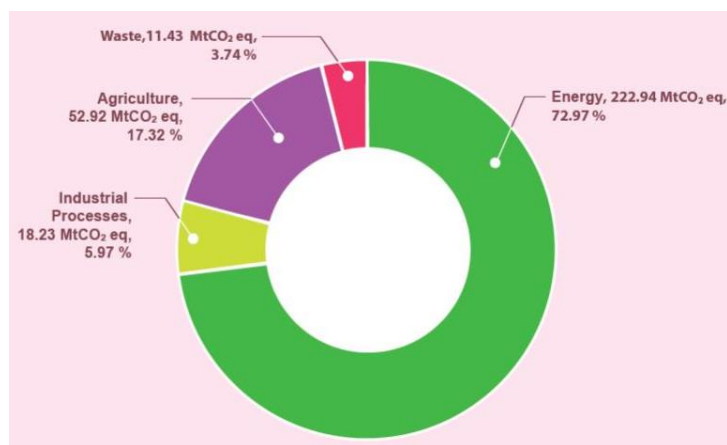


Figure 1: Thailand's GHG Emissions by Sector in 2011

In its Nationally Determined Contribution (NDC), Thailand commits to significant mitigation action. This national effort is subject to increased ambition with international supports in finance, technology and capacity building. The country also indicates further adaptation and cross-cutting priorities, such as developing modelling capability, early warning

⁶ World Bank, <http://data.worldbank.org>, accessed Aug. 2016

⁷ World Bank, <http://www.doingbusiness.org> accessed Aug. 2016

⁸ [Global Climate Risk Index 2016](#)

⁹ Office of Natural Resources and Environmental Policy and Planning, (2015), Thailand's First Biennial Update Report. Bangkok, Thailand

systems, surveillance networks as well as strengthening disaster risk reduction to help improving resilience to climate change impacts.

Considering the climate risks, Thailand is highly vulnerable to adverse impacts of climate change, particularly sea level rise and coastal zone erosion. The country has experienced steady increases in average temperatures and average precipitation levels over its landmass, leading to a higher incidence of floods and droughts. Adaptation is therefore emphasized as the national priority in Thailand's national response to climate change. The country's adaptation plan mainly focuses on water resource management, ensuring food security, sustainable agriculture, managing health impacts of climate change, marine conservation and coastal rehabilitation, increasing forest cover, biodiversity protection, sustainable tourism, and human security.

3. ROLES AND CONTRIBUTIONS OF KEY STAKEHOLDERS

In 2007, Thailand established the National Committee on Climate Change Policy (NCCC) at the national level. The NCCC is chaired by the Prime Minister and has members from the public and private sectors, and academic institutions. The NCCC has the mandate to define national climate policies. The NCCC is composed of four subcommittee: (1) Subcommittee on Climate Change Policy and Planning Integration; (2) Subcommittee on Climate Change Knowledge and Database; (3) Subcommittee on Climate Change Negotiation and International Cooperation; and (4) Subcommittee on Public Relations and Actions for Climate Empowerment.

The Subcommittee on Climate Change Policy and Planning Integration's roles are to provide comments on policy integration, strategy and planning that are linked with climate mitigation and adaptation; provide suggestions on mechanism and measures, including law regulations and financial measures; and push forward an integrated budget allocation system on climate change. The Subcommittee appointed a "Screening Committee for Project Financial Support under the International Framework" chaired by Secretary-General of the Office of Natural Resources and Environmental Policy and Planning (ONEP). The members of the Screening Committee include experts from different line ministries. The main task of the Screening Committee is to ensure that the proposed projects are in line with the country's priorities and strategies on climate change as well as other related policies, thus responsive to country needs. The Screening Committee will also contribute to enhancing the paradigm shift potential for achieving sustainable development goals and fulfilling Thailand's contributions to international climate change agreements. The Screening Committee also provide guidance and recommendation on the TCP on climate change, review project proposals and prioritise

projects that are proved eligible to receive international support, especially from the Green Climate Fund (GCF) which is established as the financial mechanism under the United Nations Framework Convention on Climate Change (UNFCCC) to help developing countries reduce their greenhouse gas (GHG) emissions and adapt to climate change. Figure 2 shows core institutional arrangements for coordinating, screening and approving internationally funded climate change projects/programmes in Thailand.

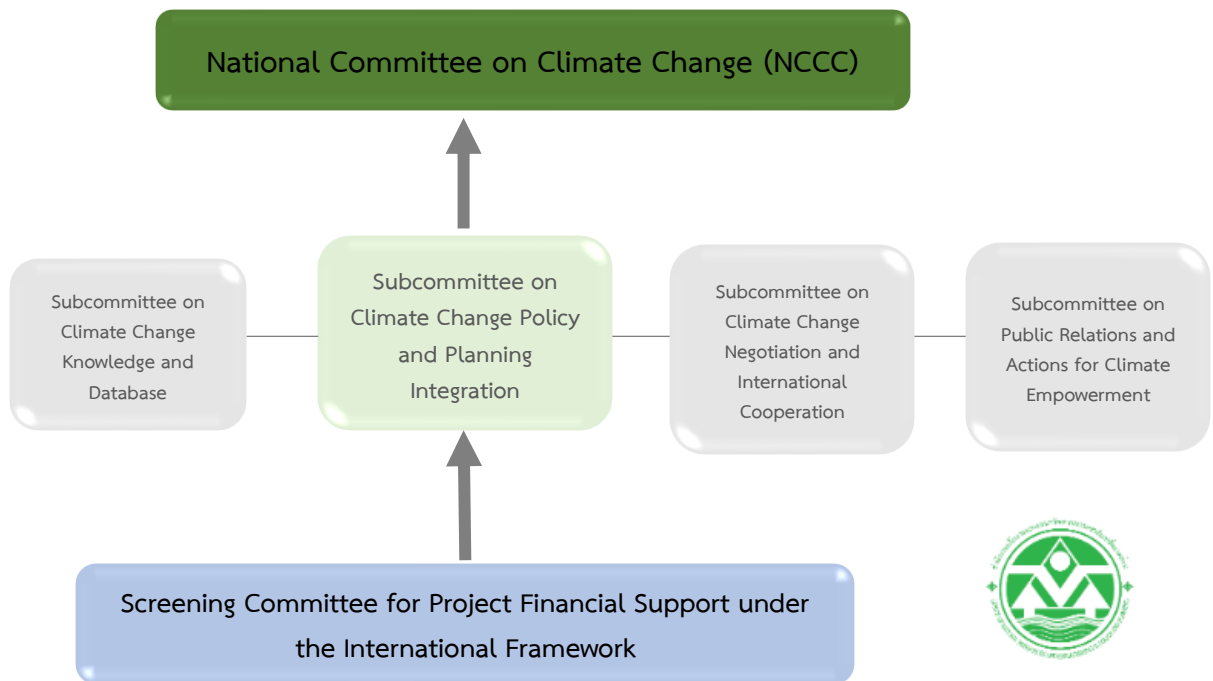


Figure 2: Institutional arrangement for the Thailand Country Programme development and implementation in Thailand.

The Office of Natural Resources and Environmental Policy and Planning (ONEP), under the Ministry of Natural Resources and Environment (MoNRE), is Thailand’s national focal point to the UNFCCC. The ONEP takes a leading role in the development and oversight of national climate policies and strategies, while providing the needed support to implementation of the strategies and policies at the sectoral and subnational levels. The ONEP also acts as a focal point in coordinating potential and received international support related to climate change including the GCF, the Adaptation Fund (AF), the Nationally Appropriate Mitigation Actions (NAMA) Facility, and the International Climate Initiative (IKI). In addition, the ONEP serves as the point of communication with climate-related stakeholders, including donors, international partners, national and sub-national agencies, private sector, academia, and civil society, to ensure that all supported initiatives are aligned with country needs, priorities, and existing national climate change strategies.

4. MEASURES REQUIRED FOR FINANCIAL SUPPORT IN CLIMATE CHANGE

1.1 Climate Change Adaptation

1.1.1 Creating an Enabling Environment

1) Information Management on Climate Change Adaptation

a. Information exchange and Database Management Systems (DBMS) of climate change adaptation.

b. Regional cooperation in developing databases and/or Monitoring and Evaluation (M&E) systems for climate change adaptation.

2) Climate Projection and Risk Assessment

a. Tools and techniques for weather forecasting and climate projection.

b. Climate risk assessment and risk mapping for national agencies using a variety of techniques and approaches, including advanced computation and pragmatic research paradigms.

3) Early Warning Systems and Surveillance Networks for Climate Change-Related Disaster Relief

a. Early warning systems and surveillance networks to enhance adaptive capacities to climate change-related disasters.

b. Preventative and responsive measures for climate change-related disaster across all sectors, especially the health, agriculture, tourism and human settlement.

c. Deployment of new technologies and local wisdom for climate change disaster relief.

4) Climate Insurance Scheme

a. Climate insurance scheme for natural disasters and comprehensive risk management throughout the supply chains and product-service systems.

b. Financial, investment, and marketing schemes and mechanisms supporting climate insurance schemes for the agricultural, tourism, health, industrial, residential and commercial sectors.

5) Awareness-Raising and Capacity-Building for Climate Change Adaptation

a. Communication, Education, and Public Awareness (CEPA) programmes on the impacts, risks and opportunity costs arising from climate change.

b. Research and Development (R&D) and training on technology, techniques and knowledge base required for adaptation.

c. Transfer of knowledge and local wisdom along with the creation of adaptation collaboration network with community-based approach.

- d. Stakeholder engagement to raise awareness and build the adaptive capacities.

6) Private Sector Engagement on Climate Resilience

- a. Promote Risk-Informed Decision-Making (RIDM) and private sector investments to limit disaster losses. This will secure business continuity and stability amidst the climate events while also providing new business opportunities.
- b. Reduce vulnerability and enhance adaptive capacity in the private sector, particularly among marginalized communities (socially disadvantaged communities), women, migrant workers, the urban poor, indigenous peoples, the elderly, and children.

7) Tools and Instruments for Climate Change Adaptation

- a. Financial mechanisms and national budgetary provisions to promote the development of climate resilience projects and / or programmes.
- b. Domestic and international financial tools and mechanisms for adaptation.
- c. Decision making tools for adaptation initiatives, such as Strategic Environmental Assessment (SEA), Cost-Effectiveness analysis (CEA), Cost-Benefit Analysis (CBA), and Multi-Criteria Analysis (MCA).
- d. Market-based Instruments (MBIs) or Economic Incentives (EI) to promote investment in adaptation.
- e. Climate finance tracking and monitoring programmes to analyse and evaluate access to international financing for adaptation (as an index flow of international funding under Thailand's adaptation plan).
- f. Handbooks to support the government agencies, planners, and stakeholders required to conduct needs assessments and develop technological action plans, to maximise best practices and access to multilateral and bilateral sources of international funding.

1.1.2 Climate Change Adaptation Priority Areas

1) Water Resources, Flood and Drought Management

- a. Management of water resources and river basins (including consideration of water footprint standard models) to facilitate effective water distribution along with flood and drought preparedness.
- b. Management of water retention areas and prevention of significant change in land use in lowlands to increase the efficiency of water management.
- c. Integrated Water Resource Management (IWRM) in conjunction with land use planning to reduce risk from flooding and drought.

- d. Participation of agricultural and general users of water in irrigated areas and collaboration with related agencies in Ecosystem-based Adaptation (EbA)
- e. Enhancing distribution networks (aqueduct or canal) and water infrastructure management for climate change adaptation.
- f. Improving retention and drainage capacities of irrigation systems.
- g. Afforestation, reforestation and ecological restoration to establish community-based disaster preparedness.

2) Agriculture and food security

- a. Enhancing disaster preparedness and adaptive capacity towards climate change impacts in the agriculture sector.
- b. Environmentally friendly agricultural produce and sustainable food security based on the Sufficiency Economy Philosophy, and the application of sustainable and precision agriculture, especially among small-holding farmers.
- c. Application of His Majesty King Bhumibol Adulyadej's New Theory on the management of land and water resources for agricultural use, to achieve proper resources allocation and economic diversity at the household level.
- d. Community forest management for sustainable food security at the community level.
- e. Development of markets and value-adding processes for agricultural produce using the latest agricultural innovations.
- f. Early warning systems, risk mapping, climate risk insurance system for crop cultivation, livestock, fisheries and establish farmers surveillance networks.

3) Tourism

- a. Ecotourism and sustainable tourism to ensure climate resilience of tourist destinations and the service sector in accordance with the Tourism Authority of Thailand's 7 Greens Concept, which are: (1) Green Heart (promote awareness); (2) Green Logistics (transportation); (3) Green Attraction (tourist destinations management model); (4) Green Communities (local tourism model); (5) Green Activities; (6) Green Service; and (7) Green Plus (social responsibility).
- b. Climate risk reduction in potential hotspots (vulnerable and major tourist destinations and / or groups) through the integration with Tourism Management Plan and Tourism Promotion Scheme.
- c. Certification standards, new activity models, environmentally friendly tourism models, and economic tools, such as the Payment for Ecosystem Services (PES) principle and insurance schemes, etc.
- d. Development and management of man-made tourist destinations to avoid adverse effects arising from climate change and limit the dependence on natural resources.

4) Public Health

- a. Climate change health impacts assessment (physical, mental and societal health).
- b. Medical services and facilities provisioning; establishing effective early warning and surveillance systems for climate-related emerging and re-emerging infectious diseases and natural disasters.

5) Natural Resources and Environment

- a. Conservation and restoration of natural resources and ecosystems, enhancing local communities' preparedness, and systematically monitoring and evaluation to increase ecological integrity.
- b. Promote sustainable utilization and adaptive capacities of the ecosystems in conservation areas, particularly the Vulnerable Ecosystems and those which are home to the IUCN Red List of Threatened Species.
- c. Marine ecosystem conservation and coastal rehabilitation research and planning to strengthen the carrying capacity and coastal protection.
- d. Natural resource and ecosystem services appraisal tools to facilitate climate change adaptation.
- e. Creating an enabling environment for natural resources and ecosystem conservation through the introduction and implementation of relevant economic instruments, wherein the private sector contributes to the Payment for Environmental Services (PES) schemes, along with implementation of other models in a similar vein (e.g. forest bonds, Reducing Emissions from Deforestation and Forest Degradation in Developing Countries Programme: REDD+)
- f. Climate change adaptation research and planning to strengthen the carrying capacity of natural resources and environmental protection.

6) Human Settlement and Security

- a. Reduction of risk, loss and damage arising from natural disasters which tend to come in two categories: 1) extreme weather events and 2) slow on-set events. This will be facilitated by enhancing the capability of national agencies, local communities, and the public, including an education system with an improved curriculum and learning environment.
- b. Resilience to future climate risks through the development of climate and disaster proof infrastructure, updating land use planning and revising building codes to suit future climate change.

c. Facilitating National Preparedness and Disaster Management Systems by developing composite index to measure climate change vulnerability, coping range, and adaptive capacity at all levels. An assessment of livelihood and ecological services value shall be made for economic analysis of local-based adaptation processes and measures.

7) Land Use Planning for Local Adaptation Plan

a. Land use planning tools which provide the local community with adaptation preparedness.

b. Decision making and management support tools enabling local decision makers and planners to effectively execute integrated adaptation action plans.

1.2 Climate Change Mitigation

1.2.1 Creating an Enabling Environment

1) Greenhouse Gas (GHG) Information Management

a. Information exchange and database management system (DBMS) of GHG management.

b. Development and implementation of GHG inventory, GHG registry, GHG Measurement Reporting and Verification (MRV) System, along with other reporting mechanisms requested by the UNFCCC. This is to increase the transparency of Thailand's GHG mitigation efforts across national, regional, and global levels.

2) GHG Reduction Policy and MRV System Development

a. GHG reduction potential and options evaluation for all sectors and subsectors, reflecting the current (baseline) level of GHG emissions.

b. GHG emission scenario and projections in order to determine mitigation options, along with the effects on abatement cost curve.

c. GHG emission Measurement, Reporting and Verification (MRV) frameworks to support the development and implementation of GHG reduction measures.

d. Institutional framework on legislation and regulations relevant to achieving the reduction target and MRV implementation.

e. Policy, standards, criteria and initiatives to mobilize Thailand's low carbon development.

3) Tools and Instruments for Climate Change Mitigation Deployments

a. Financial mechanisms and national budgetary provisions to support the development of mitigation projects and/or plans.

b. Domestic and international financial instruments and mechanisms for climate change mitigation.

c. Market-based Instruments (MBIs) or Economic Incentives (EIs) to promote low carbon investments and services that employed mitigation innovation, such as carbon pricing mechanisms (carbon tax and carbon trading), financial instruments and mechanisms, green banking, etc.

d. Decision-making support tools for mitigation initiatives, such as Marginal Abatement Cost (MAC), Strategic Environment Assessment (SEA), Cost-Effectiveness Analysis (CEA), Cost-Benefit Analysis (CBA) and Multi-Criteria Analysis (MCA), etc.

e. Climate finance tracking and monitoring programmes to analyse and evaluate access to international financing for climate change mitigation (to be used as indicators of the flow of international funding under Thailand's mitigation plan).

f. Handbooks for government agencies, planners, and stakeholders required to conduct needs assessments and develop technological action plans so as to maximise best practices and access to international funding. Such handbooks should also list the multilateral and bilateral sources of international funding.

g. Provisioning of mitigation tools and capabilities through private sector investment in all areas and sectors.

4) Awareness Raising and Capacity Building on Climate Change Mitigation

a. Campaign to raise awareness of all aspects of low-carbon development through a variety of channels to reach all target audiences.

b. Strengthen capacities and knowledge on mitigation, including the development and deployment of low emission technologies among the public, central government agencies, and local government agencies.

c. Domestic and international cooperation on mitigation via research and development, investment and technology transfer.

d. Creating an enabling environment for mitigation through the comprehensive use of public relations and communications at local level, ministry level and/or national level.

e. Capacity building and skills training for the workforce in the industrial and other sectors related with mitigation practices.

5) Private Sector Engagement in Climate Change Mitigation

a. Voluntary Emission Reduction (VER) and corporate social responsibility (CSR) mitigation activities, such as carbon offsetting, carbon labelling, participation in the voluntary carbon market, etc.

b. Enhancing the private sector's mitigation capacity through investment incentives and incentivising financial institutions to provide investment funding for mitigation projects.

1.2.2 Climate Change Mitigation Priority Areas

1) Energy

a. Implementation of low-carbon power generation approaches, energy efficiency programmes, and renewable energy utilization, in accordance with the Power Development Plan 2015 (PDP 2015), Energy Efficiency Development Plan (EEDP 2015) and Alternative Energy Development Plan (AEDP 2015).

b. Infrastructure provision and support programmes for the private sector to increase the efficiency and reduce carbon emissions in the energy sector.

c. Investment in low-carbon and environmentally friendly energy production technologies.

d. Research, knowledge and skills base concerning low-carbon innovations at all levels of the energy sector.

e. Use of environmentally friendly, waste-generated and renewable energy sources such as solar, wind, biogas, bio-waste, etc.

2) Transportation

a. Efficiency enhancement of the transportation systems and logistics networks (e.g. road, maritime and rail) of Thailand, especially in major cities.

b. Sustainable transport management through the promotion of non-motorised transport (NMT) and road-to-rail modal shift for freight and passenger transport.

c. Low-carbon transport infrastructure development at national and municipal level, such as electric vehicles (EV), mass rapid transport (MRT) and high-speed rail.

d. Investment and R&D into high efficiency and environmental friendly vehicles, such as hybrid and high efficiency engines, electric vehicles, eco-cars, including tax structures which incentivise the development and adoption of such vehicles.

e. Use of alternative energy in transportation systems, such as biodiesel, gasohol, and compressed bio-methane (CBM).

f. Incentivising a modal shift to low-carbon transportation among the general public, such as encouraging the use of bicycles, etc.

3) Energy Consumption in Buildings and Construction

a. Energy efficient technology and residential and commercial buildings management to achieve energy efficiency of cooling and ventilation systems, lighting systems (LEDs) and other home appliances.

b. Use of renewable energy in hybrid energy systems such as solar-powered heating in large and small buildings as well as implementing stricter building codes concerning energy efficiency.

c. Environmentally friendly materials, technology, design and construction approaches.

d. Research, knowledge, skills, and expertise regarding low-carbon and environmentally friendly innovations at all levels.

4) Industry

a. Energy efficiency and investment in environmental friendly industrial processes.

b. Utilization of environmentally friendly, waste-generated and renewable energy sources, such as solar energy, bio-energy, and bio-gas, etc.

c. GHG reduction in Industrial Processes and Product Use (IPPU), such as the use of environmentally friendly coolants in the food processing and cooling industry, improving the production process of the ceramics industry, etc.

d. Research, knowledge, skills, and expertise in low-carbon and environmentally friendly innovations for industrial production at all levels.

5) Waste management

a. Integrated waste management (IWM) principles across the lifecycle of waste. Prioritising the approaches and measures according to the waste hierarchy, waste reduction at the sources, and the 3 Rs (Reduce, Reuse, Recycle).

b. Manage waste and utilize suitable clean technologies by: (1) waste reduction; (2) resource maximisation; (3) waste to energy techniques, such as Refuse-Derived Fuel (RDF) production, methane recovery, etc.

c. Legislation and regulations on waste management including hazardous waste and Waste Electrical and Electronic Equipment (WEEE).

d. Research, knowledge, skills, and expertise regarding low-carbon and environmentally friendly waste management innovations at all level.

6) Agriculture

a. Low GHG emission and environmentally friendly agriculture practices resulting in environmental co-benefits, such as increased income for the farmer and reduced GHG emissions.

b. Capacity building for farmers to accommodate GHG reduction agricultural technologies, promote good agricultural practice (GAP), and reduce burning in farming processes with private sector collaboration.

c. R&D and transfer of low GHG emissions and environmentally friendly agricultural technology.

d. Agricultural productivity and efficiency enhancement to reduce cultivation area.

7) Forestry

a. Conservation, sustainable management, reforestation and afforestation to increase carbon sinks with participatory approaches and social, natural resources and environment safeguarding mechanisms.

b. National and international support on Reducing Emissions from Deforestation and Forest Degradation and foster conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD + mechanism) to ensure sustainability and co-beneficial aspects (adaptation and mitigation).

8) Urban Planning

a. Green urban planning and implementation.

b. Expansion of urban green spaces to act as carbon dioxide sinks, lessen air pollution and reduce GHG emissions in major cities.

c. Private sector and non-government organisations (NGOs) contribution to low carbon and sustainable city strategies, along with the co-benefits quantification of GHG reduction and related management for low carbon and sustainable cities (for both liveable and climate resilience cities).