GGGI Thailand Country Program

Evaluation Approach Paper

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1. Purpose of the evaluation approach paper

The purpose of this paper is to document the proposed design of the independent evaluation of Thailand Country Program and provide clarity to key stakeholders on the following aspects: program theory of change, delivered results to date, intended purpose and use of the evaluation; evaluation scope, key evaluation questions and related methodology.

2. Thailand economic, environment and social context

Prior to the Asian financial crisis in 1997, Thailand’s GDP grew at an annual average rate of 7.5% allowing the country to successfully reduce its poverty rate from 67.7% in 1986 to 35% in 1996. The rapid economic growth was driven by a major ‘structural transformation’ notably the transition from an agriculture-based economy to an industrialized one. High level of exports, mainly from manufacturing, and high public and private investment in infrastructure and capital-intensive sectors, were the major drivers of this economic transition.

The sustained economic growth in the 1980s allowed Thailand to become the second largest economy in the ASEAN region and to graduate to upper middle-income country status in 2011. Higher prosperity coupled with a relatively stable institutional setting, contributed to the country’s achievement of most of the Millennium Development Goals.

The economic crises in 1997 and 2015, and the progressive exacerbation of political instability, strongly affected Thai exports and industrial production, contributing to a drastic slowdown of the country’s economic growth. Currently, Thailand is facing a middle-income trap, suffering from lack of reforms, limited investments and decreased competitiveness compared to other ASEAN countries. The economy is still heavily relying on exports, and the services and energy-intensive industrial sector continue to be the major sources of economic growth accounting for almost 55.8 % and 35.8% of GDP in 2016 respectively.

Decades of rapid economic growth coupled with inadequate management of natural resources has had a severe negative impact on the environment. Increased GHG emissions, air and water pollution, resources depletion, biodiversity loss and deforestation are adversely affecting the country’s prosperity and further economic growth.

In particular, one distinctive aspect of Thai economic development has been the gradual and constant increase of GHG emissions. From 1990 to 2011, CO2 emissions per capita increased more than 2.5 times. Ranked 20th in total GHG emissions in the world and 5th in East Asia, Thailand’s net GHG emissions in 2011 was 234.6 MtCO2e of which 72.97% from the energy sector, 17.32% from agriculture, 5.97% from industrial process and 3.74% from waste.

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1 GGGI Evaluation Rules, July 2017
Figure 1: Total GHG Emissions (excluding LULUCF) by Sector, 2011\(^7\)

In terms of produced gases, carbon dioxide (CO\(_2\)) was the highest, accounting for 75% of all GHG emitted in 2011 while methane (CH\(_4\)) and nitrous oxide (N\(_2\)O) accounting for 19% and 6% respectively, over the same period\(^8\).

Among the economic sectors, the **industrial one is the major contributor to GHG emissions**, accounting for 27.9% of total GHG emissions in 2011. The high level of GHG emissions in the **industrial sector is mainly due to high energy consumption, especially of ‘brown’ energy**\(^9\), and **high energy intensity rate**\(^10\). During the period 2010-2014, data revealed a steady upward trend of both energy consumption and energy intensity growth rates\(^11\).

Figure 2: GHG emissions from industrial sector by source, 2011\(^12\)

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\(^7\) Idem  
\(^8\) ONEP, 'Thailand First Biennial Update Report to UNFCCC', December 2015  
\(^9\) Despite the recent increase of renewable energy use, the industrial sector still primarily relies on the use of petroleum products and coal (38% combined)  
\(^11\) Energy intensity is the proportion of energy consumption per GDP unit  
\(^12\) Derived from ONEP source - GGGI, 'NDC Industrial Action Plan', July 2017
Despite the efforts undertaken by the Royal Thai Government, the uptake of energy efficiency (EE) and renewable energy (RE) in the industrial sector is still limited. A variety of economic and non-economic barriers such as lack of knowledge, limited access to finance, weak institutional settings and policy implementation are preventing industries to reap the benefits of introducing EE/RE measures. Economic forecast and environmental data indicate that Thailand is still growing on an energy-intensive path and that energy demand will continue to grow with a consequent increase in fossil fuel imports, GHG emissions, air pollution and related health issues.

The projected increase of GHG emissions will hamper Thailand’s efforts to mitigate climate change impacts, to which it is particularly vulnerable.

IPPC analysis indicates that the annual mean temperature has risen by one degree Celsius from 1981 to 2007, and precipitation has decreased overall over the last fifty years. Increased flooding during the wet season and more severe water shortages in the dry season are already affecting the country. In 2011 a severe flood hit the country with disastrous consequences on the economy and population. Similarly, the severe drought that hit the country in 2015 has caused an estimated economic loss of 0.52% of GDP in 2015\textsuperscript{13}. As a low-lying country, Thailand is also likely to be severely affected by sea-level rise.

The predicted exacerbation of climate change in Thailand, classified as one of 16 countries in the ‘extreme risk’ category, is expected to have serious adverse implications on both future economic development and the prosperity generated by past economic growth\textsuperscript{14}.

3. Key government institutions and policies related to low-carbon growth in Thailand

The Royal Thai Government has recognised that it is fundamental to act on climate change to sustain its economic growth and modernization, keep poverty rates low and reduce income inequality. As a result, in 2007 a National Committee on Climate Change (NCCC), chaired by the Prime Minister, was set up to (i) formulate climate change strategy; (ii) determine Thailand’s national position towards international agreements; and (iii) monitor and evaluate implementation of national climate change initiatives.

The NCCC is supported by three sub-committees, namely the Integrated Policy and Plan Sub-Committee, Technical and GHG Database Sub-Committee, and Coordination and Negotiation Sub-Committee. The overall institutional setting is shown in the figure below\textsuperscript{15}.

\textsuperscript{13} ONEP, ‘Submission by Thailand of Intended Nationally Determined Contribution and relevant Information’, October 2015
\textsuperscript{14} Idem
\textsuperscript{15} ONEP, ‘Thailand First Biennial Update Report to UNFCC’, December 2015
The Ministry of Energy and the Ministry of Industry in cooperation with the Office of Natural Resources and Environmental Policy and Planning (ONEP) play a crucial role in the management of the GHG emissions reduction in the industrial sector.

In addition to a solid institutional framework, a variety of reforms and initiatives have been pursued by the government to deal with climate change at both national and international level.

At national level, the following policies and plans have been guiding the country in its efforts toward a more sustainable development path:

- The **Twenty-Year National Strategy (2017-2036)** sets targets related to six major development areas including ‘environmental friendly growth’. The Strategy is implemented through five-year National Economic and Social Development Plans (NESDPs) guiding budget planning and allocation as well as detailed implementation by relevant ministries and downstream organisations. The current **12th NESDP (2017-2021)** is meant to guide Thailand to become a low carbon society and it includes, among its priority areas, ‘Green growth and sustainability’ and ‘Infrastructure and logistic development’. As for green growth, the strategy aims to reduce GHG emissions by 7-20% by 2020 (compared to BAU-2005) and increase climate resilience and adaptation. In the area of ‘Infrastructure development’, the strategy promotes the reduction of the country’s energy intensity from 8.22 to 7.70 ktoe/billion baht and the increase of renewable energy use by 17.34% by 2021 (compared to BAU-2005).

- The **12th NESDP objectives** are consistent with the **Climate Change Master Plan (2015-2050)**. The Master Plan is a long-term policy framework based on the following three
pillar strategy: adaptation, mitigation of GHG emissions and strengthening of human resources and institutional capacities. In terms of mitigation, the Master Plan promotes: participation of every sector and level in reducing greenhouse gas emissions; efficient use of energy and resources; and knowledge development on environmentally-friendly manufacturing processes, consumption and services. The Master Plan also sets the following targets: 7-20% reduction by 2021 of overall GHG emissions compared to BAU projections (2005), and 25% share of renewable energy in the energy supply and 25% of energy intensity reduction by 2030.

- In addition to the above high-level strategies and policies, the Royal Thai Government is also implementing more specific action plans namely: the ‘Energy Efficiency Plan’ (EEP) (2015-2036), the ‘Alternative Energy Development Plan (AEDP)’ (2015-2036), and the ‘Power Development Plan (PDP)’ (2015-2036). The AEDP and the PDP set targets for the use of renewable energy as follows: 30% renewable in the final total energy consumption by 2036 and 20% share of power generation from renewable sources by 2036. The Energy Efficiency Plan sets a target for energy intensity reduction of 30% by 2036 (baseline 2010) to be achieved in four economic sectors: industry, commercial and government buildings, residential and transport. As for the industry sector, the EEP identifies several prioritized activities such as enforcement of the Energy Efficiency Resource Standards (EERS) for large energy producing businesses, including the electricity supply industry, allocation of subsidies for energy savings and/or peak load reduction, benchmarking energy intensity, strengthening energy service companies (ESCOs), providing information on energy efficiency measures and technology and providing training courses for professionals in the field of energy efficiency. For the period 2011-2015, the Thai government has allocated THB 29.5 billion of which 37% went to the industry sector to support the implementation of the above energy efficiency measures.

- The Royal Thai Government has also adopted the ‘Thai Economy 4.0: Transforming toward a Value-Based Economy’ focusing on innovative industries and services. This policy emphasises the need for the industrial sector to become ‘greener’ and more competitive by using resources and energy more efficiently and effectively.

At international level, the Royal Thai Government is strongly committed to deliver on the Sustainable Development Goals (SDGs), which are well integrated in the 12th NESDP strategy, and to achieve the Nationally Appropriate Mitigation Action targets which include the reduction of GHG emissions by 7-20% by 2020 (compared to BAU-2005).

More recently Thailand has confirmed his commitment to fight climate change by ratifying the Paris Agreement and submitting its Intended Nationally Determined Contribution (INDCs). The country has set a new ambitious GHG emissions reduction target namely 20% decrease from projected business-as-usual (BAU 2005) level by 2030. Subject to adequate support by the international community\(^{16}\), the target could increase up to 25%. Since May 2016, the country has been working on developing an ‘NDC Roadmap’ covering four key economic sectors: 1) electricity generation, 2) residential and commercial buildings, 3) transportation and 4) industry. The roadmap has been approved by the National Climate Change Committee and by the Cabinet.  

\(^{16}\) ONEP ‘Thailand Intended Nationally Determined Contribution (INDCs) submission to UNFCCC’ October 2015
4. Key donors and organizations focusing on climate change and industrial sector

Thailand’s efforts in implementing climate change adaptation and mitigation measures have been supported by several international and bilateral initiatives. Projects related to climate change mitigation include: UNDP ‘Low emissions capacity building program (LECB)’, GEF ‘Industrial Energy Efficiency (IEE) project’, IKI ‘Support to the development and implementation of the Thai Climate Change Policy’, Switch-Asia (EU) ‘Promoting sustainable production and consumption: policy component’ and GIZ ‘Greening Supply Chains in the Thai Auto and Automotive parts industries’. These projects focus on aspects that are complementary to GGGI’s activity areas.

5. GGGI Country program in Thailand

GGGI cooperation with the Royal Thai Government started in August 2014 with the implementation of the project ‘Industry Greenhouse Gas Reduction Roadmap to support implementation of Thailand Climate Change Master Plan’. The project, financed by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) under the International Climate Initiative, ended in July 2016 with the successful delivery of the ‘Thailand GHG Reduction Roadmap’. In September 2015, GGGI’s partnership with Thailand was further consolidated by the signing of a five-year Memorandum of Understanding on Green Growth Cooperation. In November 2015, with the Cabinet approval, Thailand become the 26th member of GGGI.

Since 2014, GGGI has been implementing the following projects:

- **Industry Greenhouse Gas Reduction Roadmap to support the implementation of Thailand’s Climate Change Master Plan (2014-2016):**

  The GHG Emissions Reduction Roadmap provided technical and policy recommendations on how the Government and industrial sectors could jointly create the right policy and business environment. It also identified potential GHG reduction targets to drive GHG emission abatement measures, particularly energy efficiency measures.

- **Accelerating implementation of Thailand Nationally Determinate Contribution (2016-Ongoing):**

  GGGI is assisting the Office of Natural Resources and Environmental Policy and Planning (ONEP) in mainstreaming the high-level emissions reduction targets set in the Thailand NDC roadmap into more specific industrial action plans. In this respect, the project is expected to develop an NDC Action Plan for Industrial Sector focusing on energy efficiency improvement (completed), to demonstrate the development of bankable green projects and to provide capacity building to both government and private sector on NDC targets implementation.

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17 The full list of projects related to climate change adaptation and mitigation implemented in Thailand from 2012 to 2017 is available in ONEP, ‘Thailand First Biennial Update Report to UNFCC’, Appendix 2, December 2015
18 More detailed information on LECB available at [http://www.lowemissiondevelopment.org/lecbp/countries/thailand](http://www.lowemissiondevelopment.org/lecbp/countries/thailand)
19 More details about IEE are available at: [https://www.thegef.org/project/cf-industrial-energy-efficiency-0](https://www.thegef.org/project/cf-industrial-energy-efficiency-0)
20 More detailed information about this project is available at: [www.giz.de/en/worldwide/45116.html](http://www.giz.de/en/worldwide/45116.html)
21 More details about this project are available at: [www.scp-thailand.info/index.php](http://www.scp-thailand.info/index.php)
22 More information about this project is available at [www.thai-german-cooperation.info/project/content/9](http://www.thai-german-cooperation.info/project/content/9)
Thai auto parts supply chain development through energy efficiency (TAPEE) (2016-Ongoing):

The TAPEE project aims to mobilise energy efficiency investments in the auto parts manufacturing sub-sector by setting up a risk-sharing facility and an on-bill repayment mechanism.

Currently, GGGI is also designing a project to strengthen Thailand’s GHG monitoring, reporting and verification (MRV) system.

From 2014 to 2017 the total budget – earmarked and core\(^23\) – allocated to deliver the above projects has been 2,375,000 USD.

In addition to the above projects, in July 2017 the Thailand Country Planning Framework (CPF) was approved with the aim of guiding the Thailand-GGGI partnership on green growth from 2017 to 2021. Based on an extensive consultation with Thai stakeholders from across the government, financial institutions, civil society and private sectors, the CPF outlines two strategic outcomes:

- **Outcome 1.** ‘Increased investment in renewable energy and energy efficiency in the industrial sector’ and
- **Outcome 2.** ‘Green city development in Thailand’s Special Economic Zones results in low-carbon, climate-resilient and liveable cities that contribute to sustainable economic development and fair regional income distribution\(^24\).’

The identified outcomes are in alignment with the national goals related to economic growth, poverty reduction, social inclusion and environmental sustainability as outlined in 12\(^{th}\) NESDP, Thailand 4.0 and Thai international commitments under the SDGs and NDCs. The work delivered by GGGI since 2014 is contributing mainly to outcome 1 while for outcome 2 the country team is expected to develop more specific projects under GGGI’s Work Program and Budget 2019-2020.

### 5.1 Key program stakeholders

GGGI has been closely working with a variety of stakeholders including government officials, private sector and academia representatives to identify, develop and implement its projects.

The Office of Natural Resources and Environmental Policy and Planning (ONEP), under the Ministry of Natural Resources and Environment, has been the main counterpart for the implementation of the projects: ‘Industry Greenhouse Gas Reduction Roadmap to support implementation of Thailand’s Climate Change Master Plan’ and ‘Accelerating implementation of Thailand Nationally Determined Contribution’. In particular, ONEP has played a key role in chairing the Steering Committee that oversaw the implementation of the GHG emissions reduction Roadmap which included, among others, representatives from Ministry of Energy, Ministry of Industry, the Prime Minister’s Office, Thailand Greenhouse Gas Management Organisation (TGO - Public Organization) and the Federation of Thai Industry\(^25\). As for the ‘Thai auto parts supply chain development through energy efficiency (TAPEE) project’ in addition to ONEP another key

\(^23\)The program was financed with BMUB earmarked funds (2,118,000 USD) from August 2014 to July 2016 and from August 2016 onward with core funds (256,250 USD)


\(^25\)A similar steering committee has not been constituted for the project ‘Accelerating implementation of Thailand Nationally Determinate Contribution’
counterpart is the Provincial Electricity Authority (PEA). A detailed description of the stakeholders’ mandates and roles within GGGI projects is provided in Annex I.

5.2 Thailand country program Theory of Change

The program is based on the theory that an effective implementation of energy efficiency (EE) and renewable energy (RE) measures would allow the industrial sector to reduce its energy intensity and brown energy consumption and therefore significantly contribute to the national GHG emissions reduction target namely 20-25%, compared to 2005 BAU, by 2030. To achieve this goal, the country’s institutional, policy, financing and capacities in relation to EE and RE need to be improved and strengthened.

GGGI’s contribution to the achievement of Thailand’s NDC emissions reduction target, consists of expert guidance and technical inputs to enhance the institutional and policy setting, financing mechanisms and capacities. The interventions in these complementary areas is assumed to reduce the economic and non-economic barriers to the uptake of EE and RE in the industrial sector. The targeted beneficiaries are government officials and industrial sector stakeholders.

The following diagram shows the impact pathway of the program. A more detailed version is available in Annex I.

26 According to the Thai National NDC Roadmap, the energy in industrial sector will be the most crucial contributor in helping the country achieving its NDC targets, with expected contribution of approx. 8% of GHG reduction from the total of 20% target. Reference, GGGI ‘NDC Industrial Action Plan’, 2017
Thailand Country program: Impact Pathway

Industrial GHG emissions reduction contributes by 8% to the 20% NDC GHG emissions reduction target by 2030

Energy efficiency increased in the industrial sector

Use of renewable energy increased in the industrial sector

Enhanced institutional and policy environment enables the industrial sector to improve energy demand and consumption management

Improved investment environment attract up to USD 33M in green projects in industrial sector from private and public sector

Government officials and industries are able to take informed decisions on GHG emissions reductions measures

Innovative financial instruments are operational and effectively reducing economic barriers to investment in EE and RE in the industrial sector

GHG emissions reduction Roadmap developed and endorsed

NDC Industrial Action plan developed and endorsed

Capacities and knowledge improved through training programs on GHG emissions reduction cost/benefits, NDC implementation and green bankable projects

Energy efficiency risk sharing facility established and endorsed

2 green bankable projects identified, project proposals prepared and financially matched

High level climate change policies are effectively implemented through actions plans in industrial sector

Government officials and industries are able to take informed decisions on GHG emissions reductions measures

On a bill repayment (OBR) mechanism established and endorsed

Development, economic growth and sustainability diagnosis

Sectoral green impact assessment

Macro economic impact assessment

Policy and institutions analysis

Analysis of costs and investment requirements

Development of sectoral/sub-sectoral investment plans and selection

Design: Project and policy preparation

Financing: Identification of possible financial structure

Implementation

Policy pillar

Financing pillar

Capacity building pillar

Diagnosis

Green impact assessment

Sector/Sub-sector strategy & planning

Design, financing & implementation
5.3 GGGI implementation approach, evidence and assumptions underpinning the Theory of Change

Numerous studies conducted under the aegis of the IPCC, indicate that the provision of energy services and specifically the intensive use of fossil fuels, has significantly contributed to the historic increase of anthropogenic GHG concentrations in the atmosphere. In this respect, an enhanced use of energy efficiency (EE) and renewable energy (RE) has been indicated as fundamental to decouple energy consumption and levels of GHG emissions.

The shift from a carbon-energy intensive economy to a more energy efficient and greener one requires a holistic approach involving policies, financing and capacity aspects, as described in many research and best practices studies.

Reducing the institutional, policy, financing and capacity barriers to enable greater uptake of EE and RE in the industrial sector - one of the main economic drivers in Thailand – constitutes the core of GGGI’s intervention in the country. GGGI believes, based on analysis undertaken, that the creation of a more conducive environment, where the industrial sector has easier access to increased finance, better knowledge about energy efficiency/renewable energy/GHG emissions nexus and improved support by well-coordinated government agencies, would lead to more effective implementation of energy efficiency and renewable energy measures and ultimately to a decrease of GHG emission in the industrial sector.

How it will work

A. GGGI work at policy and institutional level: developing industrial sector action plans to implement the national high level GHG emissions targets (GHG emissions reduction roadmap and NDC Industrial Action Plan)

In 2015, the Royal Thai Government adopted the Climate Change Master Plan (2015-2050) which sets the overall national GHG emissions reduction target at 7-20% by 2021 compared to BAU projections (2005) and the energy intensity reduction target in all productive sectors at 25% compared to BAU (2005) by 2030. It also indicates the need to: a) identify GHG emissions reduction targets and capability related to green energy and energy conservation by 2020, b) promote the development, use and improvement of GHG emissions models in all sectors, and c) encourage participation from businesses and the general public with respect to developing climate change related plans.

29 IPCC,’Renewable energy and climate change mitigation, Special report for the IPCC, 2012
From August 2014 to July 2016, GGGI has been working on developing an ‘Industry Greenhouse Gas Reduction Roadmap to support the Implementation of Thailand’s Climate Change Master Plan’ (the ‘Roadmap’) with the specific objective of cascading the high-level Climate Change Master Plan targets and priorities into executable sector-based plans.

More specifically the Roadmap focuses on three industrial sub-sectors: automotive parts production, frozen seafood and palm oil.

Completed in January 2016, the Roadmap provides:

- Findings related to GHG emissions data availability and recommendations on how to improve data collection, data quality and the institutional setting
- Specific GHG emissions reduction action plans for the automotive parts production, frozen seafood and palm oil industries. The action plans advise the government to establish voluntary Long-Term Agreements with each sector to define specific short-medium and long-term targets and actions to reduce their emissions
- Over-arching recommendations on institutional setting, knowledge improvement of relevant stakeholders and assessment of the current financial support schemes.

The overall methodological approach adopted in developing the sub-sector action plans has been endorsed by the main project stakeholders and considered as replicable for other sub-sector industries.

In addition to the Roadmap and following the Paris Agreement, GGGI has extended its work to support implementation of Thai INDCs.

The country has set a new ambitious GHG emissions reduction target namely 20% decrease from projected BAU level (2005) by 2030. Subject to adequate support by the international community, the target could increase up to 25%. Since May 2016, the government has been working on developing a national ‘NDC Roadmap’ covering four key economic sectors: 1) electricity generation 2) residential and commercial buildings, 3) transportation and 4) industry.

A systematic approach for the actual implementation of the NDC Roadmap is lacking. There is a need to translate the economy-wide NDC targets into sectorial targets, mainstream them into specific plans and develop implementation mechanisms.

Building on the GHG emissions reduction Roadmap, GGGI has closely worked with ONEP to provide

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32 The development of the sub-sector action plans has been underpinned by two additional studies related to emissions projections (Emissions Projection Report - EPR) and analysis of the most cost-effective measures to reduce GHG emissions (Technical and Economic Analysis Report - TEAR). Based on these analysis, for all sectors the most recommended cost-effective measures to reduce GHG emissions are related to energy efficiency

33 GGGI developed the Roadmap in close consultation with the members of the Project Steering Committee (PSC) and with wider audiences participating in the six workshops GGGI organised on the GHG emissions reduction issue

34 ONEP ‘Thailand Intended Nationally Determined Contribution (INDCs) submission to UNFCCC’, October 2015
expert guidance on how to cascade NDC Roadmap targets into industrial sector plans. In this respect, a specific ‘NDC Industrial Action Plan’ focusing on energy efficiency improvement has been completed and submitted to ONEP in February 2017. Based on the initial consultation with relevant stakeholders and past analysis, the Plan provides recommendations on actions to be undertaken in the medium and long-term to achieve the NDC targets for the industrial sector. Recommendations are grouped in 4 categories: Institutional and regulatory arrangements, government system and resource development, further studies for sub-sector specific approaches and knowledge and capacity building.

Both the Roadmap and the NDC Industrial Action plan suggest the Government to negotiate voluntary Long-Term Agreements\textsuperscript{35} with the industrial sector to define short, medium and long-term targets and actions to reduce GHG emissions.

Energy-related VAs (e.g. covering energy efficiency or GHG emissions) between government and industry have been used since the 1990s and there is an extensive experience with and analysis of the effectiveness of such agreements. In this respect, there are widely differing views on the environmental effectiveness of VAs. Some governments and industry indicate that they are highly effective in reducing GHG emissions while others are much more sceptical of their real impact\textsuperscript{36}. The UNFCCC indicates that those VA’s which have a target negotiated between governments and industry appear to be most effective.

It is generally considered difficult to assess and compare the environmental effectiveness of VAs due to their different structures and different implementation contexts and sectors. However, it is widely recognised that VAs can have very positive non-environmental effects in terms of raising awareness of climate change issues and mitigation activities within industry, both at management and operational levels, and in creating a good environment for a positive dialogue between industry and government.

The Royal Thai Government, in particular the Department of Alternative Energy Development and Efficiency (DEDE) in the Ministry for Energy, already operates a few voluntary agreements especially in the area of energy efficiency and has experience in this area.

Based on the theory of change, the implementation of both the Roadmap and the NDC industrial action plan will require the following preconditions:

- Definition of clear responsibilities between ONEP and the line Ministries for an effective implementation of the actions recommended in the Roadmap and in the NDC industrial action plan
- Strong engagement and agreement between government and industrial sector on actions needed to implement the Roadmap and NDC Industrial Action Plan and in particular to agree on establishing and operationalising the Long-Term Agreements.

\textsuperscript{35} In the international literature, these agreements are also referred as ‘voluntary agreements’ or ‘negotiated agreements’

B. At financing level: increasing investments in EE and RE in the industrial sector by improving access to capital and reducing risk perception (TAPEE and green bankable projects)

Despite the efforts and success of the Thai Government’s financing mechanisms\(^{37}\), limited access to capital and the perception that EE/RE investments are of high-risk still constitute relevant barriers to a greater uptake of EE and RE in the industrial sector\(^{38}\) and in particular by SMEs.

In this respect, one of the supporting measures indicated in the ‘**GHG emissions reduction roadmap for the automotive parts industry**’ is to attract national and international financing to reduce high operating/capital costs and/or risks\(^{39}\). This recommendation is echoed in the ‘**NDC industrial Action Plan**’ where the necessity of establishing innovative financing mechanisms to attract national and international financing is listed as part of the long-term actions to be undertaken to achieve INDC targets in the industrial sector.

In line with these recommendations, GGGI is currently working with ONEP and other relevant stakeholders to: a) improve access to capital for energy efficiency projects by SMEs in the automotive parts sector (TAPEE program) and b) develop two green bankable projects to attract financial stream from potential financiers.

This is a clear example of GGGI moving along the value chain: from developing actions plans to implement them by raising investments.

In terms of expected outputs, GGGI is currently working on:

1. Developing **2 green projects**\(^{40}\) that cumulatively reach USD 3M of financial deals. GGGI will identify potential green projects, prepare high quality proposals or business plans and match them with potential investors and financiers.

2. Designing an **energy efficiency risk-sharing facility** for Thai auto parts industry. This sectoral, dedicated facility is intended to encourage local financial institutions to invest in energy efficiency project upgrades and if appropriate, it will include a guarantee fund with concessional

\(^{37}\) The Thai government has been operating energy conservation financing schemes since the 90s following the adoption of the Energy Conservation Promotion Act and the establishment of the ENCON fund. The latter was disbursed through different channels and in particular, through the Energy Efficiency Fund (EERF) and the ESCO fund. The EERF (2003 -2011), initially endowed with USD 50 million, was established to increase the availability of debt financing for EE and RE projects while reducing the borrowing costs for projects from ‘designated’ large ‘energy consuming’ facilities. Based on the amount of mobilised investments (USD 521 million), the EERF was quite successful in stimulating local banks’ financing and in sustaining around 294 projects that contributed to 0.98 million ton CO2eq GHG emissions reduction. The ESCO fund (2008 – 2013), endowed with USD 15 million, was established to support SMEs and ESCOs to access and leverage capital for EE/RE projects. Funds were channelled through various mechanisms: equity investments, venture capital, equipment leasing, carbon markets, technical assistance and credit guarantee facilities. By 2012 the fund proved to be successful with the financed EE/RE projects projected to create energy savings of 23.97 ktoe/year. References: World Bank, ‘Thailand: Clean energy for green low-carbon growth’, 2011 and CCAP, ‘Case Study: Thailand Energy Conservation ENCON fund’, 2012

\(^{38}\) GGGI ‘Industry GHG Reduction to support the implementation of Thailand’s climate change master plan: Technical and Economic analysis’, October 2015

\(^{39}\) Idem, page. 60

\(^{40}\) Currently the country team is working on the identification of a list of suitable green projects. Those projects may focus on renewable energy or energy efficiency.
finance targeted at reducing credit risks of borrowers. GGGI is closely working not only with local FIs but also with the MDBs and climate funds such as the Green Climate Fund (GCF) for the operationalisation of the facility. (TAPEE)

3. Carrying out energy audits to create a pipeline of 200 bankable EE projects ready for investment within the energy efficiency risk sharing facility. (TAPEE)

4. Designing on a bill repayment mechanism (OBR)\(^{41}\) initially targeting the Thai auto parts industry and later extended to other industries. (TAPEE)

Figure 4: TAPEE Business Model

All combined, the above outputs are expected to mobilise USD 33 M in energy efficiency and renewable energy investments by 2030.

International experience shows that there have been successful cases of risk sharing facilities in developing and emerging economies, with comparisons limited by risk sharing facilities being structured in different ways to respond to local contexts and sectors\(^{42}\).

The limited review of the effectiveness of on-bill repayment mechanisms shows that the instrument has great potential to promote energy efficiency, especially for SMEs, and mostly in those contexts

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\(^{41}\) The OBR is a mechanism which enables building owners to repay loans for eligible energy efficiency and renewable electricity generation projects through their monthly utility bills.

Based on the theory of change, the mobilisation of EE/RE investments will require the following preconditions:

a. For implementation of EE risk sharing facility:
   - Climate funds are committed and disbursed
   - Local FIs provides loans to implement EE projects proposed by automotive parts SMEs and ESCOs
   - SMEs and ESCOs propose eligible EE projects
   - Energy audits are successfully performed with respects of international standards

b. For implementation of OBR mechanism:
   - The legal framework for the OBR implementation is in place
   - PEA successfully lead the OBR operationalisation
   - ESCOs and end users opt in the OBR mechanism

c. For Green projects:
   - National or international funds are committed to finance 2 green bankable projects

C. At capacity building level: raising awareness and improving knowledge about GHG emissions mitigation and energy use nexus

Awareness and access to technical knowledge are considered fundamental to mobilise relevant stakeholders toward a greater uptake of energy efficiency and renewable energy. Implementation of action plans and access to financing instruments are possible only if relevant stakeholders understand the overall EE/RE economic and environmental cost/benefits.

Based on the Technical and Economic Analysis conducted by GGGI, the consulted stakeholders indicated ‘lack of knowledge of abatement measures’ as one of the major barriers to implement EE/RE measures in the industrial sector.

In this regard, GGGI has delivered six awareness rising and capacity building workshops. Three of them have targeted a general audience including government officials, NGOs, industries representatives, academia while the other three targeted stakeholders from the palm oil, automotive parts and frozen

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More capacity building activities are planned to be delivered on NDC implementation and on preparation of green projects in 2018.

Based on the theory of change, improved knowledge on GHG emissions mitigation measures and energy use nexus requires the following preconditions:

- Relevant and influential stakeholders attend the provided trainings
- Provided knowledge is relevant and fits the audience’s needs and background

**Assumptions**

The above theory of change is based on a set of assumptions. The achievement of the desired outcomes is believed to happen if the following conditions hold true:

- Political commitment to GHG emissions reduction is maintained at national and international level
- Political willingness to enforce and reform, if necessary, recommended policy measures and regulatory arrangements remain
- Key decision makers and staff in both government and industrial sector do not undergo to a substantial reshuffling
- Engagement between the government and the industries remains strong
- SMEs retain staff able to understand government directions, policy enforcement and financing opportunities (costs/benefits)
- Banks and financial institutions maintain their commitments to expanding their business to industries for the implementation of energy projects
- Access to financing opportunities and information continue to target the right audience
- The current level of government incentives remains stable or increases
- The industry sector continues to be a priority sector for the government
- Interest rates remains attractive for investments
- Energy price remains high, ensuring energy efficiency measures are still attractive
- Access to affordable energy efficiency and renewable energy technology increases
- The economic situation in Thailand remains stable
- Willingness of the relevant stakeholders to attend training and to use the acquired knowledge
remains

- GGGI program budget is available and remains stable
- Strong technical support continues to be provided by relevant GGGI units
- Strong coordination between the country office and HQ remains
- Unchanged strategic directions for the country program

6. Evaluation design and workplan

6.1 Evaluation objective

The evaluation objective is to:

1. Assess the performance of GGGI’s Thailand Country Program, including its impacts to date and the robustness of its theory of change; and
2. Make actionable recommendations to further improve its current and future delivery approach and impact.

The main audience of the evaluation will be key Thai stakeholders, GGGI’s management, Country Team, and members of the Management and Program Sub-Committee (MPSC).

The period to be covered by the evaluation is 2014 – 2017.

6.2 Approach and methodology

The evaluation is expected to combine the following approaches:

1. A goal-based approach to measure the extent to which the program is attaining its objectives through the delivery of outputs. This approach should be mainly used for those parts of the program for which outputs have been already completed and endorsed by GGGI main counterparts.
2. A theory of change based approach to test the overall robustness of the country program’s theory of change and specifically focus on those parts of the program that are still at an early stage of delivery.
3. A utilisation-focused approach. This approach should guide the evaluator to fulfil the final objective of the evaluation namely developing practical recommendations for the country team, Thai stakeholders and GGGI management team to further improve the current and future delivery approach and impact.
6.3 Key Evaluation Questions

As envisaged in the TOR, the evaluation should address the following Key Evaluation Questions (KEQs):

A. How relevant and significant is GGGI program to the Thai Government’s national and international green growth and climate change priorities? The aim of this question is to investigate how GGGI interventions fit within the overall policy and institutional context and to what extent they fulfil the Government stakeholders’ needs.

B. How effectively and efficiently are the program and its related outputs being implemented by GGGI and its main counterparts? This section seeks to better understand the program’s performance and the progress made to date. Specific issues to look into include: output delivery and outcome achievements, effective use by stakeholders of GGGI’s inputs, output quality and accessibility, GGGI’s relationship with main counterparts, innovative approaches used by the program and risk management.

C. Is the program bringing about the desired policy, institutional and financial changes necessary to achieve the intermediate and strategic outcomes? This question will assess whether current or completed projects have produced any intended or unintended effects and also the robustness of the theory of change.

D. To what extent are the benefits generated by the program sustainable? This KEQ is meant to assess if GGGI was successful in enabling the relevant stakeholders to use and replicate the provided knowledge. The question will also look at whether the program has been effective in setting up measures to mitigate the threats to long term sustainability of the generated benefits.

E. Have cross cutting issues such as safeguards and social inclusion been integrated into the program?
The aim is to assess whether safeguards, poverty reduction and social inclusion aspects have been considered in the design of the program as well as in the delivered outputs.

The evaluation questions have been formulated to cover aspects of relevance, efficiency, effectiveness, impact, sustainability (OECD DAC evaluation criteria\(^\text{44}\)) and cross-cutting issues.

A detailed evaluation matrix including the key evaluation questions and related sub-questions with data required and means of verification is available in Annex III.

Considering the nature of the program and the limited availability of baseline data, it is proposed to implement a non-experimental evaluation design. This approach will allow the evaluator to provide an extensive description, based on findings, of the relationship between the interventions and their effect.

The proposed sub-questions are a mix of cause-effect, normative and descriptive questions\(^\text{45}\) that will allow the evaluator to consider all aspects of the country program performance.

\(^{44}\) OECD DAC evaluation criteria [http://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm](http://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm)

\(^{45}\) Cause-effects questions attempt to measure what has changed because of the contribution provided by the intervention; normative questions compare the current situation with a specific target and goal; descriptive questions describe aspects of a process, outputs etc. Definitions from World Bank ‘The road to results, Designing and conducting effective development evaluations’ 2009
As a best practice, it is proposed to use a **mixed-method approach to collect data**. The use of mixed-method approach will help to triangulate the evidence being gathered and analyzed. Data triangulation and methodological triangulation should be used to strengthen evaluative conclusions and provide robust recommendations\(^46\). A combination of the following methods should be used to collect data and evidence:

**Desk review**: a comprehensive review of national and international relevant policies/strategies, country program documents, data (e.g. monitoring, financial etc) and relevant literature to compare and draw on lessons. The evaluator should provide evidence matrices capturing the information gathered from documents on key questions and used to substantiate the main conclusions and recommendations. A list of country program documents is available in Annex IV.

**Key informant interviews**: interviews and consultations in person or via phone with key stakeholders in Bangkok and in GGGI headquarters. An indicative list of key groups of stakeholders to be interviewed is available in Annex I. The evaluator should develop appropriate structured interview guides to be shared in advance with interlocutors that will be interviewed.

### 6.4 Work plan and key deliverables

The expected deliverables and corresponding timelines for this evaluation are elaborated below. The timelines are indicative and will be finalized in consultation with the selected evaluator.

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Activity / Deliverable</th>
</tr>
</thead>
</table>
| **Mid-December, 2018**   | **Inception phase**: includes an inception meeting and discussions to finalize the approach, methodology and workplan for the evaluation. A desk review of key program documents will be conducted. Following this, an inception report will be developed. Majority of the content of the inception report will build on this Evaluation Approach Paper.  
**Deliverable 1** – Inception report with final evaluation methodology, workplan, primary data collection tools and an agreed outline for the evaluation report  
Site visit planning                                                                 |
| **Mid-February 2018**    | **Data collection phase**: includes a visit to Bangkok to meet with GGGI’s country team and key stakeholders in country. Phone interviews with relevant GGGI staff based in HQ.  
**Analysis phase**: appropriate data analysis will be conducted with the aim of                                                                 |

\(^{46}\) Data triangulation is collecting the same information from a variety of sources to increase accuracy of data while methodological triangulation requires information to be collected using different methods (e.g. interviews, document review, etc.)
All reports must be in English, in accordance with GGGI’s formatting requirements, and submitted in a digital format. The final report will be shared with relevant strategic partners in Thailand, GGGI’s members and staff, and published on GGGI’s website.

### 6.5 Management and oversight

This evaluation will be managed in accordance with [GGGI’s evaluation policy](#).

Within GGGI, the evaluation is managed by the Impact and Evaluation Unit (IEU). More specifically IEU will:

- Supervise the delivery of the evaluation deliverables by the independent evaluator;
- Support the independent evaluator with coordinating activities during the visit to Thailand and with phone calls in GGGI HQ;
- Accompany the independent evaluator to meetings with key stakeholders in Thailand

<table>
<thead>
<tr>
<th>Mid-March 2018</th>
<th>Presentation to GGGI’s Thailand Program Team followed by presentation to GGGI’s Management Team. This can be done remotely from where the evaluator is based. Revise report based on feedback (if required) and incorporate management responses.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Deliverable 2</strong> – Draft evaluation report</td>
</tr>
<tr>
<td></td>
<td><strong>Deliverable 3</strong> – Final evaluation report submitted</td>
</tr>
</tbody>
</table>
## Annex I: List of stakeholders

<table>
<thead>
<tr>
<th>Entity</th>
<th>Mandate</th>
<th>Role in GGGI projects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Government</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Ministry of Resources and Environment | Office of Natural Resources and Environmental Policy and Planning (ONEP) | - To initiate and develop policy and plan on natural resources and environment  
- To monitor and evaluate natural resources and environment  
- To collaborate with national and international organisations to implement policies and plans on natural resources and environment  
- To be a centre of Mitigation Mechanism Development in Thailand  
- To be Thailand’s climate change focal point  
- To act as NDA for the Green Climate Fund | ONEP is the key counterpart of GGGI and chair of the Steering Committee that oversaw the implementation of GHG emissions reduction Roadmap. ONEP provides inputs to GGGI work, revises and validates the delivered outputs and relates GGGI with other relevant Ministries. |
| Thailand Greenhouse Gas Management Organization (Public Organization-TGO) | - To serve as Designated National Authority for Clean Development Mechanism  
- To provide supports on GHG information  
- To promote and develop missions trading market | As members of the Steering Committee |
| Ministry of Industry | Department of Industrial Works (DIW) | - To be a key organisation supporting climate change-related activities for the project GHG emissions reduction Roadmap, they provided inputs, comments and feedback on the development of the Roadmap. They also validated the final technical studies and the Roadmap.
| Ministry of Energy | Department of Alternative Energy and Development and Efficiency (DEDE) | - To oversee the industry sector in Thailand. Its mandate includes industrial production, environment and safety
- To promote and support knowledge sharing in the industry sector
| Ministry of Energy | Department of Alternative Energy and Development and Efficiency (DEDE) | - To promote energy efficiency, energy conservation and alternative energy development
- To oversee designed factories and buildings under the Energy Conservation Act
| The Prime Minister Office | Office of National Economic and Social Development Board (NESDB) | - To provide recommendations on national economic and social development to the Cabinet
- To formulate 5-year national economic and social development plan
<table>
<thead>
<tr>
<th><strong>B. Private/Industry Sector</strong></th>
</tr>
</thead>
</table>
| **Federation of Thai Industries (FTI)** | - To be representative of the industry in engaging with the government  
- To promote and develop industrial entrepreneurs  
- To provide education, research, training and disseminate industrial technology and knowledge  

They provide technical inputs and feedback on the technical studies underpinning the GHG emission reduction roadmap. |
| **Thai Frozen Foods Association** | - To represent the interests of their respective industry vis a vis the government |
| **Thai Oil Palm and Palm Oil Association** | |
| **Provincial Electricity Authority (PEA)** | - It is in charge of the national power distribution outside the Bangkok metropolitan area.  

PEA is expected to lead the development of On Bill-Repayment (OBR) mechanism and discussions with the Thai Government on legal framework for OBR mechanism establishment. It is also expected to:  
- Contribute to the development of a legal contract template with relevant ESCOs, end-users and local FIs  
- Provide data about its clients with potential to become program participants, including size of business, energy consumption, and type of equipment currently in use. |

<table>
<thead>
<tr>
<th><strong>C. Research and academia</strong></th>
</tr>
</thead>
</table>
| **The Joint Graduate School of Energy and Environment (JGSEE)** | - JGSEE is a key academic institute in Thailand working on GHG related issues.  
- Provides high quality graduate education and training about energy and environment  

Member of the Steering Committee that oversaw the GHG emissions reduction project. |
<table>
<thead>
<tr>
<th>Institution</th>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>King Mongkut’s University of Technology Thonburi</td>
<td>Prof. Dr. Chullaong Chullabodhi</td>
<td></td>
</tr>
<tr>
<td>Kasetsart University</td>
<td>Assoc. Prof. Dr. Chart Chiemchaisri</td>
<td></td>
</tr>
<tr>
<td><strong>D. Civil Society</strong></td>
<td><strong>Good Governance for Social Development and the Environment Institute (GSEI)</strong></td>
<td>Non-profit organisation focusing on social development and environmental issues. Climate change and GHG mitigation are part of its mandate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Member of the Steering Committee that oversaw the GHG emissions reduction project</td>
</tr>
</tbody>
</table>
Annex II: Detailed Impact Pathway diagram

Industrial GHG emissions reduction contributes by 8% to the 20% NDC GHG emissions reduction target by 2030

- Energy efficiency increased in the industrial sector
- Use of renewable energy increased in the industrial sector
- Enhanced institutional and policy environment enables the industrial sector to improve energy demand and consumption management
- Improved investment environment attract up to USD 33M in green projects in industrial sector from private and public sector
- Innovative financial instruments are operational and effectively reducing economic barriers to investment in EE and RE in the industrial sector
- Government officials and industries are able to take informed decisions on GHG emissions reduction measures
- Capacities and knowledge improved on GHG emissions reduction cost/benefits, NDC implementation and green bankable projects
- Local FIs provides loans to implement EE projects proposed by automotive parts SMEs and ESCOs
- SMEs and ESCOs propose eligible EE projects following successful energy audits
- Climate funds are committed and disbursed
- Energy efficiency risk sharing facility designed and endorsed
- OBR mechanism designed and endorsed
- The legal framework for OBR operationalization is in place
- 2 green bankable projects identified, project proposals prepared and financially matched

Policy pillar

- High level climate change policies are effectively implemented
- GHG emissions reduction Roadmap and the NDC Industrial Action Plan are operationalized
- Government and industrial sector reach an agreement on actions needed to implement the Roadmap and NDC Industrial Action Plan
- OneP and relevant ministries define clear responsibilities to implement the Roadmap and the NDC Industrial Action Plan
- GHG emissions reduction Roadmap developed and endorsed
- NDC Industrial Action plan developed and endorsed

Capacity building pillar

- Government officials and industries are able to take informed decisions on GHG emissions reduction measures
- Capacities and knowledge improved on GHG emissions reduction cost/benefits, NDC implementation and green bankable projects
- Relevant and influential stakeholders attend the provided trainings
- Provided knowledge is relevant and fit the audience needs and background
- Training programs delivered

Outcomes pillar

- Improved investment environment attract up to USD 33M in green projects in industrial sector from private and public sector
- Innovative financial instruments are operational and effectively reducing economic barriers to investment in EE and RE in the industrial sector
- Government officials and industries are able to take informed decisions on GHG emissions reduction measures
- Capacities and knowledge improved on GHG emissions reduction cost/benefits, NDC implementation and green bankable projects
- Local FIs provides loans to implement EE projects proposed by automotive parts SMEs and ESCOs
- SMEs and ESCOs propose eligible EE projects following successful energy audits
- Climate funds are committed and disbursed
- Energy efficiency risk sharing facility designed and endorsed
- OBR mechanism designed and endorsed
- The legal framework for OBR operationalization is in place
- 2 green bankable projects identified, project proposals prepared and financially matched

Policy and institutions analysis
- Policy and institutions analysis
- Analysis of costs and investment requirements
- Development of sectoral/sub-sectoral investment plans and selection

Design, financing & implementation
- Design: Project and policy preparation
- Financing: Identification of possible financial structure
- Implementation

Development, economic growth and sustainability diagnosis
- Development, economic growth and sustainability diagnosis
- Sectoral green impact assessment and prioritization
- Macro economic impact assessment

Sector/Sub-sector strategy & planning
- Sector/Sub-sector strategy & planning
- Green impact assessment
- Policy and institutions analysis
- Analysis of costs and investment requirements
- Development of sectoral/sub-sectoral investment plans and selection

Climate funds are committed and disbursed
- Energy efficiency risk sharing facility designed and endorsed
- OBR mechanism designed and endorsed
- The legal framework for OBR operationalization is in place
- 2 green bankable projects identified, project proposals prepared and financially matched

Development, economic growth and sustainability diagnosis
- Development, economic growth and sustainability diagnosis
- Sectoral green impact assessment and prioritization
- Macro economic impact assessment

Sector/Sub-sector strategy & planning
- Sector/Sub-sector strategy & planning
- Green impact assessment
- Policy and institutions analysis
- Analysis of costs and investment requirements
- Development of sectoral/sub-sectoral investment plans and selection
### Annex III: Evaluation Matrix

<table>
<thead>
<tr>
<th>Key Evaluation Question (DAC Criteria)</th>
<th>Sub-questions</th>
<th>Data required</th>
<th>Means of verifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. How relevant and significant is GGGI program to the Thai Government’s national and international green growth and climate change priorities? (DAC criteria: relevance)</td>
<td>A.1. Does the program target the most relevant green growth and climate change national and international priorities?</td>
<td>Evidence of strong commitment of the Thai government to implement the targeted national policies and international commitments</td>
<td>Review of the targeted national and international policies/strategies related to climate change (e.g. Climate Change Master Plan and NDC National Roadmap) and resources allocated by the government for their implementation</td>
</tr>
<tr>
<td></td>
<td>A.2. To what extent is GGGI’s program relevant to and leveraging ongoing sectorial initiatives led by Ministry of Industry, Ministry of Energy and ONEP?</td>
<td>Evidence that GGGI’s intervention is well aligned to and reinforces the ongoing sectoral efforts by line ministries to green the industry</td>
<td>Review of ongoing sectorial initiatives related to greening the industrial sector by Ministries of Energy and Industries</td>
</tr>
<tr>
<td></td>
<td>A.3. Do the provided policy advisory, knowledge and private sector solutions fulfil the needs of the government and industry stakeholders?</td>
<td>Stakeholders views on how the provided advisory services responds to their needs Number of outputs (completed and ongoing)</td>
<td>Interviews with government officials and private sector</td>
</tr>
<tr>
<td>B. How effectively and efficiently is the program and its related outputs being implemented by GGGI and its main counterparts? (DAC criteria: efficiency and effectiveness)</td>
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<tr>
<td><strong>B.1.</strong> What progress has been made in delivering the planned outputs stated in the theory of change and logframes?</td>
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<tr>
<td>Evidence that the outputs have been delivered and endorsed by the main counterparts</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Views of the main counterparts on the quality and accessibility of the provided outputs</td>
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<td></td>
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</tr>
<tr>
<td>Evidence that the inputs (technical knowledge, concerns) provided by the main stakeholders have been integrated into the delivered or ongoing outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Views of the main counterparts on the use of the advisory services provided by GGGI not necessarily limited to the stated outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of outputs (ongoing and completed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of project logframes, theory of change, monitoring data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviews with main counterparts, industry and country team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of the delivered outputs</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

This sub-question should include the following considerations:

a. Whether the **outputs have been designed according to the level of capacities** of the main recipients

b. To what extent have **lessons learned/knowledge from stakeholders related to the Roadmap development** been used and replicated to develop the current work on NDC implementation

c. To what extent do the main counterparts **consider the provided services useful** to carry out their missions and daily work

Evidence that the outputs have been delivered and endorsed by the main counterparts

Views of the main counterparts on the quality and accessibility of the provided outputs

Evidence that the inputs (technical knowledge, concerns) provided by the main stakeholders have been integrated into the delivered or ongoing outputs

Views of the main counterparts on the use of the advisory services provided by GGGI not necessarily limited to the stated outputs

Number of outputs (ongoing and completed)

Review of project logframes, theory of change, monitoring data

Interviews with main counterparts, industry and country team

Review of the delivered outputs
<table>
<thead>
<tr>
<th>B.2. What are the <strong>main factors/challenges impacting the delivery</strong> and achievement or non-achievement of the program outputs and outcomes?</th>
<th>Views from stakeholders and country team on the internal and external factors/challenges to the delivery of the outputs and achievement of the outcomes</th>
<th>Interviews with stakeholders and country team</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.3. Does the program promote <strong>innovative approaches</strong> to deal with GHG emissions reductions?</td>
<td>Evidence indicating that GGGI approach is innovative compared to other donors and line ministries work on greening the industry</td>
<td>Review of literature and national initiatives on greening the industry</td>
</tr>
<tr>
<td>B.4. Is the <strong>partnership built with the main stakeholders the most effective one</strong> to achieve the program outcomes?</td>
<td>Evidence that the chosen counterparts are the most appropriate ones to maximise GGGI’s impact</td>
<td>Review of Thai institutional framework, roles, responsibility and decision-making power</td>
</tr>
<tr>
<td>This sub-question should include the following considerations:</td>
<td>Evidence and views from stakeholders on GGGI’s</td>
<td>Interviews of stakeholders</td>
</tr>
<tr>
<td>a. To what extent has GGGI facilitated <strong>dialogue between the industrial actors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and the government on GHG emissions reduction</td>
<td>contribution to improved dialogue and collaboration</td>
<td>Review of any action undertaken by the involved stakeholders following improved collaboration and dialogue</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>b. To what extent has GGGI’s intervention contributed to further improving collaboration among the involved ministries</td>
<td>Views of stakeholders on level of GGGI proactiveness in involving and keeping them informed on the project development and benefits even after projects activities completion</td>
<td></td>
</tr>
<tr>
<td>c. How effective and efficient is GGGI’s approach in securing and maintaining stakeholder engagement</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B.5. Is a resource mobilization strategy in place to ensure the program can continue to deliver the planned outputs beyond 2017?</strong></td>
<td>Review of the initiatives undertaken or to be undertaken to mobilise more resources</td>
<td>Review of the program budget and GGGI’s approach to mobilise resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B.6. How effective has been the program in interacting with other donors/projects and leveraging knowledge?</strong></td>
<td>Evidence on interactions with other donors</td>
<td>Interviews with country team and other relevant donors</td>
</tr>
<tr>
<td></td>
<td>Views from country team and donors on future cooperation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B.7. Is there any evidence that <strong>GGGI has been able to create an environment of trust</strong> with the main counterparts? How successful was GGGI in demonstrating its value added to them?</td>
<td>Views of stakeholders on the benefits generated by GGGI’s work and on the ability of GGGI to create its ‘intervention niche’ in the country</td>
</tr>
<tr>
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<tr>
<td></td>
<td>B.8. Is the <strong>risk management strategy</strong> effective?</td>
<td>Evidence on how GGGI has been able to mitigate and overcome risks during the program implementation</td>
</tr>
<tr>
<td></td>
<td><em>C.</em> Is the program bringing about the desired policy, institutional and financial changes necessary to achieve the intermediate and strategic outcomes? (DAC criteria: impact)</td>
<td>*C.*1. Is there any evidence that the <strong>delivered outputs have contributed or will contribute</strong> to the achievement of the intermediate and strategic outcomes? Have the counterparts put in place any measures to effectively implement the provided inputs/outputs from GGGI?</td>
</tr>
<tr>
<td></td>
<td>*C.*2. Are there any <strong>unintended positive or negative impacts</strong> triggered by the program?</td>
<td>Views from stakeholders on any positive or negative change triggered by GGGI’s work</td>
</tr>
</tbody>
</table>
| C.3. Based on the Theory of change, is there adequate evidence that the outcomes related to investment mobilization will be achieved based on the planned outputs? | Views from stakeholders on the feasibility and implementation (challenges/enabling factors) of TAPEE project and green bankable projects | Interviews with stakeholders and country team  
Review of project evidence |
|---|---|---|
| C.4. Based on the Theory of change and on delivered outputs, does the program have the potential to trigger transformational change related to GHG emission reduction in the industrial sector? | Views from stakeholders  
Evidence from secondary data | Interviews with stakeholders  
Review of relevant literature/case studies/best practices to test the theory of change |
<table>
<thead>
<tr>
<th>D. To what extent are the benefits generated by the program sustainable? (DAC criteria: sustainability)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D.1. Have the main counterparts been enabled to use and/or replicate the provided knowledge?</strong></td>
</tr>
<tr>
<td><strong>D.2. To what extent GGGI has contributed to increase awareness and knowledge related to GHG emissions reduction and the role of the industry to achieve it?</strong></td>
</tr>
<tr>
<td><strong>D.3. How have the potential threats to the sustainability of the project benefits been mitigated by GGGI?</strong></td>
</tr>
<tr>
<td>E. Have cross cutting issues such as safeguards and social inclusion been integrated into the program?</td>
</tr>
</tbody>
</table>
## Annex IV: List of documents

<table>
<thead>
<tr>
<th>N.</th>
<th>Document title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>BMUB project proposal</td>
</tr>
<tr>
<td>2.</td>
<td>BMUB project workplan</td>
</tr>
<tr>
<td>3.</td>
<td>GGGI logframe GHG Roadmap</td>
</tr>
<tr>
<td>7.</td>
<td>Stakeholder engagement plan</td>
</tr>
<tr>
<td>8.</td>
<td>Capacity Development material and reports</td>
</tr>
<tr>
<td>9.</td>
<td>BMUB Final report July 2016</td>
</tr>
<tr>
<td>10.</td>
<td>GGGI End of year project results 2015</td>
</tr>
<tr>
<td>11.</td>
<td>GGGI End of year project results 2016</td>
</tr>
<tr>
<td>12.</td>
<td>BMUB Means of verification</td>
</tr>
<tr>
<td>13.</td>
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### PROJECT: Accelerating Implementation of Thailand’s Nationally Determined Contribution (2016 – ongoing)

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