

## **TEMPLATES FOR UNDP MANAGEMENT RESPONSES TO INDEPENDENT EVALUATIONS<sup>1</sup>**

### **Clearance Routing:**

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<sup>1</sup> See instructions at the end of the document on how to use the templates.



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Item # of the provisional agenda

**Evaluation**

**Management response to the evaluation of *Energy Efficiency Improvement in Commercial and High-rise Residential Buildings in Viet Nam (EECB)***

**Context, background and findings**

1. The UNDP-supported GEF-financed Full-sized Project “Energy Efficiency Improvement in Commercial and High-Rise Residential Building in Viet Nam” started in April 2016 and is currently in its last year of implementation. The project was funded by the GEF (USD 3.198 million) with co-financing from the Government of Viet Nam, UNDP, and private sector partners. Its goal is to reduce intensity of GHG emissions from the building sector in Viet Nam. The Project objective is to improve the energy utilization performance of commercial and high-rise residential buildings in Ho Chi Minh and Hanoi.
2. The project was extended to 30<sup>th</sup> September 2021.
3. The Project’s independent terminal evaluation (TE) was conducted between January to March 2021, to assess relevance, design and performance of the project, determine early signs of impacts and sustainability of results, identify lessons learned and make recommendations for the project. This management response discusses the conclusions and recommendations of this TE.
3. Overall, the project was rated moderately satisfactory based on the achievement of the indicators in the project framework. It has provided significant value added to the development of energy efficiency in the buildings framework in Viet Nam and has provided additional quality to the political and administrative decision-making process. The project has experienced slow progress in the first two years and delay due to the COVID-19 during 2020-2021.
4. The TE recommends several actions to make better links between the project outcomes and impacts and to boost the delivery of project results. The PMU and UNDP welcome these recommendations and have started implementing related actions.

## Annex: Key recommendations and management response

<p><b><u>Evaluation recommendation 1: Design of project indicator on Direct Reduction of greenhouse gas (GHG) emissions for future projects</u></b></p> <p>Considering that the process of building approval, detailed design, and actual construction involves time consuming sequential activities, any new building complying with the energy efficiency (EE) building code will at best get occupied towards the end of the implementation timelines of the GEF project. Thus, the benefits of the project in terms of reduced energy consumptions (and reduced GHG emissions) would get realized only after the project implementation timelines.</p> <p>In this regard it is important to note that as per the Revised Methodology for Calculating GHG mitigation benefits for the GEF Energy Efficiency Projects, for projects where building codes lead to building EE improvements prior to the project closure, the resulting emission reductions (over the lifetime of those improvements) are considered as direct project impacts. Building improvements that occur after project closure are considered to result in direct post-project impacts.</p>				
<p><b>Management response: Agreed</b></p> <p>The project management unit and UNDP agree with this recommendation since the building construction process from design to completion takes a long time and direct impacts can hardly be recognized during project implementation. It can be defined after a building properly put into operation. As such the project duration should be longer than the expected construction duration of a standard building (04 years). This recommendation is however more applicable to future project designers than this project itself, and the project cannot do anything to improve this situation.</p>				
Key action(s)	Time frame	Responsible unit(s)	Tracking*	
			Comments	Status
1. This recommendation is integrated into the project final report which will be circulated to Ministry of construction (MOC) and UNDP: For future mitigation/energy efficiency projects, the indicator of “Direct Reduction of the GHG emissions) should be designed as “Direct Reduction in the GHG emissions over the lifetime of the investments made during the project implementation”	31 October 2021	Project Manager and Programme Officer		On-going
<p><b><u>Evaluation recommendation 2: Strengthen the mechanism for enforcement of EE building code</u></b></p> <p>Sustainability of the results of the project (in terms of improvement in the energy performance of the buildings due to EE building code) would depend upon the enforcement of the EE building code. The mechanism (Comprising of the overall process of application for approval of the building plans, monitoring of construction, approval of building etc.) for enforcement of the EE building code needs to be strengthened to ensure sustainability.</p>				
<p><b>Management response: Agreed</b></p> <p>The above-said mechanism is important to ensure the enforcement of the EE building code; however, it can be verified through (i) approved design; (ii) approved as-built documents and (iii) energy audit. Factually, the EECB project has significantly and sustainably contributed to all of these means of verification by (i) having delivered technical training courses for project managers, building designers, building appraisal officers, energy auditors, etc. in order to improve the related</p>				

quality of all design, construction and operation steps; and (ii) having established a comprehensive system of building energy surveys, specific energy consumption profiles, energy benchmarking & certification and information disclosure program. As for the former, the training materials will be documented and disseminated to relevant stakeholders (MOC, DOCs, building designers, related training entities, etc.) for reference. The later will serve as a tool for energy control of high-rise buildings in future once it is approved. At end of the project, a long-termed strategic plan will be submitted to the Ministry of Construction (MOC) for sustainability of the tools afterwards.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Training materials will be documented and disseminated to MOC, DOCs for broad and sustainable reference.	31 October 2021	PMU		On-going
2. A long-termed strategic plan will be delivered to Ministry of Construction of Viet Nam for sustainability of the tool.	31 October 2021			

### **Evaluation recommendation 3: Transfer of a modeling software to a knowledge institution and establishment of a center of excellence**

The 'Project Management Unit' (PMU) procured a building energy simulation software to support implementation of some of the activities (pertaining to determination of the baseline energy consumption for the pilot new buildings, where EE measures were implemented) of the project. The building energy simulation software and other such material available with the project, may be transferred to one of the universities/ institutions, so that such material gets used, after implementation of the GEF project. A centre of excellence may also be created at the university/ institution which can also host the knowledge products and data/information compiled under the project.

#### **Management response: Noted the recommendation**

Up to date, there is no signal that the government will establish a centre of excellence for this purpose since it will be potentially combined in a more multi-functional entity than a solely functioned one. Yet, it is sure that the software (and other related deliverables such as training materials) will be transferred either to an institution or to a university for wide application through the MOC/Department of Science, Technology and Environment.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. The software and the training materials will be handed over to MOC/Department of Science, Technology and Environment and/or related institutions for use. This hand-over will be covered in the project final report	30 October 2021	PMU UNDP		On-going

### **Evaluation recommendation 4: Creation of the test lab for testing the building materials**

The present version of the EE building code uses the prescriptive approach, wherein the EE performance of the materials and equipment to be used for construction is prescribed (specified). For successful enforcement of the code it is very important to have a lab for testing the building materials. It is recommended that a laboratory be created for testing the performance of the building materials. Along with creation of the test lab, possibilities may be explored for using the concept of EE labelling for the building materials. It is gathered that technical standards have already been created in this regard. The test lab will become handy for implementation of the concept of EE labelling of building materials.

**Management response: Noted the recommendation.**

The project approach for assessment of energy consumption is based on actual energy performance of a building. It therefore does not serve the prescriptive approach mentioned in the building code. It is agreed that such a lab should be established to improve the code compliance check capacity, and at present MOC is doing this work with the support of CAMARSEC, a German funded project. The recommendation is therefore meaningful for MOC to consider than the project at this stage. This will be noted in the project final report shared with MOC for appropriate actions.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Indicate in the project's final report the recommendation to MOC on the establishment of a laboratory for testing energy performance of building materials.	31 October 2021	PMU		On-going

**Evaluation recommendation 5: Revision of Energy efficiency building code to include passive measures as part of EE requirements**

Future revision of the energy efficiency in buildings may consider revision of the EE building code to include the passive measures like orientation of the building, shading etc to reduce the cooling/heating load for the building. Such provisions may be made which are specific to different climate zones of Viet Nam. Further, the revision may include the provision of the energy performance method for compliance with the building code, wherein, provision may be made to use a specified building energy simulation model to establish the compliance with the EE building code.

**Management response: Disagreed**

While it is strongly agreed that passive design aspects (with orientations and shading devices included) are essential to be considered in EE designs, it is disagreed that these features have not been mentioned in the energy efficiency building code. All recommended elements including orientation, shading or even natural ventilation, etc. have been well included in the current version of the building code (QCVN 09:2017/BXD). For example, the envelop-related requirements (orientation included) are presented in Section 2.1, air ventilation in 2.2 and natural lighting in 2.3. Alternatively, regarding such envelope parameters, the EE code also allows the calculation of OTTV (Overall thermal transfer Value) as an alternative pathway in case single related energy elements cannot meeting the requirements. Notably, the EECB project even developed a specific software for designers to calculate these parameters by themselves. This will be widely disseminated in the MOC website before EOP.

As regards the provision of energy of a performance-based compliance pathway, it has been mentioned in the exit strategy report and the component 3 lessons learnt report. It should be run in parallel with the current prescriptive method as an alternative pathway. It would require the definition of baseline case (strictly

compliant) and proposed design parameters to allow a comparison.				
Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Develop project lessons learnt report and exit strategy report to emphasize the need to develop a performance-based approach for EE code compliance.	31 October 2021.	PMU		On-going
2. Complete the web-based OTTV software and upload it to the government website (website of Ministry of Construction)	31 October 2021	PMU		On-going
<b>Evaluation recommendation 6.: Introduce ‘EE Building Code’ and ‘EE measures’ in the Universities’ curriculum</b>  Introduce a curriculum in the one of the Universities regarding the ‘EE Building Code’ and ‘EE measures’ in the buildings. Apart from this a short module on Energy Efficiency in buildings, for skill upgradation and training of the practising professionals and government officials be introduced. This curriculum may later on be introduced in other institutions and universities.				
<b>Management response: Agreed</b>  As mentioned above, the curriculum on design, construction and operation of EE buildings is under development of the project and will be published and disseminated to relevant stakeholders including related technical universities. Besides, the project is supporting the National University of Civil Engineering to upgrade their own curriculums in relation to energy efficiency in buildings.				
Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Finalization and Dissemination of the training curriculums to MOC, DOCs and other related institutions such as related technical universities.	31 October 2021	PMU		On-going
2. Finalization of the upgraded curriculums of National University of Civil Engineering with EE building considerations.				
<b>Evaluation recommendation 7: Promotion of Energy Service Company (ESCO) model and financing of EE in Viet Nam</b>  Opportunities may be identified for promotion of ESCO models and financing of EE in Viet Nam. Apart from the building sector the ESCO model may take care of other large energy consuming sectors and Renewable Energy (RE) promotion through the ESCO route. In order to implement the ESCO models, there is a need to address the issues relating to the requirement of legal documents for paying for the energy savings in case of implementation of the EE measures through ESCO route for the government buildings and government owned enterprises. At the same time need to have guidelines on M&V system to verifying the ESCO energy				

savings achieved. Possibilities may be explored for creation of a super ESCO for EE in Viet Nam.

**Management response: Noted the recommendation**

It is agreed that the ESCO models should be taken into consideration in Viet Nam. However, it cannot be addressed within this project framework due to policy constraints regarding verification of energy savings, contracting procedures and etc. However, the project will make specific recommendation in the project final report, of which appropriate and timely interventions of the government, financing entities and the verification party are suggested in order to make feasible for application of ESCO models in Viet Nam in future. At this stage, EECB project technically supported the Ministry of Construction by provision of necessary technical training programs (i.e. Energy audit, communication of the results with clients, etc.) with a guidebook associated that serves as the backbone of the future ESCO infrastructure.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. The recommendation of promotion of ESCO model and financing of EE will be imbedded in the project final report.	31 October 2021	PMU		On-going

**Evaluation recommendation 8: Financial incentives for promotion of EE in building sector**

The project design has the provision of working out a scheme of financial incentives for promotion of EE in the building sector. However, considering the funds required for implementing such a scheme, this part of the project could not be implemented. The project has got a detailed assessment regarding the possibilities to provide incentives for promotion of EE in the building sector in Viet Nam. The suggestions in this regard include both fiscal and non-fiscal measures (e.g. allowing higher ratio to land to floor area, Tax rebates etc.). It is recommended that the possibilities of providing incentives for EE in the buildings may be examined afresh (particularly the non-fiscal incentives, as they will not have any financial implications for the government).

**Management response: Noted the recommendation**

It has been agreed at the mid-term phase and then indicated in the MTR report that non-financial mechanisms can be acceptable at this stage given the fact that financial ones cannot be supported by the Government at this stage. During the project implementation, non-financial incentives have been proposed by the project through a technical report submitted to MOC. Up to date, the project continues supporting MOC to develop the related circular for official promulgation of these non-financial incentives; however, it can hardly be promulgated by MOC before EOP.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Continued support of the project to help MOC finalize the draft circular for promotion of EE buildings	31 October 2021	PMU		On-going

**Evaluation recommendation 9: Calculation of the energy savings based on EE measures in new buildings**

To compute energy savings due to EE measures in new buildings, the project team has used building energy simulation software to determine the energy consumption in the baseline (normal building with no enhanced EE measures). In this regard it is important to note that the use of building energy simulation models is good for comparing different design options of a given building in terms of the energy performance. However, the use of software is not appropriate to accurately forecast the energy performance of the building. This is given the limited accuracy level of the building energy simulation models to forecast the energy consumption of the buildings due to a number of reasons (including the occupants behaviour). There is extensive evidence to suggest that buildings usually do not perform as predicted by energy simulation. Sufficient evidence exists which show that 'Building Energy Models' predictions do not match up with actual energy use, with an average of 30% discrepancy being observed between the actual usage and predicted performance and in certain cases also have variations as high as 100% consumption of energy to compute the savings achieved.

It is recommended that in case of new buildings, the energy saving achieved should be computed based on the extent of projected energy savings in percent terms by running the baseline design and the design after the intervention in the 'Building Energy Simulation Model'. This percent savings should be applied to the actual monitored consumption of energy to compute the savings achieved.

**Management response: Noted the recommendation**

It is understood that building energy simulation accuracy to predict actual consumption is rather erratic and agreed that energy simulation is better suited to compare different design configurations than to calculate the project impacts regarding actual energy consumption volume. Ideally, such simulations should be re-calibrated with data extracted from the first year and even second of buildings' operations. The solution proposed is indeed considerable.

However, this recommendation does not work for the current situation of the EECB project when most of new buildings have not fully put into operation after the project support. As a fact, the project impact therefore has been computed only for the existing ones which energy consumption could be immediately verified after the renovation.

It should be noted also that in future when the national energy consumption benchmarking system technically supported by EECB project is put in place in Viet Nam (of which how many Kwh/m2/y per typology and climate zone can be defined), it could also be considered to assess energy savings during operations against the median energy consumption value of buildings of the same typology and climate zone applicable to all buildings of at least one full year under operation. At that stage, whether it is at local and international levels, there is no strict consensus on how to estimate such savings, it should be worked out and estimated according to locally available data.

Key action(s)	Time frame	Responsible unit(s)	Tracking	
			Comments	Status
1. Finalize the executive report of the establishment of SEC and energy benchmarking system in Viet Nam and recommend MOC to put the SEC and benchmark systems in place in the project final report	31 October 2021	PMU Programme Officer		On-going

\* Status of implementation is tracked electronically in the Evaluation Resource Centre database (ERC).