Accelerating construction of energy efficient green housing units in Thailand

Basic Information

GEF ID
10189

Countries
Thailand

Project Title
Accelerating construction of energy efficient green housing units in Thailand

GEF Agency(ies)
UNEP

Agency ID
UNEP: 01604

GEF Focal Area(s)
Climate Change

Program Manager
Akio Takemoto
Focal area elements

1. Is the project/program aligned with the relevant GEF focal area elements in Table A, as defined by the GEF 7 Programming Directions?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: This project is aligned with GEF-7 Programming Directions: CCM-1-3 'Promote innovation and technology transfer for sustainable energy breakthrough for accelerating efficiency adoption'.

Please correct the objective in Part A, Table A from CCM-1-1 to CCM-1-3.

AT, 05/01/19: Comment cleared.

Agency Response
Part A has been corrected to reflect CCM-1-3, the correct GEF 7 Programming Direction.

Indicative project/program description summary

2. Are the components in Table B and as described in the PIF sound, appropriate, and sufficiently clear to achieve the project/program objectives and the core indicators?

Secretariat Comment at PIF/Work Program Inclusion AT, 04/13/19: Yes.
Agency Response

Co-financing

3. Are the indicative expected amounts, sources and types of co-financing adequately documented and consistent with the requirements of the Co-Financing Policy and Guidelines, with a description on how the breakdown of co-financing was identified and meets the definition of investment mobilized?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Co-financing will be provided $31,257,095, out of which $27,907,095 will be investment mobilized from National Housing Authority (NHA). The NHA will use the energy efficiency plans to construct the next round of identified project. The investment mobilized mentioned is the costing of investment by NHA to construct the houses at identified project site using its standard designs.

[Comment] For any co-financing from national or sub-national government authorities, please use "government" rather than "beneficiaries" in the "source" column. For further details, please refer to the Co-Financing Guidelines (http://www.thegef.org/sites/default/files/documents/Cofinancing_Guidelines.pdf).

AT, 05/01/19: Comment cleared.

Agency Response
The source categories for NHA and EGAT have been changed from "Beneficiaries" to "Recipient Government"

GEF Resource Availability

4. Is the proposed GEF financing in Table D (including the Agency fee) in line with GEF policies and guidelines? Are they within the resources available from (mark all that apply):
Secretariat Comment at PIF/Work Program Inclusion AT, 04/13/19: Yes. The GEF project financing is within the national CC STAR allocation.

Agency Response

The STAR allocation?

Secretariat Comment at PIF/Work Program Inclusion AT, 04/13/19: Yes. This project will be funded from the national CC STAR allocation.

Agency Response

The focal area allocation?

Secretariat Comment at PIF/Work Program Inclusion AT, 04/13/19: Yes. This project will be funded from the national CC STAR allocation.

Agency Response

The LDCF under the principle of equitable access
Secretariat Comment at PIF/Work Program Inclusion

Agency Response

The SCCF (Adaptation or Technology Transfer)?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

Focal area set-aside?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response

Impact Program Incentive?

Secretariat Comment at PIF/Work Program Inclusion

Agency Response
Project Preparation Grant

5. Is PPG requested in Table E within the allowable cap? Has an exception (e.g. for regional projects) been sufficiently substantiated? (not applicable to PFD)

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Yes. The GEF financing of the project amounts to $3,141,142, thus the limit of PPG amount is $150,000.
The requested PPG amount ($110,000) is within the cap.

Agency Response

Core indicators

6. Are the identified core indicators in Table F calculated using the methodology included in the correspondent Guidelines? (GEF/C.54/11/Rev.01)

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Core Indicators 6, 6-1, 6-2, 6-3 are fine.
Please add Core Indicator (relevant to gender) 11 to Table F based on the information in the PIF.
AT, 05/01/19: Comment cleared.

Agency Response
Agency Response

Estimated level of benefits by gender is added to the Core Indicators table:
- Women: 25,115
- Men: 50,185
- Total: 75,300

Project/Program taxonomy

7. Is the project/program properly tagged with the appropriate keywords as requested in Table G?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19:
[Rio Markers] Climate Change Mitigation should be ‘2’. Please correct the number.

AT, 05/01/19: Comment cleared.

Agency Response

Rio Market Indicator in Project Taxonomy, Annex C has been corrected to reflect “Climate Change Mitigation 2”.

art II – Project Justification

1. Has the project/program described the global environmental / adaptation problems, including the root causes and barriers that need to be addressed?

Secretariat Comment at PIF/Work Program Inclusion
The energy sector (73%) is the largest GHG emissions source in Thailand. Electricity and heat generation (39%) are the major sources in the energy sector, and Buildings accounts for 64% of electricity consumption, thus have been identified as a key source to address energy use as well as GHG emissions (Buildings: 18% of total national GHG emissions).

Energy conservation measures in building in Thailand is currently focused on multistory residential and commercial buildings. Building Energy Codes have been established for commercial buildings as well as multistory buildings. The Energy Codes have been also applied to home appliances, etc, however, there is no mandatory Energy Code and Energy labelling applied for low rise residential buildings. The Building Energy Code covers only 20% of total electricity consumed by buildings. Number of low rise buildings will significantly increase in future, however, the significant part of them will not be covered by building energy efficient regulation.

Agency Response

2. Is the baseline scenario or any associated baseline projects appropriately described?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Yes.

The National Housing Authority (NHA), a key actor in providing low residential sector, will construct 130,161 housing during 2017-2027, about 5% of total small housing units. Without support, The NHA will use standard designs which will result in 3.2 million tons-CO2 from 130,000 units over 25 years. The NHA is lack of capacity to design and plan houses that reduce energy consumption. Moreover, the NHA has to ensure the cost of homes for low income owners won't increase as requested by the Government. In the baseline, the Government of Thailand’s Strategy currently focuses on high rise commercial building as well as public buildings to ensure enforcement of building energy standards, and there is no plan to establish either building energy standards for low rise residential buildings. Electricity Generating Authority of Thailand (EGAT) may in medium term develop a voluntary labelling scheme for this segment.

Agency Response
3. Does the proposed alternative scenario describe the expected outcomes and components of the project/program?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Yes. Please address the comment below at the PPG stage.

Outcome 1 (TA): Increased availability of energy efficient housing in the market and the ability to assess emissions reduction in a quantifiable approach.

Outcome 2 (Inv): Affordable green housing for low and middle income residents and use of Green funds to support emissions reduction in the residential sector homes.

Outcome 3 (TA): Increased capacity among key stakeholders on designing green housing and public awareness of benefits of green building and fostering energy efficient behaviors in the long term.

[Comment]

According to the PIF, $1.25 million will be used to seed the financial mechanism for accelerating the construction and purchase of energy efficient green low rise residential homes. And the GEF fund will be used as seed fund for creating financial incentives mechanisms. At the PPG stage, please consider co-financing from the Government and/or the private sector amounting at least 50% of the total investments for this seed financing.

AT, 05/01/19: Comment cleared.

Agency Response

Duly noted. This will be discussed with the government and addressed during the PPG development stage.

4. Is the project/program aligned with focal area and/or Impact Program strategies?
5. Is the incremental / additional cost reasoning properly described as per the Guidelines provided in GEF/C.31/12?

Agency Response

6. Are the project’s/program’s indicative targeted contributions to global environmental benefits (measured through core indicators) reasonable and achievable? Or for adaptation benefits?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19:
Annual GHG emission reduction in 2024 will be 35,842 tons-CO₂, and the total Direct GHG emission reduction from 2024 and over the life time of residential units will be 429,950 tons-CO₂.

The total indirect GHG emission reduction in 2030 as a result of broader market transformation activities based on the assumption that from 2020 onwards there will be a 10% growth in market from 2020 due to the implementation of labelling schemes and financial mechanisms will be 2,096,007 tons-CO₂.

[Comment 1] At the PPG stage, please further elaborate to estimate these direct and indirect GHG emission reductions achieved through the project.

[Comment 2] Please describe the breakdown of Core Indicator 6.3 Energy saved "2,968,015.00 MJ" as it is important as a reference to estimate GHG emission reductions.
AT, 05/01/19: Comments cleared.

**Agency Response**

[Comment 1] Duly note, the GHG estimation from direct and indirect GHG emissions will further elaborated at the PPG stage.

[Comment 2] The energy saved from executing the project *(note: the amount is actually 2,968,016,000 MJ)* will come from the electricity saved by designing energy efficient houses and using energy efficient appliances. This is estimated for the number of homes that NHA will build (direct) and the energy saved by increase in more energy efficient homes built post project as a result of the project impact (indirect). The GHG emissions are estimated using electricity saved and the grid emission factor for Thailand is based on the CDM Grid Emission Factor tool.

Please note that section 6) *Global Environmental Benefits* includes information on both the Direct and Indirect energy savings and GHG emissions reductions resulting from energy efficient homes.

7. **Is there potential for innovation, sustainability and scaling up in this project?**

**Secretariat Comment at PIF/Work Program Inclusion**

AT, 04/13/19: Yes.

**Innovation:** Yes. Effective green housing financing scheme exists neither in Thailand nor in developing countries. The project has potential for innovation to create legal scheme for green housing financing for low rise residential buildings.

[Comment]

**Sustainability and Scaling up**
Please note: For the establishment of subsidy mechanism to stimulate and incentivize the purchase of energy efficient green homes after the project financing, it is essential at the PPG stage to consider the scheme to de-risk additional cost for purchasing energy efficient houses and building by co-financing from the Government and/or the private sector (at least 50% of the total investments, please see comment in Part II, Box 3 above)

Scaling up in neighboring countries which the PIF states would be highly important to increase the GEB. Please elaborate the strategy for the international scaling up at the PPG stage.

AT, 05/01/19: Comment cleared.

Agency Response Duly noted, the strategy for scale up will be explained further at the PPG stage.

Project/Program Map and Coordinates

Is there a preliminary geo-reference to the project's/program's intended location?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Yes.

Agency Response

Stakeholders

Does the PIF/PFD include indicative information on Stakeholders engagement to date? If not, is the justification provided appropriate? Does the PIF/PFD include information about the proposed means of future engagement?
Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Please consider to add key stakeholders to achieve the objective of the project as much as possible, such as consumer groups, housing industries, home appliance industries material industries.

AT, 05/01/19: Comment cleared.

Agency Response

As suggested, reference has been added (in section 2. Stakeholders) to associations of consumers and industry that work with respective groups for advocacy as well as creating knowledge and awareness. At PPG stage, the most appropriate associations will be identified and included as stakeholders in implementing the project. These associations will be engaged in consultations to develop the necessary incentive and policy instruments, as well as in Component 3 to create capacities and awareness.

Gender Equality and Women's Empowerment

Is the articulation of gender context and indicative information on the importance and need to promote gender equality and the empowerment of women, adequate?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: This project will establish minimum quota (e.g. 30%) for loans to women under the Green Housing Financing Mechanism. Please add the target and other gender relevant target to Core Indicator 11 (Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment) (See comment in Part I, Box 6 above)

AT, 05/01/19: Comment cleared.

Agency Response

Estimated beneficiaries by gender are now added to the Core Indicators table and Table F:

- Women: 25,115

- Men: 50,185
Private Sector Engagement

Is the case made for private sector engagement consistent with the proposed approach?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/11/19: Yes.

Agency Response

Risks

Does the project/program consider potential major risks, including the consequences of climate change, that might prevent the project objectives from being achieved or may be resulting from project/program implementation, and propose measures that address these risks to be further developed during the project design?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Yes.
Coordination

Is the institutional arrangement for project/program coordination including management, monitoring and evaluation outlined? Is there a description of possible coordination with relevant GEF-financed projects/programs and other bilateral/multilateral initiatives in the project/program area?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Yes.

[Comment]

At the PPG stage, please also coordinate with other related projects than those stated in the PIF, such as 'Global Green Residential Housing Finance Program - (GreenHF)' (GEF-World Bank, GEF ID: 9935, MSP in GEF-6), in order to promote green housing financing scheme in regional and global scale.

AT, 05/01/19: Comment cleared.

Agency Response

Duly noted. A mechanism will be elaborated at the PPG stage to coordinate with all relevant GEF and other projects.

Consistency with National Priorities

Has the project/program cited alignment with any of the recipient country's national strategies and plans or reports and assessments under relevant conventions?

Secretariat Comment at PIF/Work Program Inclusion

AT, 04/13/19: Yes. The Thailand's NDC under the Paris Agreement states that building energy efficiency is a key element of reducing GHG emissions to achieve its target (20% from BAU by 2030), and additional 5% reduction will be achieved if there is an international support.
This project will contribute to the implementation of its NDC.

Agency Response

Knowledge Management

Is the proposed “knowledge management (KM) approach” in line with GEF requirements to foster learning and sharing from relevant projects/programs, initiatives and evaluations; and contribute to the project’s/program’s overall impact and sustainability?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Yes.

Agency Response

art III – Country Endorsements

Has the project/program been endorsed by the country’s GEF Operational Focal Point and has the name and position been checked against the GEF data base?

Secretariat Comment at PIF/Work Program Inclusion
AT, 04/13/19: Not sufficiently. The letter of endorsement by the Thailand OFP is not in the content. Please submit the formal Letter of Endorsement as soon as possible.
AT, 05/01/19: The Letter of Endorsement has been submitted. Comment cleared.
Agency Response
The Letter of Endorsement has now been uploaded on the GEF portal.

EFSEC DECISION

RECOMMENDATION

Is the PIF/PFD recommended for technical clearance? Is the PPG (if requested) being recommended for clearance?

Secretariat Comment at PIF/Work Program Inclusion
AT, 05/04/19: All comments cleared. The project manager recommends the PIF for technical clearance.

Cover Memo

Context
Thai Government committed to reducing energy Intensity by 30% below 2010 level in 2036 under the Paris Agreement. Currently, Thailand’s energy efficiency measures in the building sector are limited to multistory residential and commercial buildings, and have not addressed low rise building although the housing sector consumes 24% of the Thai national electricity and its demand is growing at 5.0% annually. The National Housing Authority (NHA), responsible for developing housing units for low/medium-income buyers, has challenges to provide energy efficient housing units without proper financial mechanisms and labeling schemes.

This project will promote design and construction of energy efficient green housing units by supporting the NHA in designing and piloting green homes, establishing a green energy efficiency labelling scheme and associated financing mechanisms to create a market for green energy efficient low rise residential homes. The GEF funds will leverage substantial government investments in the housing sector and initiate the private sector investments in green energy efficient low-rise residential homes.

This project will achieve 429,950 tons-CO₂ of direct greenhouse gas (GHG) emission reduction from home construction between 2022-2024. It will also influence the national housing markets, expecting 2,096,007 tons-CO₂ of indirect GHG emission reduction in 2020-2030.

This project will address the gender issues on home ownership and home financing and will establish a minimum quota (e.g. 30%) for loans to women in the green homes pilot activities.

Project
This project is comprised of the following components:
Component 1: Energy Efficient Green Home design and Labelling Scheme (TA)

This component will include (i) development of green building standards for low rise building, integrated in the design of social housing units constructed by the NHA, (ii) development of energy efficient green housing labelling scheme by Electricity Generating Authority of Thailand (EGAT), (iii) database on energy efficiency technologies and design.

Component 2: Incentive mechanisms for promoting energy efficient homes (INV)

This component will include (i) set-up of the green home financing mechanism to provide incentives to home buyers for purchase developers to develop energy efficient green housing units linked to the labelling scheme, (ii) recommendation to the Government for establishing the fiscal incentives and/or financial mechanism to incentivize private construction companies to participate in the voluntary labelling scheme, (iii) development of mechanism of bulk procurement of energy efficient materials to reduce construction cost.

$ 1.25 million will be used to seed the financial mechanism. At the PPG stage, various options will be explored, including financial incentive to (i) buyers (revolving fund to finance 100% loan for incremental cost with easier payment term), (ii) incentive to developers (revolving fund to finance additional cost for energy efficient design at low interest rate) and (iii) de-risking mechanism for financing (risk coverage fund to cover risks of repayment of loan by buyers to the bank)

3: Awareness raising and capacity building for promoting energy green homes (TA)

This component will include (i) training and technical advice to NHA, EGAT, construction companies and architects, (ii) public awareness campaign, (iii) activities to encourage the Government to extend the green building energy code for low rise buildings.

Sustainability, private sector engagement, scaling up

The pilot residential unit designed by the NHA will be bid out to be constructed by private construction firms, which will be taken to a wider segment of private sector design and construction entities.

The incentive schemes will be tested in the home-loan-providing banks in the project and then replicated in other commercial banks. And the project will work with material suppliers to develop a mechanism of bulk procurement of energy efficient materials to reduce the construction cost.

The project will also work on developing incentive mechanism for the private sector construction firms by identifying fiscal incentives (reduced taxes on profits, reduction on duties for green technologies) and developing a mechanism to reduce the cost of finance to private sector developers.

This project has a potential for replication and scaling up not just in Thailand but also in the neighboring ASEAN countries.

Project finance

This project will invest $3.1 million GEF project financing, leveraging $31.2 million co-financing that includes $27.9 million Investment Mobilized. The NHA will use the energy efficiency plans to construct the next round of identified projects. The Investment Mobilized will be provided by the NHA to construct the houses at identified project sites using its standard design.
**ADDITIONAL COMMENTS**

Additional recommendations to be considered by Agency at the time of CEO endorsement/approval.

**Secretariat Comment at PIF/Work Program Inclusion**

**Review Dates**

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