

# Midterm Review

## Promotion of Non-Fired Brick Production and Utilization in Viet Nam

Implemented by UNDP Viet Nam, and executed by the Ministry of Science and Technology, Viet Nam

GEF PID 4801 / UNDP PIMS 4546

This report presents the findings of a review of project documentation, interviews and site visits in Viet Nam for the review of the project. Findings are listed according to the component of the evaluation they relate to (Project strategy; Progress; Implementation; and Sustainability), and are each based on information retrieved from documents, provided by interviewees and/or through site visits. We are grateful for the assistance provided by UNDP Viet Nam, the Project Management Unit at MOST and other representatives of the Government of Viet Nam and all stakeholders who shared their views and observations with us.

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## Acronyms and Abbreviations

Acronym	Meaning
AAC	Autoclaved aerated concrete bricks
CBB	Concrete brick block
FCB	Fired clay brick
GEF	Global Environment Facility
GHG	Greenhouse Gases
GoV	Government of Viet Nam
MoC	Ministry of Construction
MoST	Ministry of Science and Technology
MONRE	Ministry of Natural Resources and Environment
NAFOSTED	National Foundation for Science and Technology Development
NFB	Non-fired brick
NGOs	Non-Government Organizations
NPD	National Project Director
PIR	Project Implementation Report
PMU	Project Management Unit
SBU	Standard brick unit
SME	Small and medium enterprises
UNDP	United Nations Development Program
VABM	Viet Nam Association for Building Materials
VEPF	Viet Nam Environmental Protection Fund
VietinBank	Viet Nam Trade and Industrial Bank
VIGLACERA	Viet Nam Building Glass and Ceramic Corporation

# 1. Executive Summary

Project reviews are based on the assumption that an agreed project document presents a comprehensive strategy with representative and well-described baselines and targets for the project. For this project, although the strategy is sound, baselines and targets are defined in output terms, which are useful for tracking progress in activities, however, not so for tracking the impacts of components, which are the overarching measure of progress and success. The review team worked with the project management unit to adapt baselines and targets, however, this was finished too late to assist in the assessment of the project's progress. The reader should keep this in mind when using this report.

## 1.1. Project Summary Table

Project Title:	Promotion of Non-Fired Brick (NFB) Production and Utilization in Viet Nam		
UNDP Project ID:	4546	PIF approval date	01 June 2012
GEF Project ID:	4801	CEO endorsement date:	11 March 2014
Atlas Business Unit, Award # project ID	00075827	Project document signature date (date project began):	19 September 2014
Country:	Viet Nam	Date project manager hired:	January 2015
Region:		Inception workshop date:	June 2015
Focal Area:	Climate Change – CCM 2	Midterm review completion date:	---
FA Objectives, (OP/SP):	SP2 – Promote market transformation for energy efficiency in industry and the building sector	Planned project closing date:	September 2019
Trust Fund:	GEF Trust Fund	If revised, proposed operational closing date:	---
Executing Agency:	Ministry of Science and Technology of Viet Nam		
Other Partners involved:	Ministry of Construction of Viet Nam		
Project financing	<i>at endorsement (Million US\$)</i>	<i>at mid-term (Million US\$)</i>	
[1] GEF Financing	2,800,000	1,071,516	
[2] UNDP Contribution	550,000	305,000	
[3] Government	8,220,000	4,227,322	
[4] Other partners	27,310,000	52,383,452	
[5] Total co-financing	36,080,000	56,915,774	
Project total cost	38,880,000	57,987,290	

## 1.2. Project Description (brief)

The UNDP-supported GEF-financed Full-sized Project “Promotion of Non-Fired Brick Production and Utilization in Viet Nam” started in June 2015 and is currently in its third year of implementation. The project was funded by the GEF (USD 2.8 million) with co-financing from the Government of Viet Nam, UNDP, and private sector partners.



The objective of the Project is to reduce the annual growth rate of GHG emissions by displacing the use of fossil fuels and the usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks (NFBs) in Viet Nam. This objective will be achieved by removing barriers to increased production and utilization of NFBs through 4 components: i) strengthening existing policies, guidelines, standards and codes for NFB production and usage and building the capacity of responsible government personnel to enforce a strengthened regulatory framework; ii) building the knowledge and capacity of NFB production stakeholders and potential NFB users on NFB technology application and the use of NFB products; iii) improving access of SMEs and other potential NFB investors to affordable capital financing for NFB projects; and iv) technical assistance in demonstrating the development of NFB production lines and the use of NFB products in new building and construction projects. The Project will be implemented over a 5-year period and is expected to generate GHG emission reductions through the displacement of coal-fired clay brick kilns. Direct GHG reduction estimates are 383 kt CO<sub>2</sub>. Indirect emission reductions are 13,409 kt CO<sub>2</sub> that is cumulative for a 10-year period after the end of the Project.

### 1.3. *Project Progress Summary (brief)*

The project was developed in the first half of 2012, to help address a growing energy and resource demand from fired clay brick production in Viet Nam. Viet Nam had seen a surge in construction, and thus in the use of construction materials, and was facing depleting resources of clay (the main raw material for fired clay bricks) and growing energy demand for this production. The use of concrete bricks, common in many other markets (including many developing country markets) was not yet widely established in Viet Nam. Concrete bricks existed, however, were used primarily for low-quality construction (garden walls, sheds, etc) as these were considered to be of inferior quality. When produced and used well, concrete bricks can be of the same quality level as fired clay bricks, at a much lower environmental (resource and energy) impact.

While the project was being developed from concept (PIF stage) to fully defined project (Project document / CER stage), the Government of Viet Nam decided to move faster on the introduction of concrete bricks and introduce requirements (in a decree) for the use of concrete bricks in a growing share of publicly funded construction. This requirement is a good example of Viet Nam's commitment to this project and the alignment of the project with national objectives.

Overall, the project is well on track to deliver on its objective, and might even exceed original expectations about the impact to be achieved, due to the strong commitment to the project's objective and good activities of all involved parties. Per outcome, the progress achieved is:

1. Policy support for non-fired bricks has largely been driven, successfully, by the Ministry of Construction, which has moved faster than was expected at the start of the project. The project has supported this with a first batch of policies and technical standards.
2. Training and capacity building by the project has been effective in building capacity for the production of non-fired bricks with manufacturers, as well as better understanding of these building materials with local and regional decision makers.
3. The financing mechanisms supported by the project have worked, but less than was expected – and for excellent reasons: Commercial loans have become available and regular commercial investments increased much faster than expected, greatly reducing the need for publicly funded loans.
4. Investment in new NFB production seems to be growing fast, much faster than was expected in the project document. The market share of non-fired bricks is also increasing rapidly, however, non-fired bricks still face much resistance in the market, due to concerns about their quality.

These observations reflect primarily that the project is developing much faster than was expected and, although there are real challenges in need of urgent attention, it is also a sign of success that these challenges come up at this stage of the project. This success can be attributed to the joined up efforts of all parties involved: The Ministry of Construction as the main driver behind the construction sector, the Ministry of

Science and Technology as implementing partner and main driver for technology development, involved stakeholders who have taken an active role in preparing the market for non-fired bricks and the PMU who steered the project effectively in a rapidly changing environment.

#### 1.4. MTR Ratings & Achievements Table

Several parts of the project have been rated for this review, in accordance with GEF and UNDP evaluation guidelines. These ratings are summarised here, and are substantiated in the sections of the report discussing the various rated aspects. The rating for overall project results factors in all individually rated elements.

Measure		MTR Rating	Achievement summary
<b>Project Strategy</b>		(no rating)	Successful overall strategy, well embedded in government policy, with poorly elaborated targets
<b>Progress towards Results</b>	Objective 1 (policy support):	HS	The project (with its government partners) has introduced effective policies with far-reaching impacts, and has worked effectively on supporting regulations
	Objective 2 (technical capacity building):	S	The project has trained many professionals, on the supply side and in local decision making positions, however, has an on-going challenge in training the construction sector
	Objective 3 (sustainable financing support):	HS	The project, with its partners, has achieved that financing for investments is now widely available through usual commercial processes, ahead of schedule
	Objective 4 (technology application):	S	The project has developed good demonstrations of modern non-fired brick production, however, faces an on-going challenge with the demand side of the market
<b>Project Implementation &amp; Adaptive Management</b>		S	Project management is exceptionally good, with an active national project director and supportive government and private sector partners, a good team and an adaptive approach to project management. Monitoring & evaluation, however, are in need of improvement.
<b>Sustainability</b>		L	Early indications are that project results are likely to be sustainable, given that these are well embedded in government policy and there is a good market response

#### 1.5. Summary of conclusions

This review has resulted in the following conclusions for UNDP, MOST and the GEF:

- The project is based on a strong foundation of a committed government, good stakeholder interactions, a good alignment with national priorities and government policy, and a good understanding of the challenges in the market. This has resulted in a good strategic project.
- At a detailed level, the project's strategy is not always coherent: Not all activities seem to have a direct link with the overall target, and there are mismatches between the objectives of the project and of its components. While the project document (and inception report) provides a good narrative of the project and its baseline, the strategic results framework is lacking in baseline description (which for most targets leave out what was already in place in the country before the project), targets (not factoring in what already existed) and impact expectation (calculated with an outdated methodology, and without factoring in baseline developments) and needs an urgent revision.
- The project has achieved, at about mid-point to support the introduction of policies and technical standards as it set out to do, to train large groups of building materials sector and construction sector

representatives in non-fired brick technology, has seen financing for the production of non-fired bricks mature much faster than planned and has realised demonstrations of modern non-fired brick production. These are all important achievements, and demonstrate that the project is well on track towards its goals.

- The project is now running into barriers in the demand side of the market, which are fast emerging now that the supply side of the market has started moving in line with project goals and the government is driving forward the market with ambitious policies and requirements. These barriers, which the project has started addressing, need to be a priority – and perhaps the top priority – for the coming period. Budget for this is available if the project reduces activities for objectives that already have largely been met.
- The construction market in Viet Nam is rapidly evolving and non-fired bricks are gaining market share. In such a setting, regular strategy reviews are needed, ideally every year.
- Project management is working well, with good financial management and good adaptation to changing needs in consultation with key stakeholders. More attention is needed for updating the project's baseline and targets (during and after repairing the project results framework).
- Monitoring and evaluation of impacts is underdeveloped: the project tracks its results by targets indicated in the project document, however, since these are largely activity-focused and don't capture the outcomes that need to be achieved, there is no monitoring on the important outcome level. Monitoring needs to be reinitiated once the project strategic results framework is repaired.

### 1.6. *Summary of recommendations*

This review has resulted in the following recommendations for UNDP, MOST and the GEF, for this and future projects:

- The project should urgently look into its strategic results framework, with support from UNDP (and the GEF), to make sure that components have outcome-focused objectives, and that baselines, targets and indicators are meaningful and representative of the actual situation.
- A revision of the strategic results framework would ideally also include a review of project activities, to merge these into a more manageable number of comprehensive outputs and make sure that all activities contribute directly to the key objective of the project.
- Following the repair of the strategic results framework, monitoring of the project needs to be reinitiated, based on meaningful, outcome-based baselines, targets and indicators.
- Within the various components of the project, actions are needed to make sure that the project reaches its full potential. These include (in brief):
  - Continued development of technical standards for the use of non-fired bricks
  - A strategy for improved compliance with government requirements for non-fired bricks
  - Training of a larger group of stakeholders, through a less resource-intensive approach
  - Downscaling of further work on sustainable financing for manufacturing
  - Reduction of work on Autoclaved Aerated Concrete bricks
  - Quality assurance for concrete bricks, in some form
  - An integrated strategy for the development of the demand side of the market, including a budget shift from production-focused to marketing and usage-focused activities.
- In addition, the following recommendations relate to the management and supervision of the project:
  - Annual reviews of the project's strategy (through its steering committee)
  - Strengthened mandates for project management to focus (for the project manager) on on-going government strategy discussions and interaction with institutions, and (for the senior project manager) on the development and management of new activities
  - To start preparing for the end of the project, and have an exit strategy for on-going activities.
- Finally, it would be useful for UNDP and the GEF to review their project development and review process, since there are clear guidelines about how project results frameworks should be composed which appear not to have been followed and it is important to learn from this for future projects.



## 2. Introduction

### 2.1. *Purpose and objectives of the Midterm Review*

A Mid-term review is primarily a monitoring tool to identify challenges and outline corrective actions to ensure that a project is on track to achieve maximum results by its completion. The output/deliverable of a MTR process is the MTR report with issues and management responses that will be useful for the project steering committee, implementing partner (MOST), Project management unit and UNDP for necessary corrective actions (if any) and continued management and implementation of the project towards achievement of its results by its completion.

The Mid-term review assesses progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on - track to achieve its intended results. The MTR also reviews the project's strategy and its risks to sustainability.

### 2.2. *Scope & Methodology*

The review aimed at assessing the projects relevance, design and performance, early signs of impact and sustainability of results, identifying lessons learned, and making recommendations for the remainder of the project. For this, evaluation questions have been developed, based on the evaluation issues relevant for UNDP/GEF midterm project review. During the evaluation, fact-finding focused on collecting data regarding these evaluation questions (next to general qualitative and contextual information about the project), and during the analysis the projects results were valued against project targets and their indicators, as well as evaluation questions. Information gathered through stakeholder interviews and site visits was combined with data obtained through the review of project documentation.

Aspects of the project have been rated according to the assessment of the project on achievement of targets and indicators, and performance on the various evaluation questions. Ratings, and the evaluation in general, have followed the UNDP-GEF Evaluation guideline "*Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*". In addition, GEF-guidance has been used for the calculation of energy and CO<sub>2</sub>-impacts.

The results achieved with the project have been assessed against the project documents (GEF PIF, GEF CEO Endorsement Request and UNDP project document). Attempts were made, during this MTR, to also define outcome-based targets for components as well as to recalculate the project's impact based on the current GEF-guidance on the calculation of the CO<sub>2</sub> impacts of energy efficiency projects. This, however, was completed too late to be used in this MTR. It should be noted that the GEF-guidance had been issued about one year before the CEO Endorsement request was submitted

#### **The review included the following steps:**

- The desk review of (all kinds of) project documentation, including the project document, implementation and progress reports, and technical outputs. This review has served to (a) generate an overview of the project, its context, proceedings, outputs and outcome; (b) develop a list of evaluation questions for the assessment of the project; and (c) to collect data regarding MTR issues and questions. A review of the UNDP project archive has been conducted to track implementation issues and management decisions during project execution, and to track financial aspects of the project. A list of reviewed documents is included in annex 10 (Section 6.10 - List of documents reviewed).





- Interviews with project officers and (representatives of) major stakeholders involved in the project. The interview schedule is included in annex 8 (section 6.8 - List of persons interviewed). These interviews have served to (a) complete the overview of the project, in its context, and the relevance and (future) impact of the projects outcomes according to the involved organizations and stakeholders; (b) complete the fact finding regarding the evaluation issues and indicators; and (c) assist in the assessment of the project by asking the involved organizations about their impression of the projects results on specific issues (indicators), where relevant. A questionnaire, developed during the desk review phase, was used for these interviews (semi-structured interviews) (see annex 5 – section 6.5, Interview Guide).
- The analysis of the collected information, and assessment of the projects relevance, performance, success and potential impact. Collected data have been analysed and structured according to the evaluation matrix. Where target values for evaluation indicators exist (in the project document) the observed results of the project have been compared to these target values. Where these target values did not exist, a status quo description has been given and an assessment of the projects results based on a review of the project documentation (and the implied assumptions in it), reference information from similar developments in other situations, stakeholders opinions and the evaluators judgment. Ratings have been assigned based on this information. Together with the overview and contextual information, this formed the basis for this midterm review report.

A draft midterm review has, via the UNDP Viet Nam country office, been circulated with the project team and the main stakeholders of the project. Comments and additions have been included in this final version of the report.

### 2.3. *Structure of the evaluation report*

This report presents, after a brief overview of the project (section 3), an overview of findings in three major areas: Project strategy (section 4.1); Progress towards results (section 4.2); Project Implementation and Adaptive Management (section 4.3) and Sustainability (section 4.4). The final section presents Conclusions and recommendations (section 5).

Annexes for this report include: the Strategic Results Framework as included in the Project document (section 6.1); a suggested redeveloped Strategic Results Framework with a recalculated overall objective and improved baselines and targets per indicator (section 6.2); a detailed overview of results achieved per activity of the project (section 6.3); the MTR evaluation matrix (section 6.4); the interview guide used for stakeholder interviews (section 6.5); rating scales for rated components of the project (section 6.6); the MTR mission itinerary (section 6.7); a list of persons interviewed (section 6.8); a summary of meeting notes and field visits (section 6.9); a list of documents reviewed (section 6.10); a detailed co-financing table for the project (section 6.11); the evaluation consultant agreement form (section 6.12); the MTR clearance form (section 6.13); the audit trail for comments received on the draft version of this report (section 6.14); a review of relevant midterm tracking tools (section 6.15); and the terms of reference for the evaluation (section 6.16).

### 3. Project description and development context

#### 3.1. *Development context: environmental, socio-economic, institutional and policy factors relevant to the project's objective and scope*

Viet Nam's GDP growth since 2008 has been in the range of 3 to 7%. This had resulted in dramatic increases in the urbanization of Viet Nam and a subsequent demand for bricks at an average rate of 10 to 12% annually. This demand has been met mainly through the production of fired clay bricks (FCBs), comprising 83% of the brick supply in 2012.

Traditional fired clay brick (FCB) production entails a high energy demand (and resulting emissions). Almost all fired clay brick producers use traditional technologies that consume more energy, produce more emissions and waste causing serious pollution to local areas. Only for the period from 2008 – 2010, the production of 20 billions FCBs per year consumed more than 3 millions tonnes of coal equivalent, corresponding to 8 million tonnes of CO<sub>2</sub> emitted. According to the Viet Nam Association for Building Materials (VABM), more than 40 billion SBUs will be required by 2020.

The existence of more than 10,000 traditional brick kilns, using inexpensive traditional production methods and the continual growth in the number of FCB kilns, however, cause adverse environmental and social impacts, such as:

- Inefficient consumption of coal and wood energy due to limitations of traditional kiln design to use waste heat to pre-heat new bricks;
- Higher levels of local air pollution and harmful emissions;
- Generation of more waste causing serious pollution to local areas;
- The loss of 3,000 ha of arable land annually from the mining of agricultural topsoil as material for brick making; and
- Poor working conditions notably during operations at traditional kilns during the monsoon season.

While the Government of Viet Nam (GoV) has made its efforts in reducing the impact of FCB kilns through regulating the number of new fired kilns proposed for construction and encouraging efficient but intermediary technologies such as the Vertical Shaft Brick Kiln (VSBK), Non Fired brick (NFB) technologies have been seen by the GoV as one of the sound environmental-friendly technologies that could serve as an alternative to fired clay brick production and at the same time help to:

- Reduce pressures on agricultural land to be mined for clay as material for brick making and to improve food security for Viet Nam;
- Utilize fly ash as a material for NFBs to reduce growing stock piles of fly ash from coal power production;
- Reduce fossil fuel consumption and GHG emissions generated from brick manufacturing activities; and
- Modernise the industrial sector in line with other modern and rapidly developing countries where the market share of NFBs is close to 90%.

Recognising the need of transforming the building materials towards NFB, The Prime Minister's Decision 115/2001/QĐ-TTg dated 1st August 2001 set targets for NFB production of 20%-25% by 2005 and 30%-40% by 2010. The targets were not achieved largely due to the lack of funds and lack of preparedness of the market to accept new brick making technologies over the traditional ones.

In August 29th 2008, the GoV issued “Master Plan on development of building materials up to 2020”<sup>1</sup> to include the country’s need to scale-up its production and use of NFBs and to scale down FCB production. As a follow-up, the GOV approved decision No. Decision No. 567/2010/QĐ-TTg dated 28 April 2010 on the “NFB Development Program to 2020” (hereinafter called as programme 567), and Directive No. 10/CT-TTg dated April 16th, 2012 on Promotion of NFB Production and Utilization.

Programme 567 served as the main baseline plan in Viet Nam in the area of energy efficient brick making. It focused on the promotion of modern and semi-modern technologies producing the following types of NFBs: (i) concrete block bricks (CBB) made of cement, fly ash, ash, ore tailing, other industrial wastes; and (ii) lightweight concrete bricks or autoclaved aerated concrete (AAC) bricks made of sand, fly ash, cement, aluminium, and ore tailings; (iii) foam concrete and non-autoclaved aerated concrete. The programme aimed at achieving following national targets:

- The share of NFB production will increase to 20-25% by 2015 and 30-40% by 2020
- Utilization of 15 - 20 million tonnes of industrial waste (ash) from coal-fired power generation and coal kilns in other industries – this translates to savings of 1,000 hectares of agricultural land per year; and,
- All traditional fired clay brick making plants will be gradually replaced by NFB production facilities.

Within the extent of the Program 567, the Ministry of Construction was tasked to act as the lead authority responsible for coordinating the activities of the agencies and units concerned to achieve the set objectives.

In such the context, UNDP Viet Nam in collaboration with the Ministry of Science and Technology and the Ministry of Construction developed, between late 2011 and early 2012, a project to promote non-fired brick production and usage. This project was submitted to the GEF first on 4th January 2012 and resubmitted for approval on 11th April 2012. The Project Document and CEO Endorsement Request were prepared in 2012 - 2013 and the final versions of these were submitted to the GEF on 6th February 2014. GEF has issued an endorsement letter in March 11, 2014.

The Prime Minister approved the project in September 19th 2014. The project document, the basic document for project implementation was then co-signed by Ministry of Science and Technology (MOST) and by UNDP on October 27, 2014 and November 4th 2014, respectively. The project manager started work on 1<sup>st</sup> January 2015 and the full project team was operational on 15<sup>th</sup> May 2015. Subsequently, the project’s inception workshop was held in June 2015.

The project is consistent with GEF-5 Climate Change Strategic Objective 2: Promote market transformation for energy efficiency in industry and the building sector. The Project will contribute to the reduction of GHG emissions through the transformation of the building brick market towards the increased application of non-fired bricks (NFBs) in building construction. This will be achieved through the promotion and facilitation of local manufacturing of bricks using NFB technology and utilization of NFBs in building construction. Moreover, the application of NFB technology will also contribute to the improvement of energy efficiency in Viet Nam’s brick making industry, with the co-benefit of reducing GHG emissions from that sector. It will also lead to (albeit indirectly) the reduction in the energy consumption of, and GHG emissions from, the building construction sector on account of new buildings that will be constructed with NFBs.

The project is also consistent with UNDP’s country strategy, in particular with UNDAF Outcome 1, Government economic policies support growth that is more equitable, inclusive and sustainable; and One UN Plan Outcome 3, Viet Nam has adequate policies and capacities for environmental protection and the rational management of natural resources and cultural heritage for poverty reduction, economic growth and improving the quality of life.

<sup>1</sup> The Master Plan was approved by the Prime Minister via Decision No. 121/QĐ-TTg

The main programme that is designed to work towards the transformation of brick making into a modern energy efficient industry in Viet Nam is the “Master Plan of Construction Material Development up to 2020”. To boost NFB production, GoV approved the “Non-Fired Brick Development Programme” (NFBP) on 28 April 2010 with national targets set by the Prime Minister’s Decision No. 567/2010/QĐ-TTg. The project is embedded in this national programme.

GEF financing, which is in line with the national policies and programmes on energy conservation and energy efficiency, will help to leverage the NFB development in Viet Nam to achieve its targets of increasing use of green and environmental friendly building materials to reduce impacts on climate change, by focusing on activities that the Government could not do in business as-usual scenarios. This is country-driven to integrate building materials sector into the government climate change and energy efficiency agenda as specified in the 2010 Law on Energy Conservation and Energy Efficiency (EC&EE).

### 3.2. *Problems that the project sought to address: threats and barriers targeted*

The Project document and the Inception report highlight five types of barriers that prevent the development of NFBs in Viet Nam. These include:

#### 1) Policy barriers

Despite the promulgation of the EC&EE Law in 2010 to improve the energy efficiency, also in the construction sector, the issuance of a directive in 2010 by the Prime Minister<sup>2</sup> to increase the usage of greener building materials and to mitigate the environmental impacts of manufacturing FCBs, approval of Decision No. 567/2010/QĐ-TTg on the NFB Development Program in Viet Nam, directive No. 10/CT-TTg on increase of non-fired construction usage and limitation of FCBs usage and production, adoption of decision No. 1469/QĐ-TTg dated on Aug. 22, 2014 for the retirement of traditional clamp kilns by 2016 and Hoffman and VBSK kilns by 2018, Circular No. 09/2012/TT-BXD dated on Nov. 28, 2012 stipulating NFB in buildings in order to create demand for NFBs, the current policies and regulation do not provide sufficient incentives, mechanisms or information necessary to stimulate the NFB development in Viet Nam. Factors contributing to policy barriers include:

- No clear and detailed strategies on support to retire traditional clamp kilns and VSBKs;
- Inconsistent application of tax reductions for NFB enterprises throughout all provinces in Viet Nam (some provinces have these tax advantages while others do not have any). This would also include the need to institute an increase on fees (from 4 to 7%) for mining clay from agricultural areas, and reduce the competitiveness of FCB pricing;
- Lack of standardization policies on NFB equipment to be used in the industry that result in the gravitation of local producers to the importation of least-cost low quality technologies and increasing the risk of costly breakdowns with little or no technical support. This also constrains local entrepreneurs from investing into local NFB production lines that would reduce the cost of NFBs in the local market;
- Incomplete standards governing CBB quality and obligations for quality assurance. This would include standards that define the quality of fly ash that can be mixed into the CBBs that is currently up to 15% carbon;
- TCVN quality standards for Autoclaved aerated concretes (AACs) in Viet Nam that are not on par with international AAC standards. Standards that can be improved amongst others include standards for fine sand materials and lime standards used in AAC production; and
- Insufficient codes on the various uses of NFBs in all aspects of construction. This includes the lack of CBB construction standards including how concrete brick blocks (CBBs) can be applied in the

<sup>2</sup> Directive No.10/CT-TTg on the increase of non-fired construction material usage and limitation of fired clay bricks usage and production issued by the Prime Minister on 16/4/2012.

<sup>3</sup> According to ASTM, ash content in NFBs can only have less than 6% carbon content.

construction of buildings, walls and paving; permissible load bearing strength of CBBs; types and amount of mortar to be used; and construction procedures using CBB materials.

The general lack of capacity at the local government level and lack of standardization in the NFB market will result in a marginal increase in NFB market share in the brick market and hinder achievement of the targets of the program 567.

## 2) Institutional barriers

- Weak capacity of the local government agencies and provincial and people's committees in implementing central government policies. While they are aware of their responsibilities in this regard, they lack the resources and detailed knowledge required to implement a local NFB development programme, and to systematically disseminate information on NFBs that would create NFB demand;
- Lack of testing equipment to enforce quality codes for NFBs.

## 3) Knowledge and awareness barriers

- Lack of consumer confidence on the quality of NFBs currently available on the market;
- A prevailing mind-set amongst engineers, architects and building developers on their preferences for FCBs and their lack of knowledge on the benefits of the wide range of NFB products which can provide building developers with an improved building product. This includes improved insulation, aesthetics, and less costly foundation designs (based on the availability of light weight NFBs);
- Little or no knowledge amongst building and construction workers on the best practices on using NFBs in construction and in buildings. This would include the best practices on constructing with NFBs, the use of certain types of mortar, and required curing of NFBs;
- A general lack of local technical knowledge on planning, designing, constructing, operating and maintaining an NFB plant;
- General lack of local technical knowledge on how to manufacture NFB equipment for a Vietnamese NFB market;
- For potential brick making entrepreneurs and financial institutions, there are very few examples of well-managed and profitable NFB production facilities, and a lack of information on the technical, economic and environmental benefits of NFB investments. There are also few examples of technology transfer between foreign NFB suppliers and local Vietnamese entrepreneurs that have not been properly implemented resulting in poor and unprofitable plant performance.

## 4) Technical barriers

- Local investors with limited financial sources likely to procure and install a least-cost NFB technology that is of inferior quality with frequent breakdowns that causes costly production delays, and increasing production costs. Exacerbating these issues is the lack of technical support from suppliers; and
- Lack of controls over the quality of input materials. This includes some AAC plants, lime is hydrated either too fast or too slow; other plants use lime with too high of an unhydrated content leading to incomplete  $\text{Ca}(\text{OH})_2$  reactions. In addition, the quality of sand used is still poor with a high content of coarse particles and dirt. The result is the inability of some NFB plants to produce high quality NFB products.

<sup>4</sup> This includes DoST, DoC and DoIT.

<sup>5</sup> Inferior equipment includes “vibrant-compressing technology” that produces heavy CBBs with high porosity. The compressing technology without vibration can prevent this shortcoming; however, the technology is costly and not available in Viet Nam.

<sup>6</sup> Concrete blocks need to meet the TCVN 6477:2011 standard that specifies of concrete block strength of 5.0 – 7.5 MPa, and specific weight of 2,310 kg/m<sup>3</sup>. AAC brick (or light concrete) products need to meet standard TCVN 7959: 2011 that specifies of AAC strength of 3.5 - 5 MPa, specific weight from 600 kg/m<sup>3</sup> to 800 kg/m<sup>3</sup>.



### 5) Financial barriers

- Reluctance by local banks and financing institutions to finance NFB investments until they become more familiar with the technology, can estimate risks and rates of return, and have proven cases of well-managed high output NFB plants that are profitable. This reluctance is somewhat related to the banks increasing their due diligence on new borrowers resulting from higher ratios of bad loans<sup>7</sup>, notwithstanding the fact that banks have sufficient funds for lending;
- Potential investors lacking experience with NFB technology and currently have a high risk profile as borrowers for NFB plants;
- Many potential investors are SMEs transitioning from FCB plants (traditional clamp kilns or VSBKs) who may not have access to sufficient collateral for NFB loans, and likely have limited abilities to apply for bank loans; and
- Lack of knowledge and ability of potential SME investors to apply for concessionary financing of NFB projects such as VEPF.

In summary, there is a lack of confidence in NFB products by the primary consumers of NFBs, local architects, engineers and building developers. This has contributed to reduced demand for NFBs, deterioration of existing NFB production lines, and a general lack of knowledge on NFB product quality and usage. Notwithstanding that some NFB prices such as CBBs are lower than FCBs, the quality of NFBs on the Vietnamese brick market is poor to the extent that this exacerbates the lack of consumer confidence in NFB products. Furthermore, consumers are unaware of the economic gains from the use of quality NFBs that may result in the use of less mortar, improved quality construction, and lighter buildings. On the supply side, prospective NFB entrepreneurs lack knowledge on the production of quality NFBs, and are unable to provide quality assurances and safeguards while regulators do not have the necessary codes, standards and enforcement resources to ensure consistent quality production and proper use of NFBs on various construction projects.

It is anticipated that targets of market share of NFBs in Decision 567 are not likely to be met without overcoming the barriers related to policy, institutional arrangements, knowledge and awareness, and financing.

### 3.3. *Project description and strategy: objective, outcomes and expected results, description of field sites*

The project is intended to overcome the barriers for the development of NFBs in Viet Nam (see also section 3.2, above) and reducing risks of scaling-up NFB technologies. Its objective is to reduce the annual growth rate of GHG emissions by displacing the use of fossil fuels and reduce usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks (NFBs) in Viet Nam. It is expected to generate GHG emission reductions through the displacement of coal-fired clay brick kilns. Direct GHG reduction estimated in the project document amount to 383 kt CO<sub>2</sub>, and indirect emission reductions to 13,409 kt CO<sub>2</sub> (cumulative over a 10-year period after the end of the project).

The project is intended to support the National NFB Development Programme (Programme 567) with increasing production and utilisation of NFBs through 4 components: i) strengthening existing policies, guidelines, standards and codes for NFB production and usage and building the capacity of responsible government personnel to enforce a strengthened regulatory framework; ii) building the knowledge and

<sup>7</sup> According to State Banks of Viet Nam, bad loans increased dramatically in 2011 (4.9%) and 2012 (8.7%). According to VietinBank, while Vietnamese banks have increased capital mobilization by 11.7% in during the first 9 months of 2012, lending had only increased by 2.5%. Information from NAFOSTED in 2015 indicated that loan guarantee defaults are in the order of 20%

<sup>8</sup> This can be attributed to three reasons: a) enterprises have a high number of bad loans; 2) enterprises reduce borrowing due to high inventories caused by a sluggish market; and 3) lending interest rate is still too high for borrowing (as of November 2012, the short term interest rate was at 15%). As a result, banks are increasing their purchase of government bonds and avoiding loans to high risk clients.

<sup>9</sup> Implementation of NFB plants approved by MoC in 2011 and 2012 was delayed. This included AAC plants that either stopped operation or operated under 10% of its capacity.

capacity of NFB production stakeholders and potential NFB users on NFB technology application and the use of NFB products; iii) improving access of SMEs and other potential NFB investors to affordable capital financing for NFB projects; and iv) technical assistance in demonstrating the development of NFB production lines and the use of NFB products in new building and construction projects.

Component 1: Policy support for non-fired brick (NFB) technology development. This component will strengthen Government capacity for addressing NFB policy barriers, with specific focus on MoST and MoC capacity for promulgation of NFB regulations and standards, and local government capacity to implement central government policies and to regulate the growth of NFB production and usage. The expected outcome from the outputs that will be delivered by the activities to be carried out under this component is the approval and enforcement of an improved legal framework to encourage NFB production and use in building construction, technical standards, and enhanced government capacity and knowledge to regulate development of NFB manufacturing and usage. The following outputs will contribute to the achievement of this outcome:

- 1.1 Strengthened legal framework to promote NFBs
- 1.2 Strategies to implement FCB kiln replacements
- 1.3 Recommended policies and standards on domestic production of NFB equipment and technology
- 1.4 NFB product standards and building codes
- 1.5 Energy efficiency and emission standards for NFB production
- 1.6 Trained government personnel for promotion and improved regulation of growth of NFB production and Utilization

Component 2: Technical capacity building on NFB technology application and operation and use of NFB products. This component will address the lack of technical capacity amongst the private sector in Viet Nam to plan, implement and operate a NFB plant, and the lack of critical demand for NFB products. The expected outcomes from the outputs that will be delivered by the activities to be carried out under this component will be the increased availability of technically skilled and qualified local suppliers and service providers who are able to plan, design, engineer, install, maintain and operate NFB plants to produce consistent NFB products that meet international quality standards; entrepreneurs and producers who are capable of producing NFBs that meet product standard quality; and the enhanced knowledge of engineers, architects and building developers on the various advantages and uses of NFBs in construction, to increase demand of NFBs for use in the construction industry. The following outputs will contribute to the achievement of these outcomes:

- 2.1 Established strategic partnerships for NFB technology transfers
- 2.2 Completed technical courses on planning NFB investments
- 2.3 Entrepreneurs with firm plans to expand local NFB equipment manufacturing
- 2.4 Completed training courses on design, construction and operation and maintenance of NFB plants
- 2.5 Completed seminars on the use of NFB as a construction material
- 2.6 Technical assistance to VABM to promote NFB usage and facilitate NFB investments

Component 3: Sustainable financing support for NFB technology application. This component is primarily designed to address the barrier concerning the lack of access to finance for potential NFB project proponents. This would include the strengthening of linkages between potential NFB investors and existing financial sources including funds for energy conservation (EC), the National Technology Innovation Fund (NATIF) managed by MoST, government concessional financing (such as the Viet Nam Environmental Protection Fund (VEPF), local commercial banks who finance EC&EE investment projects such as VietinBank and Techcombank, and loan guarantee funds under NAFOSTED. The expected outcome from the outputs that will be delivered by the activities to be carried out under this component is the improved availability and sustained access to financial sources to potential investors and SMEs for NFB production plants and



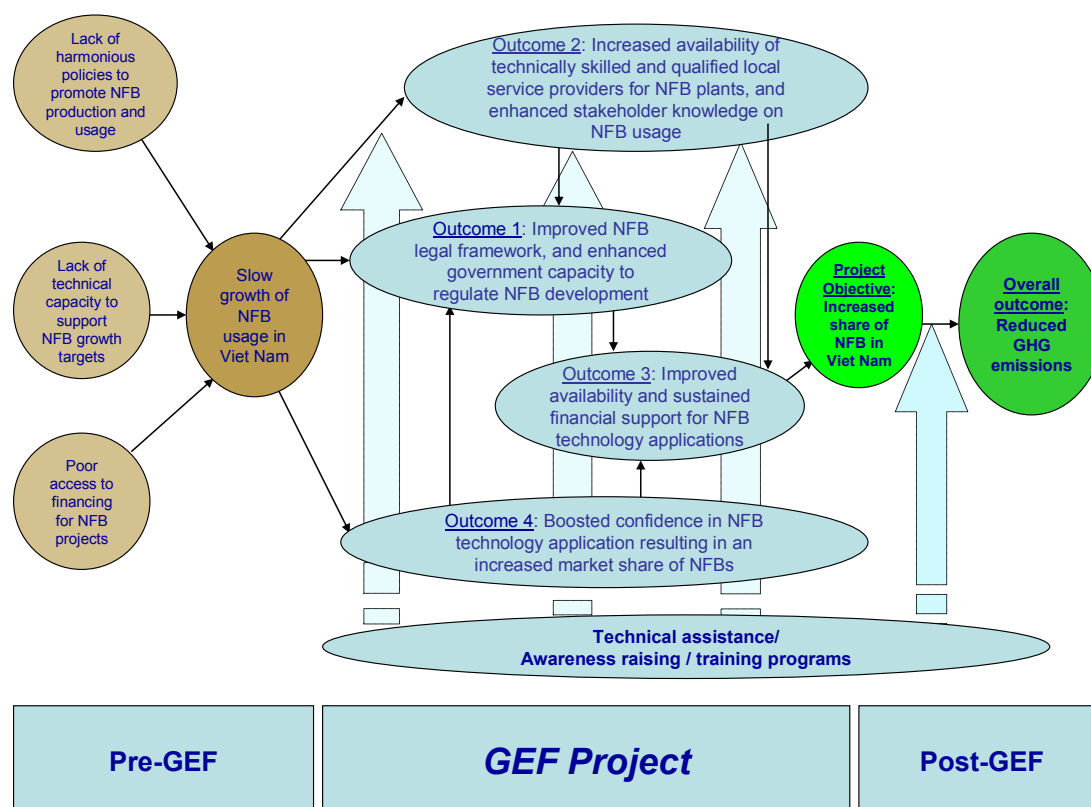
manufacturing facilities for NFB equipment. The following outputs will contribute to the achievement of this outcome:

- 3.1 Completed study on viable financing sources for NFB investments
- 3.2 Workshops for financing institutions on NFB investments
- 3.3 Strengthened business links for NFB manufacturing
- 3.4 Action plan for financing NFB SMEs
- 3.5 Operational financing scheme for NFB projects

**Component 4: NFB technology application, investment and replication.** This component will address the lack of knowledge and awareness of NFB technology through the demonstration of new NFB production lines through actual investments in NFB applications, including their identification, feasibility studies, engineering design, viable financial arrangements, installation, operation and maintenance, documentation, dissemination, technical support, monitoring, evaluation and replication. This component will also demonstrate the use of NFBs in various applications in construction, particularly in building construction where the demand for NFBs is the highest. The expected outcomes from the outputs that will be delivered by the activities to be carried out under this component are: (1) Boosted confidence in the financial and technical feasibility and economic and environmental benefits of NFB production among financial institutions, brick manufacturers, and regulatory bodies; and (2) Increased overall market share of NFBs. It is expected that MoST, MoC and VABM will work closely with Project personnel on the activities of this component. The following outputs will contribute to the achievement of these outcomes:

- 4.1 Bankable feasibility analyses of selected demonstration NFB (CBB) sites
- 4.2 Financing for demonstration NFB projects
- 4.3 Preparations for implementing NFB projects
- 4.4 Installed and operational NFB demonstration plants
- 4.5 Trained personnel to optimize NFB production
- 4.6 Monitoring and evaluation reports on demonstration NFB projects
- 4.7 AAC plants with improved production efficiencies
- 4.8 Completed demonstration on the use of NFB products
- 4.9 Plans for replication NFB plants

A flowchart of how the Project is implemented is included below.



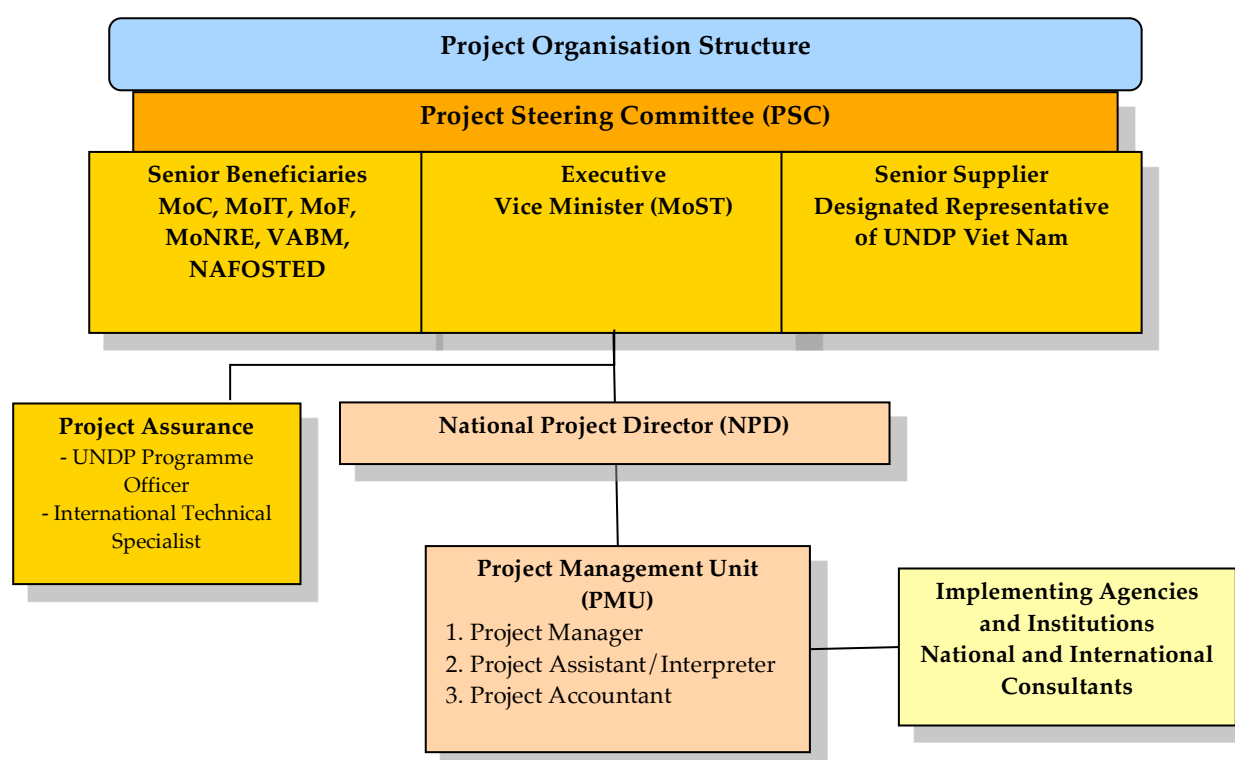
A significant portion of the technical assistance of component 4 will be focused on development and implementation of NFB demonstration and promotion of CBBs (with exception of output 4.8) to boost confidence in NFB technology application that results in an increased market share of NFBs.

### 3.4. Project implementation arrangements: short description of the project board and key implementing partner arrangements

The project is financed by GEF, with UNDP as the GEF implementing agency. It is implemented under the National Implementation Modality, with the Ministry of Science and Technology (MoST) as the national implementing partner. A project management unit (PMU), following a Harmonized Programme and Project Management Guideline (HPPMG) agreed between UN Agencies and Government of Viet Nam (GoV), carries out day-to-day management of the project.

MoST has designated a senior official as the National Project Director (NPD) for the project. The NPD is responsible for overall guidance to project management, including adherence to the Annual Work Plan (AWP) and achievement of planned results as outlined in the ProDoc, and for the use of UNDP funds through effective management and well established project review and oversight mechanisms. The NPD also ensures coordination with various Ministries and agencies and provide guidance to the project team to coordinate with UNDP, review reports and look after administrative arrangements as required by the Government of Viet Nam and UNDP.

As the implementing partner, MoST is subject to the micro assessment and subsequent quality assurance activities as per the Harmonized Approach to Cash Transfers to Implementing Partners (HACT) framework. UNDP provides overall management and guidance from its Country Office in Hanoi and the Asia Pacific Regional Centre (APRC) in Bangkok, and is responsible for monitoring and evaluation of the project as per normal GEF and UNDP requirements.



The Project Steering Committee (PSC) provides oversight of the Project Management Unit (PMU). The PSC consists of a Chairperson (MoST Vice Minister) and PSC members from various Government departments and agencies (see below). The primary function of the PSC is to provide sufficient direction for the project to function and achieve its policy and technical objectives and to approve annual project plans and M&E reports.

#### Members of the Project Steering Committee

<b>Institution</b>	<b>Position in PSC</b>
Vice minister of Science and Technology, Tran Quoc Khanh	Chairman
Vice minister of Construction, Bui Pham Khanh	Vice chairman
National Project Director, Ministry of Science and technology, Nguyen Dinh Hau	Member
Ministry of Natural Resources and Environment	Member
Ministry of Finance	Member
Representative, UNDP Viet Nam	Member
Vice Chairman, Viet Nam Association of Building Materials	Member
Director, Viet Nam Environmental Protection Fund	Member
Director, National Foundation for Science and Technology Development	Member
Representative, VietinBank	Member
Director, Viet Nam Institute of Building Materials	Member

#### 3.5. Project timing and milestones

The project was endorsed by GEF CEO in March 11, 2014. In September 19<sup>th</sup> 2014 the project was approved by the Prime Minister. The project document was then co-signed by Ministry of Science and Technology (MOST) and by UNDP on 27<sup>th</sup> October 2014 and 4<sup>th</sup> November 2014, respectively. Subsequently, the project's inception workshop was held in June 2015 and the project is now in its third year of implementation.

Important dates relating to the project include:

- First year PIR 6/2016
- Second year PIR 6/2017
- First Meeting of Steering Committee 24/4/2015
- Second Meeting of Steering Committee 13/1/2016
- Third Meeting of Steering Committee 17/1/2017

### 3.6. Main stakeholders

There is a wide range of stakeholders involved with the brick market and the growth in the supply and demand of NFBs in Viet Nam. Key stakeholders in the project are listed in the table below.

Stakeholders	Roles in the NFB project
<b>Government Stakeholders</b>	
Ministry of Science and Technology (MOST)	<p>MOST is the National Implementing Partner accountable to the Government of Viet Nam and UNDP for: (i) the successful implementation of the Project; (ii) mobilization of all resources including needed co-financing for the project implementation; (iii) the proper coordination among all related ministries, agencies, provinces and stakeholders involved in the project implementation; (iv) managing the day-to-day operations of the Project implementation as per approved work plans.</p> <p>MoST is responsible for developing and implementing the R&amp;D Investment Plan on NFB production technologies and equipment; provide guidance on NFB technological transfer and in cooperation with the Ministry of Construction to issue NFB technical standards; accrediting the NFB quality evaluation agencies.</p>
Ministry of Construction (MOC)	<p>MoC is responsible for developing policies, technical standards and regulations on NFB production and usage promotion. They ensure strong coordination with all stakeholders, notably new NFB manufacturers and NFB users, to maximize their synergies to meet the objectives of the National NFB Development Program.</p> <p>Under this project, MOC is the National Co- Implementing Partner responsible for implementation of project's component 1 "Policy support for NFB Technology Development" (except for output 1.6) that contribute to national efforts in implementation of national NFB programs, policies/ legislation development for promotion NFB production and uses.</p>
Ministry of Finance (MoF)	<p>MoF is responsible for the development and issuance of regulations on tax incentive and financial incentives for NFB development promotion. MoF will instruct, guide, supervise and implement these regulations.</p>
Ministry of Natural Resource and Environment (MoNRE)	<p>MoNRE is responsible for regulating land use for sourcing clay for FCB production into the National Land Use Planning, instructing provinces and cities in developing their provincial land use planning to include land use planning for brick production; developing and issuing policies and mechanisms, to discourage the use of agricultural land for fired clay brick production; and monitoring GHG reductions from the growth of</p>

	<p>NFB production in Viet Nam.</p> <p>MONRE will involve in developing and enforcing policies/ regulations on recycling wastes used in NFBs production</p> <p>MONRE is also the GEF focal point in Viet Nam</p>
Ministry of Industry and Trade (MoIT)	MoIT is responsible for the entry of locally manufactured NFB equipment and the NFB manufacturing production lines into the List of Key Mechanical Products and the List of Key Mechanical Product Investment Projects; this is to be done for the industry to access financial incentives and preferences provided by GoV in accordance with Decision No. 10/QD-TTg on 6/1/2009 of the Prime Minister.
<p>Local Government Agencies:</p> <ul style="list-style-type: none"> <li>• Department of Construction (DoC)</li> <li>• Department of Science and Technology (DoST)</li> <li>• Department of Industry and Trade (DoIT)</li> <li>• Department of Natural Resources and Environment (DoNRE)</li> </ul>	Local government agencies is responsible for creation of local incentive policies and land use planning that support the replacement of FCBs with NFBs and for promotion of NFB usage. The local government agencies (such as DoC, DoST, DoNRE and DoIT) will participate in the project at the provincial level for effective project implementation. The human resources of these local agencies are identified as important target groups participating in capacity building on M&E and NFB quality control/ inspection.
<b>Academic Institutes/Universities</b>	
<ul style="list-style-type: none"> <li>• Hanoi Civil Engineering University CEU)</li> <li>• Institute of Building Materials;</li> <li>• Institute for Building Science and Technology (IBST)</li> </ul>	These universities and academic institutes is involved in the development of NFB training materials, provision of technical trainings to various target groups, and technical assistance in implementation of the demonstration projects associated to NFB.
<b>Financial Entities</b>	
Viet Nam Trade and Industrial Bank (Vietinbank)	<p>VietinBank is one of the largest commercial banks in Viet Nam and has a nationwide operating network spreading to district levels.</p> <p>As the private organization, VietinBank will participate in the project as co-financing institution that will provide commercial loans towards the investments for NFB technology application</p>
Viet Nam Environment Protection Fund (VEPF) managed by MONRE	<p>VEPF is a state financial institution responsible for financial support through soft loans, loan guarantees, funding grants for programs and projects on natural conservation and bio-diversity operations, prevention and control pollution of national inter-disciplinary and inter-region pollutions, depression and settlement of local environmental problems</p> <p>Under the NFB Project, VEPF is involved in the provision of soft loans for NFB investment/ production projects that contribute to waste treatment/ recycling (coal ash from Thermal Power Plants)</p>
National Foundation for Science and Technology Development (NAFOSTED) under MOST	<p>NAFOSTED is a state financial institution responsible for supporting scientific research activities in Viet Nam. One of its missions is to promote research efforts in enterprises, with focus on core technologies development that contribute to national economic growth and competitiveness, promotion of research efforts in enterprises.</p> <p>Presently, NAFOSTED is managing a USD 1.7 million loan guarantee fund (LGF) transferred by UNDP to the Ministry of Science and</p>

	Technology after completion of the PECSME project. NAFOSTED is involved in the NFB project as a provider of loan guarantees for SME brick producers to access credit from financial institutions for their NFB project investments.
<b>Industry Associations</b>	
Viet Nam Association for Building Materials (VABM)	<p>VABM is a voluntary social professional organisation working in the field of construction materials. VABM creates enabling environment for its members to access scientific organizations, participate in trainings, workshops, etc.</p> <p>Under NFB project, VABM will involve in NFB promotion, and dissemination of NFBs materials to various end-users and various government and non-government agencies.</p>



## 4. Findings

### 4.1. *Project Strategy*

#### 4.1.1. *Project Design & Formulation*

The project was developed in the first half of 2012, to help address a growing energy and resource demand from fired clay brick production in Viet Nam. Viet Nam had seen a surge in construction, and thus in the use of construction materials, and was facing depleting resources of clay (the main raw material for fired clay bricks) and growing energy demand for this production. The use of concrete bricks, common in many other markets (including many developing country markets) was not yet widely established in Viet Nam.

Concrete bricks existed previously, however, were used primarily for low-quality construction (garden walls, sheds, etc) as these were considered to be of inferior quality. When produced and used well, however, concrete bricks can be of the same quality level as fired clay bricks, at a much lower environmental (resource and energy) impact.

The Government of Viet Nam had recognised the potential of concrete bricks and wanted to initiate a project to help develop the market for concrete bricks, as part of a transition away from fired clay bricks towards building materials with a lower environmental impact. The project's objective is based on this government objective, and the project's strategy is robust, well founded in national priorities and working within a supportive government policy framework. That is an important positive aspect of the project.

The project strategy also makes good use of national institutions, quite important in Viet Nam, and has linkages with them. The project is well embedded in two key Government Ministries and was co-developed with important government and construction sector stakeholders.

When the project was first developed (at PIF stage), Government policy for concrete bricks was not yet formed: there was a desire to move towards concrete bricks, however, no policy had been developed at the time. The project's design was based on this starting point: a construction market without specific policy for the use of concrete bricks; an existing market in which mainly low-quality bricks were offered; and user resistance to use concrete bricks for any but low-quality applications. Project components and activities were defined to address the various challenges of manufacturing good quality bricks, securing quality with product standards, developing supportive government policy and gradually preparing construction sector parties for the introduction of concrete bricks in high-quality construction. That was, at the time, a sound strategy.

While the project was being developed from concept (PIF stage) to fully defined project (Project document / CER stage), the Government of Viet Nam decided to move faster on the introduction of concrete bricks and introduce requirements (in circular No.9 / 2012 of November 2012) for the use of concrete bricks in a growing share of publicly funded construction. This requirement is a good example of Viet Nam's commitment to this project and the alignment of the project with national objectives. In addition, the Ministry of Construction (responsible for the implementation of this requirement) has since continued its commitment to the goal of the project and has taken various actions, at national level, to move the construction sector towards the use of concrete bricks. At the strategy level, therefore, this project was and is well aligned with national objectives, is strongly supported by the relevant government parties and targets a pressing national development and environmental issue. These are important success criteria for a project.

At the detailed level, the project's strategy is less well-defined: The project's detailed strategy, defined during project document / CER development, does not consider what the implications are of the Government's Circular No.9/2012 (to use concrete bricks) on the future market for concrete bricks and how activities might need to be changed to better support this government requirement. In practice, the Ministry of Construction



has helped coordinate project activities with their work around this decree / requirement, however, a project document should also reflect on this and make sure that it includes, discusses and aligns with such an important piece of government regulation. The project document, otherwise in good shape, would be much better if it had also discussed the implications of this policy development and how it would affect the project's strategy and planned activities: Many of the project's original activities still make sense with the government requirement in place, however, baselines and targets for project components should have been adjusted and prioritization of activities might have been different.

At project inception (workshop and report), the need to this government regulation was discussed, and various changes were made in the project's approach to better adapt to this changed situation. The project inception workshop and report do a good job updating the country baseline and the landscape in which the project operates. This leads to many valuable insights about project strategy and challenges. Unfortunately, these insights were hardly translated into a revision of the project strategic results framework, which was needed to adjust to those baseline and policy changes.

Project management has since partly adjusted activities to better align the project's strategy with this framework. Most activities, and in particular baseline levels and targets, were left untouched and these have since become less relevant, sometimes meaningless in this new context. This does not imply that activities have not contributed, on the contrary: most project activities have targeted essential elements of market transformation. However, a formal project strategy is an important tool to manage a project's implementation and adjust course when needed and this element gets lost when a project strategy leaves out important developments in regulation or society. Implementing agencies should work harder to make sure that project strategies are revised when there are important changes in regulation or markets, certainly when these happen during project formulation.

Gender issues are briefly discussed in the project document (Environmental and social screening section), where it is described how the transition from traditional kilns to NFB production would benefit workers through better and safer working conditions. This appears to a side benefit of the project, rather than expected the result of a dedicated effort, however, that also seems to be sufficient as there appear to be no direct gender issues related to brick production and utilisation.

#### 4.1.2. *Strategic Results Framework / Logframe*

The project strategy, translated into components and activities, doesn't always make sense: Some activities have a direct connection to the overall objective and seem well thought-out; others less so. Some revision, and reduction of activities (the project has many, probably too many to be manageable) is needed. Most activities are formulated in terms of what needs to be done, not in what needs to be achieved. This may seem trivial, but the result often is that the PMU focuses on doing what is written and less on achieving overall outcomes. It would be wise to revise these descriptions.

Project targets and indicators, as defined in the strategic results framework, are virtually all defined at output level, whereas outcome level targets are needed. This needs to be repaired, as soon as possible, as there can be no meaningful tracking of impacts without well-defined baselines and targets. There are further substantial mismatches between (activity / component) targets and (overall) objectives in the project document, such as (note that this list is indicative, not exhaustive):

- The project aims to introduce NFBs as an alternative to fired clay bricks (a good idea in itself, although maybe a bit too limited in scope), however, those NFBs already had a 13% market share before the project. That market share should go up to around 25% by the end of the project, which would require

(according to the output per factory as indicated by the project) some 325-400 new plants<sup>10</sup> (Note that this also suggests that there are already 70 or more NFB plants in Viet Nam before the start of the project). Yet, the project's target is to have 6 new plants built plus feasibility studies for another 50. Project activities will likely also generate indirect impacts leading to additional investments in new plants, however, these are not detailed or quantified and there is no explanation of how the project would make sure that this leads to enough new production plants to meet the Government's target of 25% market share for NFBs.

- The CEO endorsement request mentions (point 20) that 70 existing NFB plants are running at 10-50% of capacity. This is not consistent with other information in the project document (situation analysis, point 6), indicating that NFB plants with a total capacity of 4.3 billion SBU/yr had a combined output of 3.1 billion SBUs, suggesting a capacity rate of  $3.1 / 4.3 = 72\%$ .
- The project document indicates that clamp kilns (semi-industrialised) still produce around half of all bricks in Viet Nam. The project document also indicates that, for NFBs to gain market traction, reliability and standardisations are needed, aspects that typically require a controlled industrialised approach. Given this, how likely is it that the project's efforts to introduce NFBs will replace the poorest environmentally performing kilns, and not more modern ones that are already relatively energy efficient?

So far, this has not led to major issues in the project; however, there is a substantial risk that, if the strategy is not revised towards a focus on the large number of NFB plants that are not part of demonstrations, the project gets stuck in ineffective activities in coming years. The PMU, working with government and sectorial stakeholders, has already been working on amending and extending activities to better reflect the current needs of the country (such as the development of an Awareness and communications strategy and plan, developed during 2017 and scheduled for implementation in 2018 – 2019; and developing and conducting training courses on constructing with concrete bricks). The Ministry of Construction has also initiated activities to strengthen the market for concrete bricks, including new regulation extending the requirement to use concrete bricks for publicly funded construction and technical standards for concrete bricks. It would be useful to revise the project strategic framework to fully account for these developments and set out how these (then) new developments affect baselines, expected developments outside of the scope of the project and the project's strategy. In addition, a revision would be useful to add targets formulated in terms of outcomes, update baselines to reflect the actual situation in the country (also accounting for NFB developments unrelated to project activities) and targets that match the Government's ambitions. As part of this mid-term review, suggestions for revisions of the Strategic Results Framework have been made (see Annex 6.2).

The issues with baselines and targets in the strategic results framework could – and should – have been picked up and addressed at project design and inception stage<sup>11</sup>. It would be good for the Implementing agency to review why this has not happened during its project document review (which is, in part, specifically intended to review the quality of project strategy) and what can be done to improve for future projects.

A complicating factor of output-focused targets and indicators is the difficulty it creates in assessing project progress, which is supposed to focus more on impacts and outcomes and not primarily on completion of activities and achieving outputs. As a result, reviewers have to base their views partly on their subjective impression of achieved outcomes and impacts rather than on agreed targets. As part of the mid-term review,

<sup>10</sup> Relevant data listed in the project document includes: (Situation analysis, point 8), 3.1 billion/yr SBU in NFBs, representing a 13% market share; total production capacity for NFBs of 4.3 billion/yr SBU; 70 NFB production facilities in Viet Nam; (Situation analysis, point 9) estimated NFB production in 2020 16.8 billion/yr SBU; (Project results framework, outcome 4) 3 demonstration plants with a combined output of 65 million SBU/yr. To increase capacity from 3.1 to 16.8 billion/yr SBU with an average capacity of 21.7 million SBU/yr as for the plants selected by the project, around 630 new plants are needed. Using the average capacity of existing plants (around 44 million/yr SBU), around 310 new plants are needed.

<sup>11</sup> Reviewer's note: It is unfortunately too common for projects to not update the overall strategy during the project preparation stage and to have poorly defined objectives and targets. More attention of implementing agencies is needed for the quality of these important parts of project designs, so that there can be more meaningful monitoring of progress and that monitoring can provide the basis for a well-informed strategic discussion about project strategy.

suggestions have been made to recalculate baselines and objectives and define new outcome targets; once agreed, the project can use these to monitor impacts going.

## 4.2. *Progress towards results*

This section discusses results achieved by the project so far, during the first 2.5 years of implementation. At this stage of a project, it is normal to see many activity-based results (in line with the project strategic framework) and first results at outcome level. Overall impact is often just emerging at this stage of a project.

### 4.2.1. *Progress towards outcomes analysis*

Progress towards outcomes is assessed per component (expected outcome) of the project. A detailed overview of results achieved per component and activity is included in annex 6.3.

#### **Outcome 1: Policy support for NFB Technology development**

The objective for this component / expected outcome is: Approval and enforcement of an improved legal framework to encourage NFB production and use, and enhanced government capacity and knowledge to regulate NFB development and usage.

In this component, the project has worked with Government departments on preparing a series of policies and regulations, including:

- Decree No. 24A on management of construction materials (approved);
- Circular no. 13 (revision of circular No. 9) on the use of non-fired materials in construction works (issued in December 2017);
- Decree no. 139, approved (in 2017) by the Prime Minister, introducing administrative fines / penalties for construction works;
- A framework for Science and technology for concrete brick development, including a framework for the product construction standards that need to be developed and/or revised;
- Three national standards (TCVN) on NFB (approved): TCVN 7959:2017: Lightweight concrete-autoclaved aerated concrete products- specification; TCVN 9029:2017: Lightweight concrete-Foam concrete and non- autoclaved aerated concrete products; TCVN 9030:2017: Lightweight concrete-Test methods.
- Eleven provincial policies on replacement of old clamp kilns with NFB production facilities and policies for the development of concrete bricks markets (adopted)

During the project so far, the Ministry of Construction has led policy development in this area. It has been quite active and – rightly – has moved faster than was expected when the project was designed, which is an excellent development. The project has supported this policy drive, with technical work in service of MoC policies and regulations as well as work on technical regulations and standards. Technical support has, in line with the project document, been going mainly to NFB production standards. Construction standards for the use of NFBs are much needed; the project has started moving in this direction (as has the MoC); this should remain a priority for the next year(s), and the project strategy should be updated to reflect this.

The policy framework for concrete brick usage is robust, however, implementation is a challenge. This will require more attention from the project and a new strategy to reach out to NFB users and find ways to ensure compliance with government policy.

## **Outcome 2: Technical capacity building on NFB technology application and operation and use of NFB products**

The objective for this component / expected outcome is: Increased availability of technically skilled and qualified local services providers for NFB plants, and enhanced stakeholder knowledge on NFB usage.

In this component, the project worked with technological institutes and industry associations to support equipment manufacturers in improving their production lines for non-fired brick production and to train local construction sector representatives in NFB technology and the use of concrete bricks. This included:

- Five training modules, developed and delivered, about (1) basic knowledge of NFB, NFB regulations, standards, and policies; (2) design and construction of building using NFB; (3) technology of autoclaved aerated concrete (AAC) production; (4) technologies of concrete block brick (CBB) production; and (5) investment planning for NFB projects.
- Training courses (21 in total) conducted throughout the country, with 1500 participants from 50 provinces (out of 63 provinces in the country) targeting provincial management officials (DOC, DOIT, DOST and districts), NFB production plants; design consultants, building contractors, equipment suppliers, financial institutes, etc.

Through these training and technology development activities, the project has contributed to improving the quality of concrete brick production (as well as for AAC production at one site) and to educating important local decision makers about the usability and benefits of non-fired bricks.

The stakeholder outreach, training and awareness raising activities appear to have been successful, for the target groups identified in the project document. This target group is probably too limited, however, focusing mainly on a (large but still) limited number of decision makers in each province. The modality chosen by the project (in-person training courses in three central locations) has probably worked well for the initial step, and may have been instrumental in bringing provincial decision makers on board – both through the quality of training, and through the chance to interact with peers about NFBs. Most provinces have been covered by the project, except for some in the North of Viet Nam; it may be useful to specifically target these for a dedicated training session.

Going forward, training and awareness raising is needed for a much larger group, including construction industries, as well as workers. This will require a different approach; the current approach is far more expensive and time-consuming to enlarge much. It would be good for the project to explore collaboration on the delivery of training, to (1) find an institute where training can continue also after the project (2) embed training on NFBs more in regular training on construction (3) drastically reduce the cost of training.

The lack of skills for the correct usage of concrete bricks on construction sites is a major problem for the success of NFBs (and thus the project). The project should investigate, urgently, how it can reach large numbers of construction workers<sup>12</sup>. This will likely require partnerships with national and/or provincial institutes. The project has started work on this, and is planning to conduct three training courses for 20 vocational colleges of construction, as well as produce a video about construction with non-fired bricks. These seem to be valuable first steps, however, more efforts may be needed during the remainder of the project.

The project, though mainly focused on concrete bricks, includes some work on Autoclaved Aerated Concrete, an alternative technology. AAC panels are known for their lower resource consumption in production (comparable to that for concrete bricks), as well as their lighter weight and better thermal insulation than clay

<sup>12</sup> In its 2018 work plan, the PMU will provide support to improve training material for 20 high colleges of construction and to conduct 3 training courses for 120 teachers from 20 high colleges of construction.) and produce 3 videos on construction procedures for NFB products; conduct communication activities on this aspect.

and concrete bricks. AACs can use fly ash, a waste product from coal burning (in power plants) as raw material (as can concrete bricks). AACs were originally developed in Europe, which still constitutes their largest market, although the use of AACs is increasing in Asia. The project has worked with one national manufacturer (Viglacera) to improve their AAC production; two other factories, owned and operated by a European multinational, were already producing good quality AACs.

AACs provide an interesting alternative to traditional clay bricks, and stakeholders were interested in developing better AAC technology (than the relatively poor technology that was being imported), however, it is not a direct replacement for clay bricks and it might have been better if the project had focused all its attention on concrete bricks only, which are a direct replacement for traditional clay bricks. Other than small changes in mortar and storage of bricks, no adaptation of buildings is needed. AACs can also only be used in walls that are not exposed to rain (interior walls, or internal façade walls when a double-layered façade is used) and AACs technology is primarily beneficial because of its lighter weight, much larger size (although Viglacera produces almost brick-size units, reducing the time benefits that could be obtained in construction) and improved sound and thermal insulation. To fully benefit from the qualities of AACs (and not just from the lower energy demand in production, which is also available through much simpler concrete bricks), changes in building design are needed, as well as much more precision in construction than is common (even in the project's demo projects, where AACs were used with thick layers of mortar showing gaps – thus greatly reducing their thermal and sound insulating qualities).

In situations where AACs are useful, there are often other alternative wall systems that could also be used, such as drywall or plasterboard, often with similar or even larger economic and environmental advantages. Concrete bricks are a direct replacement for clay bricks; AACs are more complex – in AAC production, building design and construction – and essentially a different wall construction technology. The project's work on AACs has no doubt been helpful, however, there is more than enough work to for the direct replacement of clay bricks with concrete ones (e.g. further market development), and it would be advisable to focus attention on that and leave major work on alternative wall systems, which includes AACs, for another time.

### **Outcome 3: Sustainable financing support for NFB technology application**

The objective for this component / expected outcome is: Improved availability and sustained access to financial support for NFB technological application.

In this component, the project facilitated the provision of financing for first movers (into modern NFB production technology) and to help create sustainable lines of financing. With project support, six NFB investors have got loans from the Viet Nam Environmental Protection Fund (VEPF) for investment in NFB production lines, over the period of 2016 – 2017. The total loan amount was VND 86.5 billion. Of these, VND 25 billions had been disbursed (by November 2017).

Vietin Bank, a commercial bank, has established a credit line for SME investments in NFB technology, inspired by the recent government decision to require the use of non-fired bricks. So far (November 2017), Vietin Bank has provided medium and long-term loans (investment loans) to six NFB investors for a total amount of VND 54 billion (disbursement by November 2017 is VND 34 billions) as well as VND 380 billions in short-term loans (for cash flow / operations) to 18 NFB producers.

The adoption of Government program 567 on NFB, issuance of circular 09 and other NFB associated regulations and standards, has led financial institutions in Viet Nam to adapt their loan policies and favor loans for NFB investments and production. The project has facilitated this by aiding investors in accessing loans, both publicly funded and commercial.



UNDP had transferred funds (USD 1 million) as loan guarantee funds managed by a previous project (Viet Nam Promoting Energy Conservation in Small and Medium Enterprises- PECSME), to NAFOSTED to provide loan guarantee for financing of investments in EE projects including NFB technology. This, however, does not seem to have worked well: These funds are now managed under GoV rules, which are so stringent that this funding source is not used at all (and unlikely to ever be used for the intended goal). The funding is also not needed (see above), making the issue less relevant for the project..

The financing mechanisms supported by the project have worked, but less than was expected. This seems to be primarily the result of a larger than expected availability of commercial loans, which are substantially easier to obtain than subsidized mechanisms, and which are sufficient financing to allow investors to build NFB plants. It seems that the market has somewhat overtaken the project in this area, and that it may be wise to scale down work for this component – except perhaps on facilitating loan applications - and use time and budget elsewhere. Note that this recommendation stems from the larger-than-expected success already achieved by the project on this outcome (when assessed by the component's intention – see also next paragraph).

It is noteworthy that the outcome descriptor for this component misses the point: It lists the objective as “sustainable financial support” – which is an activity (providing support), and what is needed is sustainable access to financing (an outcome). Impacts demonstrate that this can be achieved in different ways and the project has succeeded on facilitating access to sustainable financing (through commercial loans, made available with project facilitation) even where access to financial support has been less than planned.

#### **Outcome 4: NFB technology application, investment and replication**

The objective for this component / expected outcome is: Boosted confidence in NFB technology application resulting in an increased market share of NFBs.

In this component, the project supported the production of good quality non-fired bricks as well as a better understanding of non-fired bricks on the demand side of the market. On the supply side, the project initiated three demo plants for concrete bricks and one for AAC bricks, as well as 11 replication projects with concrete brick production. To stimulate the supply side of the market, the project organised a series of workshops and training courses in which provincial representatives (responsible for local construction planning and regulation, and influential in local construction decisions) were educated about the possibilities for non-fired brick production and the benefits of construction with non-fired bricks.

Investment in new NFB production seems to be growing fast, much faster than was expected in the project document. The market share of non-fired bricks is growing, and is estimated to be 18% (of all bricks) by the end of 2017. This is probably largely driven by the Ministry of Construction's firm stance on policy and its commitment to change the market. One major commercial bank has stopped providing loans for fired clay brick factories, probably expecting that market to be stable or in decline.

The project strategy for this component was based on the situation well before the GoV introduced a strong policy on NFB usage. In that setting, focusing on building demo plants and gradually bringing their production to market was a valid strategy. However, this is no longer the case (and wasn't even when the project inception happened, although the full impact of the GoV's policies was not clear yet at that time).

By now, it seems obvious that the project's strategy to focus on supporting a handful of demo factories is missing the target: to meet government targets for NFB utilisation, hundreds of new factories are needed, far more than the handful that is being built with project involvement (and the same applies to buildings using NFBs), and the time for demos seems properly over. A new strategy is needed that focuses on bringing all new NFB production to a good quality level. There is no shortage of knowledge, demonstrations or even production technology for good NFBs in Viet Nam; there is a lack of trust in the market. It seems unlikely

that more demonstration plants in a landscape with far more factories will change that. Lessons learnt in working with demonstration plants can, of course, be used to help a wider group of producers improve their operations and product quality.

The biggest concern of NFB manufacturers seems to be that good quality production of NFBs raises costs. They know how to do it, but struggle to remain competitive when they do what they should do (the main factors are the selection and mixing of ingredients, which requires an investment in good production equipment; and the proper curing of bricks, which requires an ongoing operational cost). The project should look into the market development side of NFBs, which could include training and other user side components and develop, probably jointly with the sector and national/provincial government, plans to address these market concerns. Note that even a demo production factory supported by the project was curing its bricks insufficiently (7 instead of 20 days) out of cost concerns – this demonstrates how relevant the problem is.

The biggest concern of users is that there are good and bad NFB bricks on the market and it is difficult to tell these apart. The project should investigate ways of helping consumers select good quality bricks. The PMU as well as the Ministries of Science and Technology and of Construction have recognized this issue and are looking into this, however, an overarching market development strategy has not yet been developed. A coherent market development strategy, which links together several aspects of market development (such as product quality recognition or certification, construction sector education, building owner outreach and improved enforcement of requirements for the use of NFBs), is urgently needed. This strategy also would need to set targets for NFB usage in line with GoV policy.

Observations about this outcome reflect primarily that the project is developing much faster than was expected and, although these challenges are real and in need of urgent attention (and an indication that the project strategic framework was not adequately updated to reflect major policy changes), it is also a sign of success that these challenges come up at this stage of the process. This success can be attributed to the joined up efforts of all parties involved: The Ministry of Construction as the main driver behind the construction sector, the Ministry of Science and Technology as implementing partner and main driver for technology development, involved stakeholders who have taken an active role in preparing the market for non-fired bricks and the PMU who steered the project effectively in a rapidly changing environment.

#### 4.2.2. *Remaining barriers to achieve project objective*

The project has focused on four main components:

1. Policy support for NFB Technology development
2. Technical capacity building on NFB technology application and operation and use of NFB products
3. Sustainable financing support for NFB technology application
4. NFB technology application, investment and replication

The overarching policy framework for concrete and AAC bricks is in place, although there is on-going work on technical standards for the use of non-fired bricks in construction that need continuation. This work is included in the project's strategy, although it would be prudent to make this element also visible in the activity list and assign specific targets to it. Note that policy targets are often better formulated qualitatively (e.g., the topics for which regulations and/or standards are needed), than quantitatively (e.g., the number of regulations adopted – which in itself says little about coverage of the market), and it would be useful to define targets for standards and regulations in this way.

Technical capacity for NFB production seems to have been established, and further demo projects don't seem to be needed: the ones that have been realised (directly, or through replication) should be sufficient to demonstrate effectively how good-quality concrete bricks can be produced. The project could continue to use



these demos to further educate brick manufacturers about NFBs, however, new demos (the project document has set a target of 5 demos) would likely not add anything and the resources set aside for these can be used more effectively for market development.

Sustainable financing for the production of non-fired bricks seems to have been arranged, with a credit line available from the Viet Nam Environmental Protection Fund, as well as a commercial credit line from Vietin Bank. It seems prudent to continue work to facilitate parts of the loan application process (at least the technical aspects of loan applications) and discuss with Vietin bank and possibly other commercial banks how the role of the project in this can either be reduced or transferred to another entity, so that the loan process can continue without project support before the project comes to an end.

The market share of non-fired bricks is rising rapidly in Viet Nam, reflecting that there is market development. The GoV has set ambitious targets for the use of NFBs and the market is responding, though probably not yet as fast as would be needed to meet GoV targets. Stakeholders overwhelmingly point to on-going mistrust of NFBs in the market, which seems to limit the price NFB-manufacturers can ask for their products (and thus the margin they have for producing concrete bricks at the required quality level) as well as the number of buildings in which NFBs are used. A coherent market development strategy, linking together government policy, regulations, production capacity, training and education of the construction sector as well as awareness raising among building owners is needed, to address market development issues in parallel. In such a strategy, the project needs to focus its activities on those activities that are difficult to implement for Ministries, to maximize impacts of its activities. Given that concrete bricks are the primary alternative for traditional clay bricks and also the source of most concerns in the market (about their quality), these should be the focus of a market development strategy. AACs, while relevant, are a small segment of the market (next to other non-brick wall technologies) and it would be better to focus exclusively on concrete bricks in the remainder of the project, rather than aim at two different technologies at the same time.

Overall, the project is well on track to deliver on its objective, and might even exceed original expectations about the impact to be achieved, due to the strong commitment to the project's objective and good activities of all involved parties. In this context, more attention is needed for redirecting the project's activities in the next years on remaining barriers, in particular market barriers (and spend less on barriers that have already largely been addressed). This should be reflected in a revision of the Strategic Results Framework / LogFrame.

### **4.3. *Project implementation and Adaptive Management***

#### **4.3.1. *Management arrangements***

In this project, there seems to have been good adaptive management on an operational and even outcome level, however, on a strategy level, some gaps seem to have appeared. The speed at which Viet Nam is moving in this area requires that the project updates its strategy more frequently, at least once a year. A mid-term review is a good moment for that, but steering committee meetings are also good moments for an annual revision of strategy and activities. More attention is needed for which activities are most needed to support the fast-moving GoV policy agenda, in annual work plans.

A project like this, with a distinct set of policies but working within a larger government framework, always has a challenging dynamic. At the end of the day, success of the project depends on the GoV pushing forward its policy agenda. Since the GoV is pushing forward rapidly with its transition towards non-fired bricks, mainly through its Ministry of Construction, the environment in which the project is working develops rapidly, and positively. This also introduces a risk: In project management, it is all too easy to consider that the project should focus on its activities, and GoV departments on the rest. This, however, easily leads to the project "ticking boxes": doing the planned activities, possibly even doing them well, but

loosing the connection with the larger government agenda. This has not happened in this project, in fact, the PMU and Steering Committee seem to have kept the project focused on what is most needed to achieve the overall objective of the project. Nevertheless, there is also the need to meet the targets of the project strategic results framework, which focuses mainly on activities, and this threatens to take focus away from the overall objective (also because the strategic framework is poorly developed into meaningful targets at outcome level). More attention is needed for which activities are most needed to meet the overall objective of the project and (reworked) outcome targets, and less attention for activity-targets; after all, activities are only useful to the point to which these contribute to outcomes, they have no value in themselves.

The project has a remarkable management structure, with an active NPD and two day-to-day managers (project manager and senior technical adviser). This has worked quite well, and the roles appear to be complementary. In the longer term, however, this set-up can create confusion, and it would be good, also for the sustainability of results, to clarify this structure. The project manager has a background within government, the senior technical adviser (more recently, after many years in senior government roles) in internationally funded projects. The project could probably increase its effectiveness by maximizing the opportunities this double leadership offers, and create aligned but separate mandates for both the project manager and the senior technical adviser. The project manager could be given a mandate to focus primarily on the strategic and policy role of the project, to ensure that the project starts integrating more of its activities within the regular government and institutional structure of Viet Nam (and thus also prepare for a seamless end of the project where regular institutions take over activities where needed); the Senior technical adviser could focus more on the management of ongoing project activities and initiating new ones (such as a integrated market development strategy for NFBs), as well as to make sure that the project continues to meet UN requirements.

As part of this, the project manager and senior technical adviser could have more regular strategy discussions with relevant government departments and develop plans to make sure that project activities stay aligned with wider GoV policy development. Regular Steering Committees would be the right forum to discuss project strategy and the integration of project activities with wider government initiatives. To maximize the effectiveness of these meetings, it is recommended that the project manager prepares a discussion paper before each Steering Committee meeting, summarizing project activities (and how these are relevant for the overall strategy of the GoV) but also which new policy questions are relevant (e.g., how the market for NFBs can be developed in several segments of the market) and what is needed from project activities and GoV policy to develop this market. It is important to note the importance of preparing a discussion paper: this ensures that discussions are focused and that the required follow-up is clear to all parties involved, and thus help direct discussions and take steps towards more and more effective projects.

In all this, it is also important to note that the project has quite effective management arrangements, which are delivering good results. Because project management is working well, there is an opportunity to look beyond the minimum that is needed to make the project run well and aim for maximum results: the recommendations included here intend do help with that.

UNDP, as implementing agency, has specific roles in the management of a GEF-funded project. Overall, UNDP's role has been satisfactory: it has supervised the project well and has provided good guidance for its implementation. Some smaller areas for improvement are included below in the detailed discussion of aspects the UNDP role (based on specific issues of the UNDP role to be addressed during MTRs):

1. Maintaining an adequate focus on results: UNDP has, in general, focused sufficiently on results and impacts and supported the project in achieving these. It has allowed the project to direct its activities towards maximum impact, even when this required changes at the activity level, as long as these changes were agreed in the steering committee. This is how UNDP's oversight role should be conducted. There are two areas for improvement: (1) UNDP could promote more discussion about alignment of the project strategy with the changing policy environment for the project, to ensure that

the project remains focused on maximum impacts; (2) in its reviews of (English language versions of) project documents, UNDP focuses primarily on style and language (“crossing the t-s and dotting the i-s”) whereas more focus on strategic relevance of the work is needed (“what are you going to do with this report?” “how will you use this to initiate a policy discussion?”)

2. Quality and timeliness of technical reporting: Technical reporting in general is of an adequate level. Project reporting is good, technical reports produced are generally considered to be of good quality. UNDP’s review point to many deficiencies in reports, however, these are primarily stylistic and linguistic (of English version of reports) and it is doubtful that this is what the project needs most. See also point 1, above.
3. Candor and realism in annual reporting: Annual reports are correct and adequate, pointing out real progress and deviations from planned activities. There are minor deviations between progress reported in the latest PIR and the current status as reported by the PMU, which is normal for a project with many activities that is ongoing while the MTR was conducted (and thus regularly reports new results).
4. Quality of risk management: Risk management is adequate. UNDP is keeping track of most risks, especially regulatory and financial ones, and seems to discuss these with the PMU. It should be noted that the risks identified have largely not materialized, making risk management less relevant. Risks around new plants providing an adequate rate of return and owners of old clay brick kilns converting to new technology, which are both more relevant for the second half of the project, seem to have received less attention and it would be good to track these risks more actively in the coming period.
5. Responsiveness to implementation problems (if any): The project has not experienced any major implementation problems, and is also kept on track by the active involvement of two key Government Ministries. Given this, there are no responses to implementation problems to assess.
6. Issues around project delays or duration: There are no delays in the project or issues around its duration, and thus also no management responses around these to discuss.
7. Mitigation of environmental or social risks: The environmental and social screening of the project (included in the project document) identifies a few risks, without detailing these. Given the nature of the project, it appears doubtful that these risks are significant. Nevertheless, UNDP should have insisted on an active tracing of environmental and social risks to make sure that none of these become substantial. There is no evidence of such follow-up having occurred.

#### 4.3.2. *Work planning*

Work planning for the project is generally effective. Annual work plans are presented to the Steering Committee (with an accompanying budget), and these plans appear to match both the objectives and expected outcomes of the project and GoV priorities.

The work plan process is somewhat hindered by output and activity-focused targets in the strategic results framework, which overemphasize results at activity level and underemphasize outcomes. Project management’s focus is, understandably and correctly, on implementing activities and delivering outputs. Outcome-focused targets can help balance that with the need to match project activities with wider developments in the country, during project design and also during implementation. It is important to realise that the strategic results framework exists to guide projects and facilitate the achievement of objectives, however, it is not – or should not be – a straightjacket: certainly at activity level, PMUs and Steering Committees should be given maximum flexibility to adjust activities as they find useful to achieve the objective of the project, also when this implies changing (or even scrapping) project activities and activity-based targets (which have no relevance beyond day-to-day monitoring of progress, and not for end-of-project impacts). In this project, as in many others, a lot of attention is given to realising activities, which risks drawing attention away from achieving objectives. The project has, so far, not suffered from this, however, as the project evolves, the risk of misalignment between detailed activities defined many years ago, and the needs of the project now increases.

When changing project activities, it is important to update the project strategic results framework. This framework provides an important tool for managing and supervising the project and, while more flexibility is needed in changing activities where it is needed, it is also important to keep a good record of what the project is aiming to achieve on a yearly basis and monitor, at least annually, how much progress has been made towards outcomes and objectives (using meaningful indicators). Most projects, unfortunately, consider a strategic results framework as a static, unchangeable document that sets out what has to be done, and not as guidance for the implementation of a project, to be regularly updated.

#### 4.3.3. *Finance and co-finance*

Project finances look healthy. Financial management follows usual UNDP procedures with budget and expenditure approvals and (approving) annual accountant's reports. There are no reported or observed financial management issues.

Project disbursement of GEF funds, at 38% of the total budget, is slightly lower than to be expected at this point in the project, however, this has been more than made up by increased co-financing by government departments (MOST and MOC), at 78% of their original commitment. Overall project spending is thus in line with the project's expected activity level, and the larger than planned contribution by the GoV has freed up some GEF funding, which is an excellent development also reflecting good use of international financing.

Spending per component is generally in line with planning, with the following observations:

- For component 1 (policy support), spending is a little lower than expected. Work for this component was originally expected to finish early in the project, and planned standards have been delivered. It is now clear that more work is needed on technical standards for the use of non-fired bricks and the remaining budget should allow for that.
- For component 2 (technical capacity building), most of the budget has been spent, in line with the project plan to build this capacity early on in the project. The remaining budget should be sufficient for any last work needed for this component.
- For component 3 (sustainable financing), project spending has been substantially lower than planned. Activities, however, have delivered the desired result and further work for this component will be limited. There will probably be budget left at the end of the project for this component, which could be re-allocated to component 4 to contribute to the market development of non-fired bricks. The PMU is encouraged to estimate how much budget is needed for component 3 for the remainder of the project and propose re-allocation of the remainder to component 4.
- For component 4 (technology investment and replication), project spending has also been substantially lower than was expected in the project work plan. This matches the observation that government support for non-fired brick technology has been stronger than expected and that the supply-side of the market has moved much stronger than expected into NFB production. In this component, some budget was reserved for further demos with NFB technology and replication projects, however, it seems that such demos are much less needed, if at all. More budget is needed, however, for developing the demand side of the market and the PMU is encouraged to develop a budget which allocates sufficient budget to the market development for NFB usage.
- Project management spending is in line with expectations, taking into account that some budget is reserved for external views (planned but not yet completed).

The following table (next page) provides an overview of allocated budget and spending per component, in the project document, in annual work plans and realisation (2017 up to October).

Outcomes	Total Budget		Annual allocations & expenditure					
			2015		2016		2017*	
Total								
Project document	2,800,000	100%	647,900	23%	598,000	21%	539,420	19%
Annual work plan	1,794,727	64%	390,000	14%	625,018	22%	779,709	28%
Expenditure	1,071,516	38%	188,933	7%	421,181	15%	461,402	16%
Component 1: Policy support for non-fired brick (NFB) technology development								
Project document	568,550	100%	205,750	36%	149,700	26%	111,500	20%
Annual work plan	418,292	74%	120,000	21%	133,486	23%	164,806	29%
Expenditure	251,572	44%	73,840	13%	95,357	17%	82,375	14%
Component 2: Technical capacity building on NFB technology application and operation and use of NFB products								
Project document	562,820	100%	174,900	31%	151,400	27%	112,920	20%
Annual work plan	623,370	111%	121,000	21%	273,200	49%	229,170	41%
Expenditure	479,663	85%	48,882	9%	196,878	35%	233,903	42%
Component 3: Sustainable financing support for NFB technology application								
Project document	267,950	100%	60,800	23%	68,250	25%	60,150	22%
Annual work plan	112,000	42%	35,000	13%	32,000	12%	45,000	17%
Expenditure	36,030	13%	17,908	7%	11,820	4%	6,302	2%
Component 4: NFB technology application, investment and replication								
Project document	1,267,780	100%	185,470	15%	210,670	17%	211,870	17%
Annual work plan	555,644	44%	81,000	6%	161,732	13%	312,912	25%
Expenditure	265,749	21%	28,516	2%	106,697	8%	130,536	10%
Project management								
Project document	132,900	100%	20,980	16%	17,980	14%	42,980	32%
Annual work plan	85,421	64%	33,000	25%	24,600	19%	27,821	21%
Expenditure	38,502	29%	19,787	15%	10,429	8%	8,286	6%

\* 2017 includes the period January – October 2017. Later data were not available when this data was collected.

All amounts in USD

Co-financing for the project is exceptionally strong, with both the Government of Viet Nam and the private sector having already delivered much larger amounts of co-financing than was to be expected at this stage of the project. GoV co-financing was labelled as “grant and cash” in the CEO endorsement request, which is unusual, as government co-financing almost always includes an in-kind component, for example for the use of government infrastructure. That is also the case for this project, and it is considered that the original labelling of this type of co-financing was incorrect.

Sources of co-financing	Committed		Delivered	
	Type of co-financing	Amount (USD)	Type of co-financing	Amount (USD)
<b>Government of Viet Nam</b>				
Ministry of Science and Technology	Grant (cash)	3,000,000	Grant & in-kind	1,770,000
Ministry of Construction	Grant (cash)	1,000,000	In-kind	1,356,000
Viet Nam Environmental Protection Fund	Soft loan	3,000,000	Soft loan	1,101,322
National Foundation for Science and Technology Development (NAFOSTED)	Loan guarantee	1,000,000	---	0
Department of Construction, Hai Duong City	In-kind	220,000	---	0
<b>GEF Agency</b>				
UNDP	In-kind	550,000	Grant (cash)	305,000





Sources of co-financing	Committed		Delivered	
	Type of co-financing	Amount (USD)	Type of co-financing	Amount (USD)
<b>Private Sector</b>				
Vietin Bank	Market-based loan	21,200,000	Market-based loan	18,237,885
Viglacera corporation	Equity / investment	3,000,000	Equity / investment	5,973,451
Six private sector entrepreneurs*	Equity / investment	3,000,000	Equity / investment	28,137,416
Viet Nam Association of Building Materials (VABM)	In-kind	110,000	In-kind	34,700
<b>Total</b>				
<b>Total</b>		<b>36,080,000</b>		<b>56,915,774</b>

\* Note that, at this point in the project, 7 companies have delivered co-financing: Luu Xa Cement Factory (\$300,000), Thanh Phuc Company (\$8,013,317), Hong Hoang Hong Company (\$385,000), Minh Tuan Company (\$402,655), Dak Nong Company (\$610,444), Duc Thanh JS Investment and Technology Company (\$11,182,000), DmC Corporation (\$7,244,000). For Thanh Phuc Company, Duc Thanh Investment and DmC Company, co-financing includes revenues from selling NFB production lines (which are investments in NFB production lines by their clients, NFB producers).

#### 4.3.4. Project-level monitoring and evaluation systems

As discussed earlier in this review, project monitoring and evaluation are hindered by the lack of outcome-focused targets and indicators in the project document. The project document defines targets at activity level (which are adequately monitored) and an overall objective (market share of NFBs), which is monitored through Ministry of Construction statistics. These indicators are adequately tracked, however, monitoring at outcome level is needed to determine if a project is strategically on track. Such indicators were not defined at project design or inception, and have not been added during implementation either. It is recommended that the project, in a revision of the project strategic results framework, defines meaningful targets and indicators at outcome level, and develops ways of monitoring progress on those outcome-based targets.

The project's Monitoring & Evaluation (M&E) plan includes the standard elements of any UNDP-supported, GEF-funded project (inception workshop and report, APR/PIR, project boards, MTR, TE and annual audits), all at the right time and with a normal budget. The terminal evaluation is planned at least three months before project closure, which may be too early to assess final results and impacts, and it might be advisable to plan this in the last month(s) of the project, rather than earlier.

The M&E plan, however, relies heavily on the inception workshop and annual work plans for its monitoring of project progress. This puts the onus of defining what needs to be monitored too much on the implementation team, whereas this should be defined in the project document. These activities are also not budgeted in the M&E plan, leaving it up to project management to find budget for it out of its operational budget. This is undesirable, and it had the predictable result of no dedicated monitoring of outcomes being developed. Monitoring of impacts is assigned to the UNDP GEF RTA, to develop during the course of the project, also without an assigned budget. There is no evidence of the RTA having taken up this role; regardless, it should not be up to the RTA to come up, in the middle of a project, with the way in which its impacts should be monitored and evaluated.

Overall, the M&E plan only delivered what was needed for other reasons anyway (project boards, APR/PIRs, and a GEF-mandated MTR), and nothing else. As such, it failed – and that should come as no surprise.

#### 4.3.5. Stakeholder engagement

Stakeholder engagement in the project is excellent: all government stakeholders are well represented in the project, as are academic and civil society stakeholders. Construction sector companies are less represented in the project, apart from front-running ones. This side of the market was initially not so important, and

participation of front-running construction companies was sufficient, however, with the rapid development of the market, more involvement of regular (mid-market) construction companies is becoming relevant and it would be useful to map stakeholder views for this segment of the market and make sure that construction sector views are also represented in the project. This increased engagement could take many forms, e.g. a dedicated platform for construction sector representatives, integration of a construction industry association in the project and/or inclusion of a construction sector company representative in the project Steering Committee (and there are many other good forms of increasing engagement with that sector); what is important is increased attention for engagement with the wider construction sector and to have their voice represented in the project.

#### 4.3.6. *Reporting*

Project reporting meets all GEF and UNDP requirements. In addition to this, it would be useful, for this project (as for many others) to produce annual briefings in lay terms, of project activities and results. The “story” of the project, so important to understand what is happening and why that is important, is easily accessible for an insider through formal reporting, however, for an outsider, much of this formal reporting makes little sense. Telling the story of the project (which can be as short as a 1-2 page project summary per year) as it is evolving is relevant to enable a wider community to follow the project; it is also important to be able to tell the impact of the project for Viet Nam in years after the project, when everyone involved has moved on and only formal reporting remains. Now, while the project is active, is the best moment to start capturing that “story” and make sure that there is a coherent overview of the project when it ends.

#### 4.3.7. *Communications*

The project has communicated effectively with its target groups in the building materials industry. Now that the focus of the project needs to shift more towards the use of non-fired bricks in regular construction, it is important to develop communication strategies with this segment of the market. The project has initiated the development of a communication strategy for the construction sector and it is important that this initiative is continued, with support from the Steering Committee. Ideally, the project’s communication strategy would include communication through government departments and industry associations as well as directly from the project to the construction sector, to make sure that the full range of options is considered and the most effective communication option is used for each communication goal.

### 4.4. *Sustainability*

Project sustainability can only be properly assessed at the end of the project, or even after it. Nevertheless, the mid-term review can look at early indicators of sustainability. When considering the sustainability of the project, it is important to recognize that the GoV policy for NFBs is solid and keeps progressing, which is a good indicator of long-term sustainability. Even though there are many challenges with the implementation of this policy, there seems to be ongoing progress. The construction materials market also seems to be consistently moving towards NFBs, and better quality NFBs. Progress appears to be slower than set out in GoV policy, however, it is still a substantial and sustained progress.

The construction industry itself, which has to use NFBs, is the party most lagging behind. This was recognized at project inception, however, no strategy was developed then to address the concerns of users (it is being developed now). To avoid risks to the sustainability of the project, this initiative needs to be continued with urgency. Financing of NFB production, however, has already moved from subsidized to commercial financing. The project can probably safely scale down its activities in this area.

The project is now at about 60% of its duration, and needs to start thinking about an “exit strategy”: what needs to continue after the end of the project, and where can that land; what can be closed down, and how



can this be done responsibly; what remains to be done now, and how can it done on time? So far, there are no indications than an extension of the project would be needed.

#### *4.4.1. Financial risks to sustainability*

Financial risks to the sustainability of the project stem primarily from the conception of many construction industries that concrete bricks remain to be of low (or at least uncertain) quality and therefore justify a reduced price (compared to clay bricks). This conception threatens, in the long term, the business case of NFB production. The project is addressing this through increased attention for the marketing and usage side of NFB use that, as set out in the report, would need strengthening.

Other financial risks as identified in the project document, such as available financing for NFB producers, have been effectively addressed by the project and are no longer a risk to the project's sustainability.

#### *4.4.2. Socio-economic risks to sustainability*

No socio-economic risks to the project's sustainability have been identified.

#### *4.4.3. Institutional framework and governance risks to sustainability*

The institutional framework for the project is very supportive and seems to pose no risks. In fact, the institutional framework is an important driver for the success of the project so far. Governance of the project seems effective and is well organised with good representation of all important parties and an involved and active National Project Director.

Given the direction the project is taking, it would make sense to include a construction company representative in project governance, for example in the Steering Committee. The role of the NAFOSTED representative in the project, which seemed relevant initially, is no longer relevant (since NAFOSTED can't fulfil the role set out for them in the project document and that role has also lost relevance with the development of financing options for NFB production investments); it might make sense for the NAFOSTED representative to step down from the Steering committee to create a space for a construction company representative.

#### *4.4.4. Environmental risks to sustainability*

There are no identified environmental risks to the sustainability of the project, apart, of course, from the observation that any new construction leads to increased pressure on the environment and that continued efforts are needed to minimize that pressure. The project, focusing on reducing the environmental impact of fired brick, is contributing to reducing the environmental pressure of construction – however, can't fully eliminate these (nor could any project). It would be advisable for the project to explore which alternative wall construction technologies are available with even less environmental impacts (than non-fired bricks) and prepare an overview of these, to inform Vietnamese society and perhaps form the foundation for a follow-up to the project, focusing on technologies that reduce environmental impacts further than non-fired bricks.



## 5. Conclusions and Recommendations

### 5.1. *Conclusions*

The project's objective is based on the Government of Viet Nam's objective to replace a large share of traditional fired clay bricks with concrete bricks in its construction market, and the project builds on this. Its strategy is robust, well-founded in national priorities and working within a supportive government policy framework. That is an important positive aspect of the project. The project strategy also makes good use of national institutions, quite important in Viet Nam, and has linkages with them.

On a detailed level, the project's strategy is not always coherent: Some activities have a direct connection to the overall objective and seem well thought-out; others less so. Some revision, and reduction of activities (the project has many, probably too many to be manageable) is needed.

Most activities are formulated in terms of what needs to be done, not in what needs to be achieved. This may seem trivial, but the result often is that the PMU focuses on doing what is written and less on achieving overall outcomes. It would be wise to revise these descriptions.

The project inception workshop and report do a good job updating the country baseline and the landscape in which the project operates. This leads to many valuable insights about project strategy and challenges, however, not to an update of targets and indicators in the project's strategic results framework.

Most baseline levels and targets were set to reflect project activities only and do not take into account that there are also non-project related activities around NFBs going on in Viet Nam (such as regular production and use), making them less useful for impact assessments. Project activities have still targeted essential elements of market transformation and contributed greatly to the success of the project, however, a strategic results framework with baselines and targets is an essential management tool, which could not be used in this project. Implementing agencies should work harder to make sure that project strategies are revised when there are important changes in regulation or markets, certainly when these happen during project formulation.

There are further substantial mismatches between (activity / component) targets and (overall) objectives in the project document (e.g., inconsistent market shares, number of plants, production capacity, standardisation needs – see section 4.1.2. for a more detailed discussion). So far, this has not led to major issues in the project; however, there is a substantial risk that, if the strategic results framework is not revised to better reflect reality, the project focuses on ineffective activities in coming years, simply to meet ill-advised targets included in the project document.

#### 5.1.1. *Progress by component*

1. Policy support for non-fired bricks has largely been driven by the Ministry of Construction, which has moved faster than was expected at the start of the project – and to its benefit. The project has supported this drive for new policy and regulations, helping deliver a first batch of technical standards. New standards are also needed for the use of non-fired bricks. The project has started work towards these, which needs to remain a priority for the coming year(s). Also, compliance with government policy remains a challenge, and it is advisable that the project develops a strategy to increase compliance with requirements for the use of non-fired bricks.
2. Training and capacity building by the project has been effective in building capacity for the production of non-fired bricks with manufacturers, as well as better understanding of these building materials with local and regional decision makers. Going forward, training is needed for a much

- larger group of stakeholders, including construction companies and workers, for which new methods of delivering training are needed which require less project resources.
3. The financing mechanisms supported by the project have worked, but less than was expected – and for excellent reasons: Commercial loans and regular commercial investments have become available much faster than expected, greatly reducing the need for publicly funded loans. Given the success achieved, the project can scale down its activities for sustainable financing faster than expected, freeing up resources to be used elsewhere.
  4. Investment in new NFB production seems to be growing fast, much faster than was expected in the project document. The market share of non-fired bricks is also increasing rapidly, however, non-fired bricks still face much resistance in the market, due to concerns about their quality. A new strategy is needed that focuses on bringing all new NFB production to a good quality level, perhaps working more with certification of quality bricks. This should be accompanied by a market development strategy linking together several aspects of market development (such as product quality recognition or certification, construction sector education, building owner outreach and improved enforcement of requirements for the use of NFBs). Given that concrete bricks are the primary alternative for traditional clay bricks and also the source of most concerns in the market (about their quality), these should be the focus of a market development strategy. AACs, while relevant, are a small segment of the market (next to other non-brick wall technologies) and it would be better to focus exclusively on concrete bricks in the remainder of the project, rather than aim at two different technologies at the same time.

These observations reflect primarily that the project is developing much faster than was expected and, although there are real challenges in need of urgent attention, it is also a sign of success that these challenges come up at this stage of the project. This success can be attributed to the joined up efforts of all parties involved: The Ministry of Construction as the main driver behind the construction sector, the Ministry of Science and Technology as implementing partner and main driver for technology development, involved stakeholders who have taken an active role in preparing the market for non-fired bricks and the PMU who steered the project effectively in a rapidly changing environment.

### 5.1.2. *Project implementation*

This project has seen an effective implementation and good adaptive management at the operational and even outcome level, however, on a strategy level, some gaps seem to have appeared. The speed at which Viet Nam is moving in this area requires that the project updates its strategy more frequently than usual, at least once a year. A mid-term review is a good moment for that, but steering committee meetings are also good moments for an annual revision of strategy and activities.

When changing project activities, it is important to update the project strategic results framework. This framework provides an important tool for managing and supervising the project and, while more flexibility is needed in changing activities where it is needed, it is also important to keep a good record of what the project is aiming to achieve on a yearly basis and monitor, at least annually, how much progress has been made towards outcomes and objectives (using meaningful indicators).

Project management is working well, with an usual structure with a project manager and a permanent senior technical adviser, both with management roles. The project could probably benefit further from this luxury by somewhat separating the mandate of these two roles, with the project manager focusing more on strategic discussion about government policy and linkages with government departments, and the senior technical adviser on defining and managing project activities best matching the needs of the country.

Project finances are excellent, with a larger than planned contribution by the Government of Viet Nam (and lower use of GEF funds than planned) and larger than expected co-financing by the private sector as well. The project will, in component 4, need budget to address the development of the demand side of the market

for non-fired bricks, which can be freed up by reducing no longer needed activities (planned for coming years) within components 3 and 4 of the project.

The project is adequately monitoring progress against targets, using the targets defined in the project results framework. Since these are inadequate, however, meaningful monitoring is difficult. Note that this equally affects the evaluation of impacts, necessitating that this mid-term review bases its review of progress on a general observation of the project and the market, rather than on well-defined targets. This is far from ideal, and directly related to the design of the project document, which was developed under the responsibility of UNDP and was reviewed by the GEF. It is essential that the project defines meaningful targets and indicators at outcome level, and develops ways of monitoring progress on those outcome-based targets.

The project reports effectively to its stakeholders and funders. In addition, it would be useful to “tell the story of the project”, in a layman’s account of the project and what it is achieving for the wider community. Now, while the project is active, is the best moment to start capturing that “story”, for example annually, and make sure that there is a coherent overview of the project when it ends.

### 5.1.3. *Sustainability of results*

Project sustainability can only be properly assessed at the end of the project, or even after it. Nevertheless, the mid-term review can look at early indicators of sustainability. When considering the sustainability of the project, it is important to recognize that the GoV policy for NFBs is solid and keeps progressing, which is a good indicator of long-term sustainability. Even though there are many challenges with the implementation of this policy, there seems to be ongoing progress. The construction materials market also seems to be consistently moving towards NFBs, and better quality NFBs. Progress appears to be slower than set out in GoV policy, however, it is still a substantial and sustained progress.

The main risk to the sustainability of the project stems from the conception of many construction industries that concrete bricks remain to be of low (or at least uncertain) quality and therefore justify a reduced price (compared to clay bricks). This conception threatens, in the long term, the business case of NFB production. The project is addressing this through increased attention for the demand side of non-fired bricks market, and this needs to be a priority for the remainder of the project.

The project is now at about 60% of its duration, and needs to start thinking about an “exit strategy”: what needs to continue after the end of the project, and where can that land; what can be closed down, and how can this be done responsibly; what remains to be done now, and how can it be done on time?

## 5.2. *Recommendations*

This section sets out recommendations for the project, including actions needed to correct the design, implementation, monitoring and/or evaluation of the project, and recommendations for reinforcing the project. All corrective actions relate to inadequately formulated baselines and targets in the strategic results framework of the project; actual implementation is going well, and there are recommendations to build on this to reinforce impacts.

Exceptionally, and in direct response to the seriousness of errors in the design of the project’s strategic results framework and its impact calculation, baseline and targets, there is also a section with recommendations for UNDP and the GEF (who both have a responsibility for the quality of these parts) to support a repair of this framework and introduced improved procedures to prevent recurrence of similar mistakes in other projects.

### 5.2.1. *Corrective actions for the design, implementation, monitoring and evaluation of the project*

- The project strategic results framework includes outcome targets that are primarily formulated at activity level (completing demo factories, training a certain number of people, etc). Such targets do not adequately address results at the outcome level, which also need to be monitored and evaluated, and are generally more important than output and activity-based results. Further, the baseline as defined for the project does not address wider developments in the country, making it unsuitable for measuring impacts and targets don't match with the formulated objectives. It is important to revise these issues, so that the project can adequately monitor and report its progress on outcomes and nationwide impacts. UNDP, as agency responsible for the quality and review of project design (and the guidelines issued to support this) are the GEF should welcome a revision that strengthens the framework in accordance with its guidelines.
- A review of the project's activities is recommended, to discuss how to better align activities with the overall objective of the project and to bundle activities in a smaller, more manageable number of outputs of the project. With this, output descriptions should be revised to focus on what needs to be achieved, rather than on what needs to be done.
- Project monitoring needs a revision, with a fully developed monitoring & evaluation framework, based on measurement of outcome targets and indicators. At the moment, the project can only track activity-based targets, which are not sufficient for monitoring impacts.

### 5.2.2. *Actions to follow up or reinforce initial benefits from the project*

- Standards have been developed for the manufacturing of non-fired bricks; these are now also needed for the use of non-fired bricks in construction. The project has initiated work on this, which needs to continue.
- Compliance with regulations (for the use of non-fired bricks) is, as for any policy, a challenge. The project should develop a strategy to increase compliance with requirements for the use of non-fired bricks, to maximize their impact.
- Training has been successful, however, a much larger group of stakeholders in the construction sector also needs training in the use of non-fired bricks now that the market is rapidly developing. This will require different ways of delivering training, requiring less project resources.
- Sustainable financing for the manufacturing for non-fired bricks has been realized, and it is advisable to reduce the remaining available budget for component 3 of the project (sustainable financing support) to free up budget for the development of the demand side of the market. In addition, within component 4 (technology application) a shift in budget is needed, with less resources going towards further demonstration and replication of production technology, and more towards the demand side of the market.
- The project has done useful work developing Autoclaved Aerated Concrete (AAC) brick technology. For the remainder of the project, however, it is advisable to focus attention only on regular concrete bricks, which form the bulk of the market and which are a direct replacement for the fired clay bricks that need to be replaced.
- A strategy is needed to ensure quality of non-fired bricks and to make sure market parties can recognize bricks that meet quality standards, for example working more with certification of NFBs.
- A comprehensive strategy is needed for the development of the demand side of the market. The project has started working towards this, with a marketing and communications strategy, which can be extended to an integrated market development strategy (also including elements of government policy). Given the importance of the demand side of the market, this needs to remain a priority for the remainder of the project.
- The sustainability of project results is promising, however, there is a risk to that stemming from a conception in the market that concrete bricks are often of low quality. This can, in the long run, threaten success of the project. Demand side development of the market, as listed above, is needed to address this.

- Annual strategy reviews for the project, including a full revision of the project's strategic results framework, are recommended, to make sure that the project remains relevant and focused on key priorities of Viet Nam. Steering Committee meetings can be a good platform for such a review, certainly when project management prepares a strategy review paper before a steering committee meeting.
- Project management, already good, can probably be made more effective when somewhat separating the roles of the project manager and senior technical adviser, to make sure that both government strategy discussions and good planning and execution of activities receive dedicated attention.
- With the project over half of its lifetime and several activities already having been completed, it is important to start preparing an "exit strategy" for the project, which includes a plan to end activities before the end of the project and finding a new home for those activities that need to continue.

### 5.2.3. *Recommendations for UNDP and the GEF*

- There is virtually not a single baseline, target or impact calculation for this project that meets GEF guidelines. The project strategic results framework (one of the most important parts of a project document and CER) need urgent repairing and both the GEF and UNDP are recommended to fully support such a revision, as well as review of their internal procedures to make sure that they perform better in future.
- When designing projects, more attention is needed for meaningful baselines and targets at outcome level. These should be based on measurable changes in the market or environment the project wishes to influence, not on the project completing its activities. Implementing agencies need to pay more attention to the quality of a project's strategic results framework, as should the GEF secretariat in its project review.



## 6. Annexes

### 6.1. Strategic Results Framework (Project logical framework) as included in Project document

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
<b>Project Objective:</b> Reduce the annual growth rate of GHG emissions by displacement of fossil fuel use and the usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks (NFBs) in Viet Nam	<ul style="list-style-type: none"> <li>Cumulative direct and indirect post-project CO<sub>2</sub> emission reductions resulting from the NFB plant investments and technical assistance by EOP, Mtons CO<sub>2</sub>.</li> <li>Cumulative direct energy saving (TOE) from displacement of coal through the demonstration NFB plants (3 CBB plants and one AAC plant) by EOP</li> </ul>	<ul style="list-style-type: none"> <li>0</li> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>0.088</li> <li>1.270</li> <li>30,782</li> </ul>	<ul style="list-style-type: none"> <li>Project final report as well as annual surveys of energy consumption &amp; reductions for each NFB project</li> <li>Project final report as well as annual surveys of energy consumption &amp; reductions for each NFB project</li> </ul>	<ul style="list-style-type: none"> <li>Economic growth in the country will continue that includes the recovery of the real estate market in Viet Nam</li> <li>Willingness of current brick SMEs and entrepreneurs to transform the industry to NFB technologies is ensured.</li> </ul>
<b>Outcome 1:</b> Approval and enforcement of an improved legal framework to encourage NFB production and use, and enhanced government capacity and knowledge to regulate NFB development and usage	<ul style="list-style-type: none"> <li>Number of approved and enforced policies to encourage the increase in the production and usage of NFBs and decrease the use of FCBs by EOP</li> <li>Number of officially approved and enforced regulatory framework mandating the replacement of fired clay brick kilns by Year 2</li> <li>Number of policies and standards developed for the local manufacture of NFB equipment and technology that are approved and enforced by Year 4</li> </ul>	<ul style="list-style-type: none"> <li>0</li> <li>0</li> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>10</li> <li>1</li> <li>3</li> </ul>	<ul style="list-style-type: none"> <li>Official documentation on policies and draft NFB incentive policies</li> <li>Official study that overviews the current brick making operations and required actions to replace FCB kilns with NFB technology</li> <li>Official document on the approved NFB standards</li> </ul>	<ul style="list-style-type: none"> <li>Continued government support for strengthening current NFB legal framework as well as regulations, standards and codes</li> </ul>

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
	<ul style="list-style-type: none"> <li>Number of developed regulations, building standards and codes governing the use of NFBs in the construction sector that are approved and enforced by Year 3</li> <li>Number of developed standards on energy efficiency and emissions reduction in NFB production that are approved and enforced by Year 3</li> <li>Number of trained government officers in NFB quality control standards and regulations and new building codes mandating the use of NFBs by EOP</li> <li>Number of NFB plants that are compliant to new NFB quality control regulations and standards by EOP</li> <li>Number of building projects that are using new building codes that define and mandate the use of NFBs by EOP</li> </ul>	<ul style="list-style-type: none"> <li>• 1</li> <li>• 0</li> <li>▪ 0</li> <li>▪ 0</li> <li>▪ 0</li> </ul>	<ul style="list-style-type: none"> <li>• 3</li> <li>• 2</li> <li>▪ 100</li> <li>▪ 6</li> <li>▪ 6</li> </ul>	<ul style="list-style-type: none"> <li>Official document on the approved NFB regulations, standards and codes for building construction</li> <li>Official document on the approved EE and emission standards for NFB production</li> <li>Reports on workshop proceedings</li> <li>Official monitoring and evaluation document on completed NFB plants</li> </ul>	

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
				<ul style="list-style-type: none"> <li>Official monitoring and evaluation document on new building projects that cover compliance to new</li> </ul>	
<b>Outcome 2: Increased availability of technically skilled and qualified local service providers for NFB plants, and enhanced stakeholder knowledge on NFB usage.</b>	<ul style="list-style-type: none"> <li>Number of new NFB plants that were designed and constructed by local engineering firms based on new NFB technical guidelines by EOP</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>6</li> </ul>	<ul style="list-style-type: none"> <li>Partnership agreements</li> </ul>	<ul style="list-style-type: none"> <li>Willingness of existing brick SMEs to embrace new NFB technologies is assured.</li> </ul>
	<ul style="list-style-type: none"> <li>Number of local firms that can manufacture NFB plant equipment based on set standards developed under this project by Year 2</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>1</li> </ul>	<ul style="list-style-type: none"> <li>Technical guidelines for developing NFB projects</li> <li>Training assessments and feedback from participants</li> </ul>	
	<ul style="list-style-type: none"> <li>Number of building developers and owners that use of NFBs as building construction material by EOP</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>300</li> </ul>	<ul style="list-style-type: none"> <li>Study on NFB equipment standardization</li> </ul>	
	<ul style="list-style-type: none"> <li>Number of visitors to NFB website and facilitation center at VABM by EOP</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>1,000</li> </ul>	<ul style="list-style-type: none"> <li>Workshop assessments and feedback from participants</li> </ul>	
<b>Outcome 3: Improved availability and sustained access to financial support for NFB technology applications</b>	<ul style="list-style-type: none"> <li>Number of financing institutions providing financial products for NFB investments by Year 3</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>6</li> </ul>	<ul style="list-style-type: none"> <li>Studies on financial sources for NFB investments</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient capital replenishments are available for NFB scale-up (estimated to be around USD 221 million to Year 2020)</li> </ul>
	<ul style="list-style-type: none"> <li>Number of SMEs and NFB entrepreneurs with confirmed</li> </ul>	<ul style="list-style-type: none"> <li>0</li> </ul>	<ul style="list-style-type: none"> <li>10</li> </ul>	<ul style="list-style-type: none"> <li>Workshop assessments and feedback from participant</li> </ul>	

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
	financing through Project financial schemes by EOP			<ul style="list-style-type: none"> <li>Documentation on NFB financing action plan</li> <li>Financing agreements between new NFB entrepreneurs and financing sources that are a part of NFB financing scheme</li> </ul>	<ul style="list-style-type: none"> <li>Willingness of SMEs and entrepreneurs to shift towards NFB technology from FCB kilns is ensured.</li> </ul>
<b>Outcome 4: Boosted confidence in NFB technology application resulting in an increased market share of NFBs</b>	<ul style="list-style-type: none"> <li>Number of operational NFB demonstration plants in operation with a 90% capacity factor by Year 3</li> <li>Number of AAC facilities with production at a 90% capacity factor by Year 3</li> <li>Cumulative annual production of NFBs from 3 NFB demonstration plants in Viet Nam by EOP (SBUs)</li> <li>MJ/standard brick unit (energy intensity) of CBB manufacture from demonstration NFB plants by EOP</li> <li>MJ/standard brick unit (energy intensity) of AAC bricks by EOP</li> <li>Number of NFB</li> </ul>	<ul style="list-style-type: none"> <li>0</li> <li>0</li> <li>0</li> <li>3.554</li> <li>3.554</li> </ul>	<ul style="list-style-type: none"> <li>3</li> <li>1</li> <li>65 million</li> <li>0.455 (hollow bricks)</li> <li>0.675 (solid bricks)</li> <li>1.284</li> </ul>	<ul style="list-style-type: none"> <li>Bankable feasibility studies</li> <li>Financial agreements</li> <li>Monitoring reports on NFB plant construction</li> <li>Monitoring reports of NFB demonstration production and energy consumption</li> <li>Plans for other NFB investments</li> </ul>	<ul style="list-style-type: none"> <li>Support of SMEs and entrepreneurs to ensure excellent demonstration of NFB technology</li> </ul>

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
	plants with feasibility studies completed with assistance of VABM-associated consultants by EOP  • Number of NFB plants that are planned by EOP  • % of market share of NFBs in the local brick market by EOP	• 0          • 13	• 24          • 50          • 25		



## 6.2. Strategic Results Framework (Project logical framework), MTR suggested revisions

This revised Strategic Results Framework has been developed as part of the Mid-Term Review, to improve the definitions of outcomes and indicators and provide more insightful measures of success for the project.

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
<b>Project Objective:</b> Reduce the annual growth rate of GHG emissions by displacement of fossil fuel use and the usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks (NFBs) in Viet Nam	<ul style="list-style-type: none"> <li>Cumulative direct project and post-project CO<sub>2</sub> emission reductions resulting from the NFB plant investments and technical assistance by EOP, Mtons CO<sub>2</sub>.</li> </ul>	<ul style="list-style-type: none"> <li>No NFB production lines in operation using modern technology</li> <li>No emission reduction through replacement of CFBs through modern NFBs</li> </ul>	<ul style="list-style-type: none"> <li>0.088<sup>13</sup> (direct project) + 1.270<sup>14</sup> (direct post-project) Mt CO<sub>2</sub> emission reduction</li> </ul>	<ul style="list-style-type: none"> <li>Project final report as well as annual surveys of energy consumption &amp; reductions for each NFB project</li> </ul>	
	<ul style="list-style-type: none"> <li>Cumulative direct energy saving (TOE) from displacement of coal through the demonstration NFB plants (3 CBB plants and one AAC plant and 21 replication project during project time) by EOP</li> </ul>	<ul style="list-style-type: none"> <li>No NFB production lines in operation using modern technology</li> <li>No energy savings through replacement of CFBs through modern NFBs</li> </ul>	<ul style="list-style-type: none"> <li>30,782 TOE / year energy savings</li> <li>At least 25 (4 demo + 21 replication) production lines in operation using modern technology</li> </ul>	<ul style="list-style-type: none"> <li>Project final report as well as annual surveys of energy consumption &amp; reductions for each NFB project</li> </ul>	<ul style="list-style-type: none"> <li>Willingness of current brick SMEs and entrepreneurs to transform the industry to NFB technologies is ensured.</li> </ul>
<b>Outcome 1:</b> Approval and enforcement of an improved legal framework to encourage NFB production and use, and enhanced government capacity and knowledge to regulate NFB development and usage	<ul style="list-style-type: none"> <li>Number of policies, regulations and standards approved and enforced to encourage the increase in the production and usage of NFB and decrease the use of FCBs</li> </ul>	<ul style="list-style-type: none"> <li>A number of plans/policies have been adopted to encourage NFB developments: (i) Master plan on development of building materials by 2020; (ii) Decision No. 567/2010/QĐ-TTg; (iii) Directive No. 10/CT-TTg (2012) on promotion of NFB production and utilization; (iv) circular 09/2012/TT-BXD creating NFB demand; (v) decision</li> </ul>	<ul style="list-style-type: none"> <li>13 additional policies approved and enforced to encourage NFB development (Investment, production and use) and decrease FCB usage by EOP</li> <li>2 standards / policies approved to promote local manufacturers of NFB equipment and technology by year 4</li> <li>3 standards / regulations approved by year 3 to govern quality of NFBs</li> </ul>	<ul style="list-style-type: none"> <li>Official documentation on approved NFB policies, standards and quality regulations</li> <li>Project annual reports</li> </ul>	<ul style="list-style-type: none"> <li>Continued government support for strengthening current NFB legal framework as well as regulations, standards and codes</li> </ul>

<sup>13</sup> This is the direct emission reduction during the course of the 5-year Project

<sup>14</sup> This is the direct post-project emission reduction from NFB plants that received technical assistance from Project Output 4.9 during Years 4 and 5 to be implemented after EOP



Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
		No. 1449/QĐ-TTg for retirement of traditional clays kilns. <ul style="list-style-type: none"> <li>Lack of standards and policies on NFB equipment to encourage and attract local enterprises to invest in NFB production lines</li> <li>Insufficient NFB standards make it difficult to control quality of NFB produced, quality of buildings where NFBs are used;</li> </ul>			
	<ul style="list-style-type: none"> <li>Number of standards/norms on energy efficiency (EE) and emissions reduction in NFB production developed and recommended for approved</li> </ul>	<ul style="list-style-type: none"> <li>No standards / norms have been adopted for EE and emission reduction for production of construction materials as well as NFBs</li> </ul>	<ul style="list-style-type: none"> <li>2 standards / norms on energy efficiency and emission reduction in NFBs production adopted by EOP</li> </ul>	<ul style="list-style-type: none"> <li>Official document approved on the EE and emission standards for NFB production</li> </ul>	
	<ul style="list-style-type: none"> <li>Enhanced government capacity to improve NFB regulation, control and mandate NFBs production and markets</li> </ul>	<ul style="list-style-type: none"> <li>Limited capacity of the government officers in NFBs in general, quality control of NFB manufacturing, production and uses in particular;</li> <li>No training courses have been held to enhance capacity of the government officers in NFB development and management</li> </ul>	<ul style="list-style-type: none"> <li>By EOP, 940 government officers at national and provincial level trained on various aspects of NFBs (types, characteristics, requirement for control and promotion of NFB manufacturing, production technology, usage, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Training reports/ workshops proceedings</li> </ul>	
<b>Outcome 2: Increased availability of technically skilled and</b>	<ul style="list-style-type: none"> <li>Number of local firms that can manufacture NFB plant equipment based</li> </ul>	<ul style="list-style-type: none"> <li>Lack of local technical knowledge on how to manufacture</li> </ul>	<ul style="list-style-type: none"> <li>1 local firm able to manufacture NFB plants' equipment</li> </ul>	<ul style="list-style-type: none"> <li>Study on NFB equipment standardization</li> </ul>	

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
<b>qualified local service providers for NFB plants, and enhanced stakeholder knowledge on NFB usage.</b>	on set standards developed under this project	equipment for NFB production lines that can be competed with those internationally produced (quality and price)	based on set of standards developed under this project by year 4.	<ul style="list-style-type: none"> <li>Technical report by the project</li> </ul>	
	<ul style="list-style-type: none"> <li>Number of building developers and owners used NFBs as building construction materials</li> </ul>	<ul style="list-style-type: none"> <li>Lack of consumer confidence and knowledge on using NFBs;</li> </ul>	<ul style="list-style-type: none"> <li>300 building developers and owners correctly use NFBs as building construction material by EOP</li> </ul>	<ul style="list-style-type: none"> <li>Documents of market research</li> <li>Report from Department of construction from provinces</li> </ul>	
	<ul style="list-style-type: none"> <li>Enhanced technical skills and stakeholder knowledge/information on NFB associated issues</li> </ul>	<ul style="list-style-type: none"> <li>No training has been provided to stakeholders regarding NFB associated issues;</li> <li>Limited NFB knowledge amongst engineers, designers and building developers;</li> <li>Little or no knowledge amongst construction workers on NFB building techniques and best practices on using NFBs in construction;</li> <li>Low awareness on the advantages and environmental benefits of NFBs within the construction and building sector in Viet Nam</li> </ul>	<ul style="list-style-type: none"> <li>By EOP, 21 training courses with total of 1500 people from 50 provinces trained on various NFBs' aspects. Of these: <ul style="list-style-type: none"> <li>940 governmental and local officers</li> <li>121 designers and constructors</li> <li>399 NFB investors</li> <li>40 people from other related areas</li> </ul> </li> <li>2 training courses for 60 people from vocational colleges of construction</li> <li>A NFB website developed, maintained and updated regularly</li> </ul>	<ul style="list-style-type: none"> <li>Training materials on various aspects of NFB</li> <li>Training reports;</li> <li>Documentation on NFB website</li> </ul>	
<b>Outcome 3: Improved availability and sustained access to financial support for NFB technology applications</b>	<ul style="list-style-type: none"> <li>Loan volume provided by financial institutions (including commercial banks) for NFB investments</li> </ul>	<ul style="list-style-type: none"> <li>A number of financial institutions such as Vietinbank, VEPE, NOFOSTED, Green</li> </ul>	<ul style="list-style-type: none"> <li>At least US\$24 million provided by financial institutions for NFB production investment by</li> </ul>	<ul style="list-style-type: none"> <li>Workshop report organized for financial institutions;</li> <li>Report by the financial</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient capital replenishments are available for NFB scale-up (estimated to</li> </ul>

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
	(USD m)	Investment Facility (GIF) have interest in supporting SMEs for NFB investment, however: <ul style="list-style-type: none"> <li>No dedicated financing for NFB production</li> </ul>	year 3	institutions (VEPF and Vietinbank, etc.) on their lending to NFB producers	be around USD 221 million to Year 2020)
	<ul style="list-style-type: none"> <li>Number of SMEs and NFB entrepreneurs with confirmed financing</li> </ul>	<ul style="list-style-type: none"> <li>Many potential NFB investors are SMEs who have difficulties in accessing to loans,</li> <li>Lack of knowledge and ability of potential SME investors to apply for concessionary financing of NFB projects</li> </ul>	<ul style="list-style-type: none"> <li>30 NFB SMEs get loans from financial institutions by EOP (10 NFB projects get loan from VEPF and 20 projects get loans from VietinBank)</li> </ul>	<ul style="list-style-type: none"> <li>Financing agreements between new NFB entrepreneurs and financing sources that are a part of NFB financing scheme</li> </ul>	<ul style="list-style-type: none"> <li>Willingness of SMEs and entrepreneurs to shift towards NFB technology from FCB kilns is ensured</li> </ul>
<b>Outcome 4: Boosted confidence in NFB technology application resulting in an increased market share of NFBs</b>	<ul style="list-style-type: none"> <li>Number of NFB demonstration plants in operation</li> </ul>	<p>As of 2015 there exist</p> <ul style="list-style-type: none"> <li>(i) more than 1,000 CBB production lines (with yearly production of 6 million SBUs);</li> <li>(ii) 12 AAC companies (with yearly production of about 1.3 million SBUs); and</li> <li>(iii) 17 foamed brick companies (with yearly production of 0.12 billion SBUs).</li> </ul> <ul style="list-style-type: none"> <li>Most of CBB technologies imported from China are low quality;</li> <li>NFB entrepreneurs lack knowledge on the production of qualified NFBs, lack of knowledge in designing,</li> </ul>	<ul style="list-style-type: none"> <li>3 CBB demonstration plants operating at 90% designed capacity by EOP, with cumulative annual production of 65 million SBUs by EOP;</li> <li>1 AAC demonstration plant operating at 90% designed capacity by EOP;</li> </ul>	<ul style="list-style-type: none"> <li>Bankable feasibility studies;</li> <li>Financial agreement;</li> <li>Technical assistance reports</li> <li>Monitoring and evaluation reports for each demonstration plant (demonstration production and energy consumption)</li> </ul>	<ul style="list-style-type: none"> <li>Support of SMEs and entrepreneurs to ensure excellent demonstration of NFB technologies</li> </ul>

Strategy	Indicators	Baseline	Target	Sources of Verification	Risks and Assumptions
		constructing, operating and maintaining an NFB plant; <ul style="list-style-type: none"> <li>Very few examples of well-managed and profitable NFB production facilities existed</li> </ul>			
	<ul style="list-style-type: none"> <li>Number of NFB plants received technical assistance on optimization of raw materials, product quality control procedures, staff training and technology transfer, feasibility studies planned and operated</li> </ul>	<ul style="list-style-type: none"> <li>Lack of local technical knowledge on planning, designing, constructing, operating and maintaining an NFB plant;</li> </ul>	With the project support, it's expected by EOP: <ul style="list-style-type: none"> <li>21 NFB plants received direct support in development of feasibility studies, optimization of inputs materials, production management, quality control, etc. and operated;</li> <li>50 NFB plants with approved investment plan</li> </ul>	<ul style="list-style-type: none"> <li>Technical report of replication projects</li> <li>Provincial reports on the NFB production</li> </ul>	<ul style="list-style-type: none"> <li>Willingness of existing brick SMEs to embrace new NFB technologies is assured</li> </ul>
	<ul style="list-style-type: none"> <li>% of market share of NFBs in the local brick market</li> </ul>	<ul style="list-style-type: none"> <li>By the project start, there exist about 70 NFB production facilities, with annually designed capacity of over 4.3 billion SBUs, accounted for 13% of the brick market share in Vietnam</li> <li>Lack of consumers' confidence in the quality of NFBs limits development of the NFB market in Viet Nam</li> </ul>	<ul style="list-style-type: none"> <li>25 % of the NFB market share in the local brick markets by EOP</li> </ul>	<ul style="list-style-type: none"> <li>Market survey of brick market</li> <li>Ministry of Construction statistics</li> </ul>	



### 6.3. Results per project activity table

An overview of results achieved per activity is included in the table below. Only results achieved are indicated; empty cells indicate that, in that year, no results were reported. It should be noted that projects are assessed at their results in terms of overall progress towards their objective and progress per outcome; activity-based results are an important indicator and a relevant tracker for project management and oversight, however, they are not a goal in themselves.

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
Outcome 1: Policy support for non-fired brick (NFB) technology development				
MTR rating: Highly Satisfactory (The project (with its government partners) has introduced effective policies with far-reaching impacts, and has worked effectively on supporting regulations)				
<b>Indicator 1:</b> Number of approved and enforced policies to encourage the increase in the production and usage of NFBs and decrease the use of FCBs <b>Indicator 2:</b> Number of officially approved and enforced regulatory framework mandating the replacement of fired clay brick kilns. <b>Indicator 3:</b> Number of NFB product standards and building codes developed and approved	Activity Result 1.1: Legal framework to promote NFB production and utilization approved and enforced.	<ul style="list-style-type: none"><li>Completed review on current policies issued by Government and by Provinces to find out the performance and existing gaps.</li></ul>	<ul style="list-style-type: none"><li>Completed survey and assessment of investment performance on NFB nation wide;</li><li>Survey and assessment of utilization of NFB nation wide initiated;</li><li>Incentive policies framework for NFBs drafted and revised</li><li>Decree 24a on Building materials has issued by the GoV. This Decree includes incentive policies on investment, land use, land tax and technology transfer;</li><li>Decree 121 is being revised regarding penalty of construction activities</li></ul>	<ul style="list-style-type: none"><li>Completed Survey and assessment of utilization of NFB nation wide;</li><li>A Circular is being developed to replace Circular 09 on NFB (Being submitted to MOC for approval and issue) and circular No. 13 has been issued by MOC on using NFB in December 2017</li><li>Decree No. 139 on administrative fine for construction activities (including a fine for not using NFB) issued by GoV on 2017</li><li>Decision No. 452 by the Prime Minister on processing and utilization of fly ash for Building materials and in construction. (MOC implemented using co-financing).</li></ul>
	Action 1.2: strategies to implement FCB kiln replacement program	<ul style="list-style-type: none"><li>Analyse on the market of operational FCB kilns throughout Viet Nam is done.</li></ul>	<ul style="list-style-type: none"><li>Plan/policies for replacement of FCB and NFB promotion completed /issued for 04 provinces (Lai Chau, Nam Dinh, Can Tho and Hai Duong) or approved?</li></ul>	<ul style="list-style-type: none"><li>07 plans/policies for replacement of all kinds of old clamp kiln and promotion of NFB investment and utilization developed and approved by the provinces (Bac kan, Thua Thien Hue, Binh Dinh, Lam Dong, Ninh Thuan, Kon Tum, Can Tho)</li><li>11 provincial policies issued by Provincial People’s Committees on</li></ul>

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
				planning/ plan/ policies on replacement of old clamp kilns and promotion of NFB production and utilization.
	Activity 1.3: Incentive policy to promote domestic NFB equipment and spare parts production (developed and submitted to MOST and MOC)			<ul style="list-style-type: none"> <li>• Surveys and manufacturing technology assessment completed</li> <li>• Review report being prepared for current policies and technical standard (being commented by stakeholders)</li> <li>• Technical Assistance is under implementation to support to Thanh Phuc Company (NFB equipment Manufacturer) to upgrade heat treatment technology.</li> <li>• Combined with 2.3</li> </ul>
	Activity result: 1.4: NFB product standards and building codes prepared and submitted.	<ul style="list-style-type: none"> <li>• Completed Inception report</li> </ul>	<ul style="list-style-type: none"> <li>• A framework on science and technology including framework for standards and Codes for of NFB (products and utilization in construction) has been approved by MOC</li> <li>• Completed review of International experience of NFBs products standards, regulation and building codes</li> <li>• Three TCVN on NFBs drafted</li> </ul>	<ul style="list-style-type: none"> <li>• 03 standards (TCVN) have been revised and announced by MOC and MOST in October 2017.</li> </ul>
	Activity result 1.5: Energy efficiency and emission standards for NFB production			<ul style="list-style-type: none"> <li>• Standards are being implemented</li> </ul>
<b>COMPONENT 2: Technical capacity building on NFB technology application and operation and use of</b>				



Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
NFB products				
MTR rating: Satisfactory (The project has trained many professionals, on the supply side and in local decision making positions, however, has an on-going challenge in training the construction sector)				
<b>Indicator 1:</b> Number of new NFB plants that were designed and constructed by local engineering firms based on new NFB technical guidelines	Action 2.1: Development of strategic partnerships between the numerous potential NFB entrepreneurs, international NFB suppliers operating in Viet Nam and local service providers for the transfer NFB technology			<ul style="list-style-type: none"><li>Project has cooperation with 3 domestic equipment manufacturers to supply equipment to NFB plants through workshops and training courses. In 2016 and 2017, 2 equipment manufacturers supplied 176 production lines to market with a combined design capacity of 7 billion standard brick units per year.</li></ul>
	Activity Result 2.2: Completed technical courses on planning NFB investments.	<ul style="list-style-type: none"><li>Target groups identified and training need assessment completed</li></ul>	<ul style="list-style-type: none"><li>Training materials prepared by NC and IC: Module 1 (PNFB-1: Introduction, basic knowledge of NFB, policy and standards;), Module 3 (AAC technology), Module 4 (PNFB-4, Production technology of concrete block brick), Module 5 (Investment planning and loan document preparation);</li><li>Completed preparation of the training materials on AAC Technology</li><li>PNFB-02: Preparation of the training materials on Design and Construction of works using NFB</li></ul>	<ul style="list-style-type: none"><li>Training materials prepared by NC: Module 2 (PNFB-2: Design and Construction of works using NFB)</li></ul>
	2.3 Entrepreneurs with firm plans to expand local			<ul style="list-style-type: none"><li>Combined with 1.3</li></ul>

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
	manufacture of NFB-making equipment and associated components			
	Activity Result 2.4: Completed training courses on the design, construction, production operation and maintenance of NFB plants	<ul style="list-style-type: none"> <li>Completed 3 modules and training materials on:</li> <li>PNFB-1: Basic knowledge on NFB, policy and standards;</li> <li>PNFB-4: NFB concrete block technology</li> <li>PNFB-5: investment Planning and loan documents</li> </ul>	<ul style="list-style-type: none"> <li>Completed 08 training courses for 352 trainees from 24 provinces (02 PNFB - 1; 02 PNFB - 3; 02 PNFB - 4; 02 PNFB - 5)</li> </ul>	<ul style="list-style-type: none"> <li>9 training courses conducted in Can Tho, Da Nang, Nha Trang on modules 1, 2, 4</li> <li>4 training courses on module 2 (Design and construction using NFB) in Ha Noi and Ho Chi Minh city.</li> <li>21 training courses conducted overall, with 1500 trainees across 50 provinces.</li> </ul>
	Activity Results 2.5: Workshops on NFB Utilisation as a construction material		<ul style="list-style-type: none"> <li>01 WS on NFB Utilisation conducted</li> </ul>	<ul style="list-style-type: none"> <li>4 workshops in Quang Ngai, Quang Nam, Dong Thap and Thua Thien Hue Provinces.</li> </ul>
	Activity result 2.6: Technical assistance to VABM to promote NFB utilization and facilitate NFB investments		<ul style="list-style-type: none"> <li>VABM's website ungraded and operated</li> <li>02 WS conducted by VABM with project support</li> </ul>	<ul style="list-style-type: none"> <li>03 Workshops conducted in cooperation with VABM on NFB:               <ul style="list-style-type: none"> <li>Technical Measures for efficiency improvement of production and using NFB in construction</li> <li>Development of NFB production and utilization: Advantages and barriers</li> <li>Development of NFB production and utilization for Cuu Long plain Area: Local raw materials for NFB production</li> </ul> </li> <li>Website operated with 30,000 visitors to Project page and 500,000 visitors to VABM page</li> </ul>

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
Component 3: Sustainable financing support for NFB technology application				
MTR Rating: Highly Satisfactory (The project, with its partners, has achieved that financing for investments is now widely available through usual commercial processes, ahead of schedule)				
Indicator 1: Number of financing institutions providing financial products for NFB investments	Action 3.1: Review all viable financing sources for scale-up of NFB investment	<ul style="list-style-type: none"><li>Completed Report of Recommendation and findings on available financing sources for NFB investments;</li><li>Guideline on loan document preparation for enterprises to access to loan at Viet Nam Fund for Environment Protection</li><li>Guideline on loan document preparation for enterprises to access to guarantee loan at National Foundation for Science and Technology Development. This guideline is already in use at VietinBank, including criteria for NFB investors</li></ul>		
	3.2 Completed workshops for financing institutions on NFB investments			
	Action 3.3 Implement WS to link SME with financing institutions and technical service		<ul style="list-style-type: none"><li>01 WS conducted to various NFB stakeholders</li></ul>	<ul style="list-style-type: none"><li>7 workshops conducted with participants from SME and domestic equipment suppliers (Thanh Phuc company, Duc Thanh Company and DmC group)</li></ul>

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
	providers.			
	3.4 Action Plan for Financing NFB SMEs			
	Activity Result 3.5: Operational financing scheme for NFB projects	<ul style="list-style-type: none"> <li>Guidelines on Loan and Loan Guarantee applications issued by NAFOSTED.</li> </ul>	<ul style="list-style-type: none"> <li>02 NFB investors accessed to VEPPF loans</li> </ul>	<ul style="list-style-type: none"> <li>2 NFB investor's loan application is being reviewed for VEPPF loan (in Thai Binh and Hoa Binh)</li> <li>6 NFB investors have received loans from Viet Nam Environmental Protection Fund (VEPPF) for investment in NFB production lines, over the period of 2016 – 2017. Total loan was VND 86.5 billion. Of these, VND 25 billions has been disbursed.</li> <li>So far the Vietinbank has provided loans to 6 NFB investors with total amount of VND 54 billions (disbursement by 11/2017 is VND 34 billions) for medium and long term loans and VND 380 billions for 18 NFB producers/operators as short term loans (for buying material for production)</li> </ul>
<b>Component 4: NFB technology application, investment and replication</b>				
<i>MTR Rating: Satisfactory (The project has developed good demonstrations of modern non-fired brick production, however, faces an on-going challenge with the demand side of the market)</i>				
<b>Indicator 1:</b> Number of operational NFB demonstration plants in operation with a 90% capacity factor by Year 3	Activity Result 4.1: Bankable Feasibility Analyses of Selected Demonstration NFB (CBB) Sites	<ul style="list-style-type: none"> <li>Criteria for the selection of demo projects, and for the selection of technology and equipment developed.</li> <li>2 demo sites have been selected; 01 Feasibility Study prepared; 01 demo project</li> </ul>	<ul style="list-style-type: none"> <li>02 FS completed for NFB Demo projects in Da Nang and Hai Phong province</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring and evaluation completed for a demonstration project implementation of Hai Phong Demo project</li> </ul>

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
		completed. • Guide and technical input provision on 03 demo site selection completed		
	Action 4.2: Financing for Demonstration NFB projects	• 02 NFB demo projects supported to prepare the loan documents to access VEPF and NAFOSTED.		
	4.3.3 Completed preparations for implementing NFB projects		• 02 demo projects put into operation	
	4.4 Installed and operational NFB demonstration plants			
	4.5 : Trained personnel to optimize NFB production		• 03 WS conducted to advocate for 03 Demo projects performance (Luu Xa, Da Nang and Hai Phong)	• TA to improvement of production technology at Luu Xa Demo project completed
	4.6: Monitoring and evaluation reports on the operational and financial performances of the demonstration NFB projects		• 3 M&E reports completed about the results of 2 demo projects in Thai Nguyen	
	4.7: AAC plants with improved production efficiencies			• Two reports prepared: (1) Detailed energy audit and (2) Assessment of status production technology
	4.8: Completed demonstration on the use of NFB products			• Survey to select demo site conducted in Ha Noi and Da Nang cities. • However, no demo site been chosen after many

Outcomes	Outputs/ Activities	Results achieved		
		2015	2016	2017
				months of work.
	Activity 4.9: Replication of NFB plants received Project technical Assistance		<ul style="list-style-type: none"> <li>01 replication project implemented</li> </ul>	<ul style="list-style-type: none"> <li>11 replications projects have been implemented, out of which 7 are completed.</li> </ul>
	Activity 4.10. Implement Awareness rise and communication Plan on NFB production an utilization		<ul style="list-style-type: none"> <li>03 leaflets on demo projects produced</li> <li>01 WS implemented by Hai Phong DOC on introduction of NFB</li> </ul>	<ul style="list-style-type: none"> <li>Report completed on the survey and assessment results of current NFB awareness and understanding</li> <li>Awareness and Communication strategy and plan prepared.</li> <li>4 WS conducted on NFB promotion and utilization in Quang Ngai, Thua Thien Hue, Quang Nam and Dong Thap</li> <li>100+ news reports and published articles in media about the project</li> </ul>



## 6.4. MTR Evaluation matrix

Evaluative questions	Indicators	Sources	Methodology
<b>Project strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?</b>			
How does the project objective align with national strategies/programs and to what extent?	<ul style="list-style-type: none"> <li>Consistence between the Project objectives and outcomes with national strategies/programs' priorities and approach for achieving project objectives/ outcome within the project time frame</li> <li>Country ownership</li> </ul>	<ul style="list-style-type: none"> <li>PIF</li> <li>Project document &amp; CER</li> <li>UNDP country strategy</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documents;</li> <li>Interview key stakeholders</li> </ul>
Is the project strategy relevant for achieving its objective	<ul style="list-style-type: none"> <li>Consistency between project objective, situation analysis and project strategy</li> </ul>	<ul style="list-style-type: none"> <li>Project document &amp; CER</li> <li>Inception report</li> <li>PIRs</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documents;</li> <li>Interview key stakeholders</li> </ul>
Is the project strategy efficient to deliver expected results?	<ul style="list-style-type: none"> <li>Sound and complete baseline analysis</li> <li>Relevant mix of regulatory, market, research, demonstration and communication activities</li> </ul>	<ul style="list-style-type: none"> <li>Project document &amp; CER</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documents;</li> <li>Interview key stakeholders</li> </ul>
Is the project strategy representing best international practice?	<ul style="list-style-type: none"> <li>Use of relevant information from other countries in project design</li> <li>Exchange of information with other countries during implementation</li> </ul>	<ul style="list-style-type: none"> <li>Project document &amp; CER</li> <li>PIRs</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documents &amp; PIRs;</li> <li>Interview key stakeholders</li> </ul>
<b>Progress towards results: To what extent have the expected outcomes and objectives of the project been achieved this far?</b>			
Does the project LogFrame have meaningful targets, indicators and sources of verification for the project?	<ul style="list-style-type: none"> <li>Consistent set of targets, indicators and means of verification which are well-founded on the baseline analysis</li> </ul>	<ul style="list-style-type: none"> <li>Project document &amp; CER</li> </ul>	<ul style="list-style-type: none"> <li>Review project documents</li> </ul>
Is the project on track to deliver its outcomes	<ul style="list-style-type: none"> <li>Relative achievement of the project (on outcomes) compared to end of project targets and mid-term targets</li> </ul>	<ul style="list-style-type: none"> <li>PIRs</li> <li>Monitoring reports</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review PIRs and monitoring reports</li> <li>Interview key stakeholders</li> </ul>
Is the project on track to deliver its overall goal?	<ul style="list-style-type: none"> <li>Relative achievement of the project (on overall goal) compared to end of project targets and mid-term targets</li> </ul>	<ul style="list-style-type: none"> <li>PIRs</li> <li>Monitoring reports</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review PIRs and monitoring reports</li> <li>Interview key stakeholders</li> </ul>
<b>Project implementation and Adaptive Management: Has the project been implemented efficiency, cost – effectively, and been able to adapt to any changes conditions this far? To what extent are project –level monitoring and evaluation system, reporting and project communications supporting the project's implementation?</b>			
Does the project effectively track progress at outcome and goal level?	<ul style="list-style-type: none"> <li>Does the project have a suitable M&amp;E plan and is that plan implemented?</li> <li>Are systems set up to monitor</li> </ul>	<ul style="list-style-type: none"> <li>Project document &amp; CER</li> <li>Monitoring reports</li> <li>PIRs</li> </ul>	<ul style="list-style-type: none"> <li>Review project documentation</li> </ul>

Evaluative questions	Indicators	Sources	Methodology
	or model project impacts?		
Is the project's strategy amended in response to implementation challenges and / or new insights?	<ul style="list-style-type: none"> <li>Annual (or more frequent) review of project outcomes, impacts and strategy</li> <li>Structured efforts to track the market (outside of the project) and validate the relevance of project activities</li> <li>On-going stakeholder consultations (beyond project partners)</li> </ul>	<ul style="list-style-type: none"> <li>PIRS</li> <li>Steering Committee meetings</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documentation</li> <li>Interview key stakeholders</li> </ul>
Is the project communicating effectively about it's objective, activities and results to all stakeholders and society at large?	<ul style="list-style-type: none"> <li>Does the project have a formalized communications strategy?</li> <li>Is communication aimed at a wide enough group of stakeholders?</li> <li>Are there measureable impacts of communications activities?</li> </ul>	<ul style="list-style-type: none"> <li>Project documentation (communication specific)</li> <li>Project monitoring reports (communication specific)</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documentation</li> <li>Interview key stakeholders</li> </ul>
<b>Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?</b>			
Has the project effectively managed its existing risks?	<ul style="list-style-type: none"> <li>Does the project actively manage its risk log?</li> <li>Does the project regularly discuss financial, institutional, socio-economic and environmental risks with partners and stakeholders?</li> </ul>	<ul style="list-style-type: none"> <li>PIRS</li> <li>Steering Committee meetings</li> </ul>	<ul style="list-style-type: none"> <li>Review project documentation</li> </ul>
Are there new risks to sustainable impacts of the project?	<ul style="list-style-type: none"> <li>Have new risks emerged that could endanger the sustainability of the project's impact?</li> </ul>	<ul style="list-style-type: none"> <li>Project documentation</li> <li>Stakeholder views</li> </ul>	<ul style="list-style-type: none"> <li>Review project documentation</li> <li>Interview key stakeholders</li> </ul>

## 6.5. Interview Guide

### General (All)

1. Overall impression of the project?
2. Suggestions for activities to be strengthened, and those to that could be scaled back

### Project management questions (NPD, Project manager, UNDP)

3. Can you give an overview and time line of the project?
4. What results have been achieved so far?
5. What were key issues / difficulties / milestones during project implementation?
6. Did the project encounter any new challenges (not foreseen in the project strategy)?
7. How is the interaction with government institutions and project steering committee?
8. How is the interaction with key non-governmental stakeholders and the general public?
9. Is there any collaboration with other UN projects? Other non-UN projects addressing non-fired bricks?
10. How is project progress monitored? How were market impacts monitored?
11. Has co-financing / spending by project partners been tracked? Where is this reported?

### Stakeholder questions (All other parties)

12. What is / was your role in the project?
13. How does the project benefit your organisation? How does it benefit the country?
14. What were key issues / difficulties / milestones during project implementation so far?
15. What are, in your view, the most valuable results so far of the project?
16. Would you recommend any additional activities or changes in approach, by UNDP, by the Government or by another party?

### Interview closing (All)

17. Do you have further recommendations for the project, the Ministries involved and/or UNDP regarding the use of energy-efficient building materials?
18. Is there something else you would like to discuss?

## 6.6. Rating scales

Ratings for Progress Towards Results: (one rating for each outcome and for the objective)		
6	Highly Satisfactory (HS)	The objective/ outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/ outcome can be presented as “good practice”.
5	Satisfactory (S)	The objective/ outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
4	Moderately Satisfactory (MS)	The objective/ outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
3	Moderately Unsatisfactory (HU)	The objective/ outcome is expected to achieve its end-of-project targets with major shortcomings.
2	Unsatisfactory (U)	The objective/ outcome is expected not to achieve most of its end-of-project targets.
1	Highly Unsatisfactory (HU)	The objective/ outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets.
Ratings for Project Implementation & Adaptive Management: (one overall rating)		
6	Highly Satisfactory (HS)	Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as “good practice”.
5	Satisfactory (S)	Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action.
4	Moderately Satisfactory (MS)	Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action.
3	Moderately Unsatisfactory (MU)	Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action.
2	Unsatisfactory (U)	Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management.
1	Highly Unsatisfactory (HU)	Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management.
Ratings for Sustainability: (one overall rating)		
4	Likely (L)	Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future
3	Moderately Likely (ML)	Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review
2	Moderately Unlikely (MU)	Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on
1	Unlikely (U)	Severe risks that project outcomes as well as key outputs will not be sustained

### 6.7. MTR mission itinerary

The mission itinerary for the MTR mission to Ha Noi / Da Nang (20<sup>th</sup> -27<sup>th</sup> November 2017) is included here

Day / Time	Where / who	What
<b>Day 1: November 20<sup>th</sup> (Ha Noi) - Monday</b>		
10:00- 12:00	UNDP office 304, Kim Ma str. Ba Dinh, Hanoi	<ul style="list-style-type: none"> <li>Briefing with UNDP,</li> <li>Overview of the MTR, specific questions from UNDP, issues observed,</li> <li>UNDP view on project,</li> <li>UNDP contact for detailed information</li> </ul>
14:00 - 18:00	Ministry of Science and Technology 113 Tran Duy Hung, Cau Giay, Ha Noi	<ul style="list-style-type: none"> <li>Overview of the MTR: specific questions from NPD (if any), issues observed.</li> <li>NPD view on project, Government objectives with the project and alignment with broader government policies/ goals.</li> <li>Project progress, issues observed, and available sources of information.</li> <li>Discussion of document review: questions, clarifications, inconsistencies if any, missing information if any.</li> <li>(continued) from previous day</li> <li>Review of LogFrame indicators and project M&amp;E;</li> <li>discussion of detailed project results to date;</li> <li>discussion of stakeholders to be consulted</li> </ul>
<b>Day 2: November 21<sup>th</sup> (Ha Noi) - Tuesday</b>		
9:00 -11:30	Ministry of Construction (Gov. Representatives) - Department of Building materials - Department of Science, Technology and Environment	<ul style="list-style-type: none"> <li>Policy framework on NFB production and Utilization</li> <li>Standard and codes framework development for product quality and construction of building.</li> <li>Proposal of new tasks to be promoted in coming time year 2018-2019.</li> </ul>
14:00-15:30	Viet Nam Association of Building Materials (VABM)	<ul style="list-style-type: none"> <li>Activities conducted by VABM for promotion of NFB production and utilization</li> </ul>
15:30-16:30	Viet Nam Institute of Building materials	<ul style="list-style-type: none"> <li>VIBM's tasks and duties for NFB promotion</li> <li>Achievements of Training program conducted and others issues wanted by MTR expert</li> <li>Proposal on training program</li> </ul>
17:00-18:30	NUCE National University of construction. - Faculty of Construction materials	<ul style="list-style-type: none"> <li>Activities supported implementing 3 demo projects</li> </ul>
<b>Day 3: November 22<sup>th</sup> (Ha Noi) - Wednesday</b>		
9:00 – 9:30	Solid Waste Management Agency, MONRE	<ul style="list-style-type: none"> <li>Policies/ regulations regarding use of recyclable materials/ wastes in NFB production</li> </ul>
9:00- 10:00	GEF OFP, MONRE	<ul style="list-style-type: none"> <li>Where NFB project is located in country environment policy and action plan for implementation of Environment Law.</li> <li>View on project progress</li> <li>Discussion.</li> </ul>
10:30-12:00	Viet Nam Environment Protection Fund (VEPF)	<ul style="list-style-type: none"> <li>Activities supported NFB investment projects in lending soft loan</li> </ul>
14:00-15:00	NAFOSTED	<ul style="list-style-type: none"> <li>Policy and result on supporting NFB investors acceding guarantee Fund</li> </ul>

16:00-17:30	Institute of Science and Technology for Construction	<ul style="list-style-type: none"> <li>• Training activities conducted in cooperation with project.</li> <li>• Science and technology activities supporting Non fired building materials development</li> </ul>
17:30 – 18:30	Thanh Phuc Company	<ul style="list-style-type: none"> <li>• Thanh Phuc Manufacturing NFB equipment</li> <li>• Thanh Phuc NFB production</li> <li>• Observe activities on the ground, interview site management, interview 1-2 operators, on-site discussion of progress, achievements, barriers, lessons, issues - with site management, operators, PMU, int. and nat. reviewers</li> </ul>
Day 4: November 23 <sup>rd</sup> (Hanoi) - Thursday		
9:00 – 12:00		<ul style="list-style-type: none"> <li>• MTR experts' review information collected</li> </ul>
14:00-17:00	Corperation Viglacera: Head Quarter Building	<ul style="list-style-type: none"> <li>• Viglacera and NFB development: production and utilization</li> <li>• Site visit of one building using NFB in Ha Noi</li> </ul>
17:45 – 19:00	VietinBank	<ul style="list-style-type: none"> <li>• Policy and result of VietinBank on supporting NFB investors accessing to loan</li> </ul>
19:00-20:00	Leave for Da Nang City	
Day 5: November 24 <sup>th</sup> (Da Nang) - Friday		
8:30 - 9:30	VABM Branch in Central region	<ul style="list-style-type: none"> <li>• Activities of Project in Da Nang conducted by VABM Branch in Central region</li> <li>• Discussion on NFB market in the region and barriers and difficulties.</li> <li>• Site visit to one building using NFB</li> </ul>
10:00 - 12:30	Visit to Demo project on NFB production technology at Hong Hoang Hong Company	<ul style="list-style-type: none"> <li>• Observe activities on the ground, interview site management, interview 1-2 operators, on-site discussion of progress, achievements, barriers, lessons, issues - with site management, operators, PMU, int. and nat. reviewers</li> </ul>
14:00- 15:30	Department of Construction of Da Nang city	<ul style="list-style-type: none"> <li>• Briefing on Building materials development of Danang city</li> <li>• Activities of Project in Da Nang</li> </ul>
Day 6: November 25 <sup>th</sup> (Da Nang) - Saturday: visit to Hoi An old city (return to Ha Noi)		
Day 7: November 26 <sup>th</sup> Sunday Holiday / preparation of debriefing		
Day 8: November 27 <sup>th</sup> (Ha Noi) - Monday		
10:00-12:00	MOST 113 Tran Duy Hung, Ha Noi	<ul style="list-style-type: none"> <li>• Debriefing with PMU: Observations from stakeholder discussions and site visits, any new questions raised; completeness of M&amp;E record; need for additional information (if any) and agreement on when this will be delivered.</li> </ul>
14:30-15:30	UNDP 304 Kim Ma, Ba Dinh, Ha noi	<ul style="list-style-type: none"> <li>• Debriefing with UNDP and NPD: Initial findings from MTR, indication of ratings (provisional - based on observations so far), next steps.</li> </ul>



## 6.8. List of people interviewed

No.	Name	Position/organization
1	Vu Thi Thu Hang	UNDP Programme Officer
2	Dao Xuan Lai	Head of Environmental and Climate Change Unit, UNDP
3	Jacob Kurian	International Senior Technical Advisor, "Promotion of NFB Production and Utilization in Viet Nam" project.
4	Ass. Prof. Nguyen Phu Hung	Deputy Director, Department of Science and Technology for Economic-technical, Ministry of Science and Technology (MOST)
5	Do Gia Tien	Project Manager, "Promotion of NFB Production and Utilization in Viet Nam" project
6	Nguyen Ba Vinh	National Technical Advisor, "Promotion of NFB Production and Utilization in Viet Nam" project
7	Nguyen Thi Kim Chung	Project Assistant, "Promotion of NFB Production and Utilization in Viet Nam" project
8	Dr. Vo Quang Diem	Building Material Specialist, "Promotion of NFB Production and Utilization in Viet Nam" project
9	Pham Xuan Bac	Director General, Department of Construction Materials, MOC
10	Mr. Tran Quang Hao	Deputy Director, Department of Science and Technology, MOC
11	Mr. Pham Văn Quang	Specialist, Department of construction Materials, MOC
12	Luong Van Hung	Specialist, Department of construction Materials, MOC
13	Tong Van Nga	Chairman, Viet Nam Association for Building Materials (VABM)
14	Dr. Thai Duy Sam	Vice Chairman cum General Secretary, VABM
15	Nguyen Thi Minh Phuong	Vice chairman – Manager of External Relation Dept., VABM
16	Ass. Prof. Luong Duc Long	Director General, Institute of Building Materials, MOC
17	Duong Xuan Hoa	Director, Center of Construction Materials consultancy, Institute of Building Material, MOC
18	Nguyen Van Doan	Head, Technical Division, Institute of Building Materials, MOC
19	Ass. Prof. Nguyen Van Tuan	Vice Dean of Building Materials Faculty, Head of Building Material division, University of Civil Engineering (CEU)
20	Ass. Prof. Bach Dinh Thien	Director, Institute of Research and application of Tropical Building Materials, CEU
21	Bui Danh Dai	NFB Expert, CEU
22	Nguyen Ngoc Lam	NFB Expert, CEU
23	Đặng Phương Loan	Official, Multilateral Cooperation Division, International Cooperation Department, MONRE
24	Dr. Phm Phu Binh	Director General, International Cooperation Department, MONRE
25	Duong Thi Phuong Anh	Vice Director, Viet Nam Environment Protection fund (VEPF)
26	Tran Kien	Manager, Planning and Development Cooperation Dept, VEPF
27	Tran Thanh Nam	Specialist, VEPF
28	Do Phuong Lan	Deputy Director, NAFOSTED, MOST
29	Dr. Nguyen Dai Minh	Director, Viet Nam Institute for Building Science and Technology (IBST), MOC
30	Dr. Cao Duy Khoi	Head, Department of Planning and Technical Management, Viet Nam Institute for Building Science and Technology (IBST), MOC
31	Mr. Trần Bá Việt	Head of Construction Materials Division, IBST, MOC
32	Nguyen Hung Minh	Director, Center of Technology Development and Building Material, Viet Nam Institute for Building Science and Technology (IBST), MOC
33	Tran Duy Canh	Director, Thanh Phuc NFB production and NFB machinery production facility, Thanh Phuc JSC
34	Pham Ngoc San	Director, AAC Production plant, VIGLACERA
35	Duong Van Tham	Deputy Director, AAC Production Plant, VIGLACERA
36	Nguyen Hong Phong	Staff of VIGLACERA
37	Doan Huu Tiep	Secretary, AAC Demo Project, VIGLACERA
38	Nguyen Tu	Deputy Head of SME Department, VietinBank
39	Tran Kien	VietinBank

40	Tran Xuan Dinh	President, Branch of VABMin Central – Highland Region Office Director General, Sai Gon – Thanh Dat Agriculture Investment JSC. Da Nang City
41	Hoang Thị Lan	Chief of staff, Branch of VABM in Central – Highland Region Office, Da Nang City
41	Tran Quang Thong	Director, Hong Hoang Hong Investment JSC, Hoa Vang District, Da Nang
43	Mr. Trần Thành Mai	Deputy Director, Sai Gon – Green Real Estate, Da Nang City
44	Mr. Le Tung Lam	Deputy Director, Da Nang DOC
45	Pham Tang Xuan Hoa	Deputy Director, Quality appraisal Division, Da Nang DOC
46	Ms Tôn Trang Nguyet	Specialist, Department of Building Materials and Economy, Da Nang DOC



## 6.9. Meeting notes and summary of field visits

Date/ stakeholders met	Briefing Notes
1. Meeting with UNDP (November 20, 2017)	<ul style="list-style-type: none"> <li>- There's been good progress with demos applying NFBs</li> <li>- A more integral approach is needed for the policy component</li> <li>- The impact of government policy on the market is not included in impact calculations; this needs attention</li> <li>- The project has moved funds between components; this needs to be checked since shifts may have been larger than GEF rules allow. Also, the Atlas budget needs to be updated</li> <li>- The project has focused a lot on training. That is having a large impact, however, it's also costly. Question whether this is still cost-effective.</li> <li>- There are problems with brick quality, building techniques and market for NFB</li> <li>- Contractors are reluctant to use NFB</li> <li>- UNDP has transferred U\$ 1.7 million to NAFOSTED but difficult to apply for loan grantees by investors → should the project support to develop mechanism to facilitate applying the loan grantees</li> <li>- What can the project provide further support to implementation of the NFB decree and circular?</li> <li>- What should the project focus on in the second half of its implementation?</li> </ul>
2. Meeting with PMU (November 20, 2017)	<ul style="list-style-type: none"> <li>- The NPD is unavailable due to international travel; Mr Hung, deputy director, replaces him</li> <li>- The project has achieved a lot after 2-2.5 years of implementation and there is good stakeholder participation, especially from MOC</li> <li>- The GoV adopted Programme 567 (on a changeover to NFBs and other building materials with lower environmental impacts) in 2010. The project is contributing a lot to its implementation</li> <li>- 49 out of 63 provinces in Viet Nam has been invited in the NFB training; the PMU expects that, by the end of the project, experts from all provinces will have been involved</li> <li>- More than 20 mass media have involved in the communication on the project activities</li> <li>- During the project design, there existed a number of barriers for NFB development in Viet Nam <ul style="list-style-type: none"> <li>o Fired clay brick are mainly used for construction, Limited production of NFB</li> <li>o Low averseness on NFB,</li> <li>o Limited technologies and technique regarding NFB production and building</li> <li>o Limited regulations, standards on NFB</li> </ul> </li> <li>- Presently Government has adopted: <ul style="list-style-type: none"> <li>o 01 NFB decree by the minister,</li> <li>o 01 circular (updated circular No. 9) on NFB by MOC expected to be adopted by the end of this year,</li> <li>o 03 TCVN issued by MOST</li> <li>o 11 provincial policies: plan/ master planning for NFB (remove CFB with NFBs)</li> </ul> </li> <li>- MOC has contributed U\$ 1 million for development of the NFB regulations, decision 1469/QD-TTg on master plan for building materials development by 2020</li> <li>- 05 training materials related to NFB have been developed and used for the project trainings</li> </ul>

	<ul style="list-style-type: none"> <li>- Training evaluation has been done for each training.</li> <li>- Video on Demonstration project have been done to serve for the training</li> <li>- Enterprises (SMEs) have difficulties in getting loan because they do not have guarantee assets while financial loan papers completed;</li> <li>- NFB market share in 2017 is about 18% (expert data) and 22% (MOC data)</li> </ul>
<b>3. Meeting with MOC (November 21, 2017)</b>	<ul style="list-style-type: none"> <li>- Circular No. 9 requires               <ul style="list-style-type: none"> <li>o Government building using government budget must use NFBs (Hanoi and Ho Chi Minh commits to use NFB for 100% of the government buildings; other provinces – less)</li> <li>o Commercial building must use NFB from 7<sup>th</sup> floor up</li> </ul> </li> <li>- Wall cracking is the problems often occurs when using NFB. Initial reasons:               <ul style="list-style-type: none"> <li>o NFB is water absorption. However when transporting to the construction site the contractors put them in open air;</li> <li>o building technique/ methods of NFB, which is different from fired clay brick (CFB), are not standardized</li> <li>o Workers do not have knowledge on building technique of NFB while Not sufficient training provided to workers</li> </ul> </li> </ul> <p>MOC has delegated to institutes (under MOC management) to study / research about cracking problem.</p> <ul style="list-style-type: none"> <li>- MOC is going to develop technical – economic cost norms for NFB</li> <li>- Using fly ash as input materials for NFB</li> <li>- TCVN has been developed but do not have guidance on brick sizes and therefore could make difficult for a number of NFB producers to have fair competition with others (some producers may work with contractors to produce special sizes of the brick (while other NFB producers do not produce the NFB with such sizes) so that to have advantages in bidding process.</li> </ul> <p>Recommendation</p> <ul style="list-style-type: none"> <li>- Strengthening training, disseminating and communicating on NFB and raising NFB awareness (focusing not only to general people/users but also decision makers, government authorities).</li> <li>- NFB market not yet well controlled: qualified and unqualified NFBs are circulated at the same in the market. This makes users unconfident in using this type of bricks and hinders NFB producers who produce qualified NFB to sell their products.</li> </ul>
<b>4. Viet Nam Association of Building materials (VABM) (November 21, 2017)</b>	<ul style="list-style-type: none"> <li>- VABM founded in 2010. Its Activities focuses on               <ul style="list-style-type: none"> <li>o organising workshops on NFB</li> <li>o publishing monthly journal on building materials, NFB has been introduced on 7/2015 Journal</li> <li>o Managing the association website and the project website on NFB</li> <li>o Conducting evaluation and analysis of barriers for development of NFB in Viet Nam (when designing this project)</li> </ul> </li> <li>- By 2020 demand for brick is about 32 billions units. According to program 567, market share of NFB by 2020 will be 40%. This means that 12 billions of NFB units will be needed.</li> <li>- Benefit of NFB:               <ul style="list-style-type: none"> <li>o Energy efficiency</li> <li>o protect environment (no clay needed)</li> <li>o Heat and sound isolation</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ use of industrial waste (recycling of waste) for NFB</li> </ul> <p>Recommendation</p> <ul style="list-style-type: none"> <li>- raising awareness on NFB, to change habit of people from using of fired bricks to NFB</li> <li>- Improve technology, increase quality and pattern of NFBs</li> <li>- Testing of the technologies before buying</li> <li>- Preparing technical procedure for NFB users</li> <li>- Project to support VABM to set up a data base for NFB so that the Association could post on its website and the project website so that to facilitate those who invest or interested in NFB easy access the information.</li> </ul>
<b>5. Institute of building materials (November 21, 2017)</b>	<ul style="list-style-type: none"> <li>- The institute has developed NFB training materials for the project based on following activities done: <ul style="list-style-type: none"> <li>○ Training need assessment</li> <li>○ reviews of available NFB training materials in Viet Nam and worldwide</li> <li>○ Develop training materials for NFB (05 modules)</li> </ul> </li> <li>- The Government has issued program 567 but could not cover all aspects of the NFB. Implementation of this project has support the Government to fill gaps still existed in the program 567.</li> <li>- Cooperate with the project to conduct trainings to various stakeholders (Department of construction, district people committee, NFB producer, design consultants, equipment manufacturers, banks, etc.). In total 1150 people in 46 provinces have been trained on NFB. Training evaluation has been made for each trainee after the training</li> </ul> <p>Recommendation</p> <ul style="list-style-type: none"> <li>- Conduct more training course for Northern provinces</li> <li>- Guidance for designing and mixing building materials in NFB production</li> <li>- Procedure for quality control of NFB</li> </ul>
<b>6. Civil Engineering University (November 21, 2017)</b>	<ul style="list-style-type: none"> <li>- The Building material faculty involves in implementation of the project NFB Demo projects (selection of equipment, training to worker, technician, managers on NFB, concrete mixtures design for each production line, materials, etc. )</li> <li>- capacity building for Viglacera on production of AAC brick</li> <li>- In view of the University, this project is the kind of kick-off project for NFB development in Viet Nam</li> <li>- AAC is not yet developed in Viet Nam. There are 13 AAC producers but most of them have been died (stop their activities). Presently only four (04) AAC producers are operated in VN (02 in the southern of VN, Viglacera and ....)</li> <li>- Curing of NFB play important role on making NFB qualified (need 28 days for curing). University has a study about using solar energy for NFB curing and would like to apply it in practice. a company in the South has agreed to use this study in their company but need technical assistance</li> </ul> <p>Recommendation:</p> <ul style="list-style-type: none"> <li>- Update the training materials to reflect lesson learnt from the training courses conducted</li> <li>- Development of manual on NFB including problems often met, for producer and users</li> <li>- Project to support technical assistant in application of solar energy in NFB curing to help improve the brick quality.</li> </ul>

<b>7. MONRE (November 22, 2017)</b>	
<b>7.1 Waste management agency</b>	<ul style="list-style-type: none"> <li>- NFB factory used from 10 -12 % of the fly ashes from thermal plant as materials for NFB production</li> <li>- Fly ashes are wastes. Therefore using them as recycling materials should follow national regulation on waste and hazardous waste management (i.e. decree 38 on solid waste and scrap management and circular 36 on hazardous waste management.</li> <li>- MONRE is willing to cooperate with the project on working in this area. Possible a regulation would be needed for waste recycling in NFB</li> </ul>
<b>7.2 International cooperation department (GEF Viet Nam Focal Point)</b>	<ul style="list-style-type: none"> <li>- If there are any changes in the project document, please send to GEF the documents with changes</li> </ul>
<b>8. Meeting with VEPF (November 22, 2017)</b>	<ul style="list-style-type: none"> <li>- VEPF is non-profit organization; using government budget to provide loan to certain areas</li> <li>- VEPF has worked with the project to develop a guidance to help NFB investors to complete loan procedure</li> <li>- VEPF commits to provide loan to the NFBs sector a value of U\$ 3 million.</li> <li>- So far VEPF has provided concessional loans to 06 NFB projects with total loan of VND 86, 5 billion. Of these, VND 25 billions has been disbursed.</li> <li>- Criteria for providing a loan to an investment is that the investment is             <ul style="list-style-type: none"> <li>o safe for society</li> <li>o environmental protection (recycling , treatment of waste)</li> <li>o the investors have good Financial conditions, ability to pay back the loan, contribute of waste treatment, Recycling (fly ash, slags)</li> <li>o products produced are environmental friendly</li> </ul> </li> <li>- Interest rate is from 2.6 – 3.6% / year for period of 5 – 7 years and with grace period of max 1 year.</li> </ul>
<b>9. NAFOSTED (November 22, 2017)</b>	<ul style="list-style-type: none"> <li>- Of U\$ 1,7 million NVD 6 millions have been spent to pay back to 13 bankrupted enterprises (out of 50 enterprises applied for loan under UNDP / PESME project</li> <li>- Ceiling rate for loan guarantee is low, i.e. max of VND 3.5 billions</li> <li>- Completed procedure for getting the loan guarantees following government procedure. Some project take 2 year to complete procedure of loan guarantees → therefore investor prefer to get loan from commercial banks rather than apply for this loan guarantees;</li> <li>- Loan guarantees ceiling could be increased with the support from NAFOSTED but the government procedure must be complied with (it can not be changes)</li> <li>- There existed agreement between GoV and UNDP that the money is used for loan guarantee and therefore can't not be used for other purposes</li> <li>- In addition an SME if would like to get loan guarantee must prove to be financial stable, have guarantee asset.</li> <li>- Properties/ ASSETS that will be established in the future (for instance, production line) could be used as guarantee asset ( less strict than commercial bank which require for present asset (existed asset)</li> <li>- In addition, loan providers often require borrowers to submit loan guarantee from commercial bank (with existing properties)</li> </ul>
<b>10. Viet Nam science</b>	<ul style="list-style-type: none"> <li>- Participate in development of the project NFB technical training materials and involve in training courses</li> </ul>



<b>Institute of building materials (November 22, 2017)</b>	<ul style="list-style-type: none"> <li>- Challenges:               <ul style="list-style-type: none"> <li>o Existence of both fired brick and NFBs which is difficult for NFB procedures to sell their NFBs</li> <li>o No technical skill in building NFBs</li> <li>o Insufficient policies, legal documents to support development and use of NFB (regulation on quality testing and acceptance of buildings constructed by NFB)</li> <li>o limited knowledge of Design consultants in construction of building using NFB</li> </ul> </li> <li>- Reasons for NFBs difficult to sell in the market:               <ul style="list-style-type: none"> <li>o Often cracked in buildings when NFB is used</li> <li>o People mindset: prefer to use fired bricks than NFB</li> <li>o Waste have been used for producing NFB could contain hazardous substances</li> </ul> </li> </ul> <p>Recommendation:</p> <ul style="list-style-type: none"> <li>- Further Training to design consultants and workers</li> <li>- Connect building material producers with NFB producers</li> <li>- Support quality control</li> <li>- Need to do research/study on cracking problems and recommend solutions for appropriate design, building technique, testing of the NFB before building, quality control, etc. The institute has a primary study about NFB and finds that its size often shrunk during the first 25-days after produced. One of the reason for this could be inappropriate curing of the NFB.</li> <li>- Organize scientific workshop /seminar to discuss about NFB.</li> </ul>
<b>11. Thanh Phuc Company – Demo project on equipment (November 22, 2017)</b>	<ul style="list-style-type: none"> <li>- Thanh phuc company was founded in 1980</li> <li>- Business area:               <ul style="list-style-type: none"> <li>o Production of NFB (concrete), and</li> <li>o manufacturing NFB production line: 2016 sell 100 production lines; exported to Africa</li> </ul> </li> <li>- Demonstration was completed. It was on NFB production line. The project supports are on:               <ul style="list-style-type: none"> <li>o Transfer of automatic NFB production line</li> <li>o Organize a workshop with clients to introduce about NFB production lines</li> <li>o Technical assistance for making appropriate brick molds with good quality (using heating technique)</li> <li>o Thanh Phuc NFB meet quality requirement but in the market there are also unqualified NFBs and therefore difficult for those who produces NFB with good quality. It's suggested that users to test NFB before construction/buying.</li> </ul> </li> </ul>
<b>12. Viglacera (November 23<sup>rd</sup>, 2017)</b>	<ul style="list-style-type: none"> <li>- AAC brick               <ul style="list-style-type: none"> <li>o light, faster construction, environmental benefit</li> <li>o Not easy to access fly ash because fired clay brick producers have bought this materials for fired brick</li> <li>o No sufficient standard (TCVN) to support export of this type of brick</li> </ul> </li> <li>- Demo project focuses on:               <ul style="list-style-type: none"> <li>o energy efficiency and</li> <li>o increase productiveness</li> </ul> </li> </ul> <p>by providing/introducing professional experts to do survey of the production line; training to workers, managers; participating in the workshops. Just started (the Demo project)</p>

	<p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>- Government to have a mechanism to control fly ask. fly ask should be given to NFB producers free of charge or with some fees for treatment. presently the price of fly ask is about 300.000 VND / ton (including pre-treatment for elimination of coal); while price of sand is 200.000 VND / ton → not attractive to the NFB producers</li> </ul>
<p><b>13. Viettin Bank (November 23<sup>rd</sup>, 2017)</b></p>	<ul style="list-style-type: none"> <li>- Starts to provide loan to NFB producers since 2015 and also since 2015 does not provide loans to fired clay brick (CFB) producers.</li> <li>- interest rate is from 6- 8% for short term loan and 7.5 – 11% for medium and long term loan (based on credibility of the clients and their asset guarantees);</li> <li>- In 2013 the Bank commits with the project to provide for NFB with total of 21, 2 billion VND.</li> <li>- To 2017 the Bank has provided loan to 06 NFB investors with total amount of VND 54 billions (disbursement rate by 11 / 2017 is VND 34 billions) for Medium and long term loan and VND 380 billions for a number of NFB producers/ operators as short term loans (buying material for production, for instance). However none of those investors have been introduced by the project. They directly approach the bank to get loan. This is because the same conditions for getting the loan if asking support from the project to connect to the banks.</li> <li>- The Bank suggests that the project can provide a list of companies who would like to get loan to VietinBank. The Bank can send its staff to work with the potential investors to facilitate them complete necessary loan papers.</li> </ul>
<p><b>14. Viet Nam Association of building materials in Da Nang (November 24<sup>th</sup>, 2017)</b></p>	<ul style="list-style-type: none"> <li>- NFB is good for environment and energy savings, sound and heat isolation, less water absorption than CFBs</li> <li>- There are about 15 NFB factories in Da Nang (concrete bricks)</li> <li>- Price of NFB (concrete) is similar to CFB</li> <li>- users are investors and contactors of high-rise buildings (Government and private) and also residents</li> <li>- Quality of the NFB is dependent on quality of input materials (contaminants in input materials will affect to quality of final products), moistures and materials mix</li> </ul> <p><b>Recommendation:</b></p> <ul style="list-style-type: none"> <li>- the project to provide more workshops with NFB consultants, investors</li> <li>- Support investors to complete loan procedures</li> </ul>
<p><b>15. Visit NFB Factory Ha Hong Hoang (Da Nang) (November 24<sup>th</sup>, 2017)</b></p>	<ul style="list-style-type: none"> <li>- Ha Hong Hoang is the Demo project. The NFB project has provided support to the company in             <ul style="list-style-type: none"> <li>o selection of equipment, production line;</li> <li>o providing Technical guidance</li> <li>o Involving in identification of technical errors/ mistakes, adjust and replacement of technical parts to make the line work well (commissioning?)</li> <li>o Providing training on operation and training to workers</li> </ul> </li> </ul> <p>The project support was highly appreciated, because it helps to reduce risks of failures. The good automatic production line with good input material mixing. NFB produced will be cured for 07 days (01 day indoor and 06 days in open air with water spraying every days. The factory needs more area for NFB curing.</p> <ul style="list-style-type: none"> <li>- NFB market:             <ul style="list-style-type: none"> <li>o Not easy to sell. Private households often use CFBs. Most of the users are government buildings</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Presently the factory does not operate with its full capacity (operated only 30 – 40% of the total capacity)</li> <li>- In the case the production technology is already good; quality of products is already good, the market should be developed so that NFB factory is able to sell their product and is able to operate at its full capacity. Then there are potential for NFB production costs.</li> </ul> <p>Recommendation:</p> <ul style="list-style-type: none"> <li>- Government should review existing NFB factories and have policy to limit award of NFB production permits to new investors. Presently supply is more than demand. If more producers and limited consumption, at some moment, bankrupts may occurs and this will have bad affect to the whole sector</li> <li>- NFB is new in the market. The government should have policies to reduce interest rates for loan and prolong time for repay the loan; VAT exemption for 10 years (total factory life is estimate of about 30 years);</li> <li>- Make inventory for NFB factories in each province.</li> </ul> <p><b>Visits to NFB users</b> (Sai Gon Thanh Dat Green Real Estate – Licogi)</p> <ul style="list-style-type: none"> <li>- The company is building social buildings (apartments with costs of U\$ 10,000 – 30,000/apartment).</li> <li>- 02 buildings are under construction and 06 other building will be constructed in the coming years, using NFBs</li> <li>- The Company has instructions to the workers and technicians to guide workers on NFB building skill / techniques</li> </ul> <p><b>Visit a villa</b> which is under construction, using NFB. The house's owner is an architect and constructor. He wants to show to local people of NFB using</p>
<p><b>16. Meeting with DOC Da Nang (November 24th, 2017)</b></p>	<ul style="list-style-type: none"> <li>- Based on program 567, Dan Nang DOC has completed elimination of all outdated CFB factories. Presently there remains about 80 CFB factories with modern technologies;</li> <li>- There are 13 NFB factories with total production of 190 millions units/year</li> <li>- 250 government buildings in Dan Nang use NFB</li> <li>- DOC has cooperated with the project to organize               <ul style="list-style-type: none"> <li>○ 07 workshops and</li> <li>○ 03 training courses on (1) basics knowledge of NFB for government agencies and NFB producers; (2) designs of construction buildings, using NFB for design consultants and contractors; and (3) NFB production technologies for government agencies and NFB producers</li> </ul> </li> <li>- Difficulties in NFB management               <ul style="list-style-type: none"> <li>○ Half of the NFB factories are small enterprises (each with capacity from 1 – 3 million brick units/year). Those factories produce NFB with not the same standards. Testing after 28 curing days shows that there are some NFBs not meet quality requirements and this make users uncomfortable to use.</li> <li>○ how to encourage private sectors to use more NFBs</li> <li>○ No procedure to support building design, control and acceptance of the buildings</li> </ul> </li> </ul>

## 6.10. List of documents reviewed

UNDP and the PMU have made the following documents available for review during the MTR:

No	Document name	English	Vietnamese
<b>Project Design and Preparation</b>			
1	PIF	✓	
2	UNDP Initiation Plan	✓	
3	UNDP Project Document	✓	✓
4	GEF CEO endorsement request	✓	
5	Project Inception Report	✓	
8	Viet Nam NFB Tracking tools for CEO endorsement	✓	
9	UN Country Programme document for Viet Nam, 2017-2021	✓	
<b>Component 1</b>			
1	Assessment of the current policies, construction and finishing of a new policy framework to promote production and use of NFB in Viet Nam (12/2016)	✓	✓
2	SPECIALIZED REPORT: Reporting Survey results on the assessment of status of the policies issued to increase the development of Non-fired building materials (12/2015)	✓	
3	SPECIALIZED REPORT: Report on assessment of Market of Fired Clay Bricks (12/2015)	✓	
4	REPORT (standards for NFB products): Results of review and assessment of current status of standard documents on non-fired bricks to meet the needs of management and practical application, propose framework program for tasks topic/ research projects to complete documents for enhance the development of non-firebricks in Viet Nam (12/2015)	✓	
5	THEMATIC REPORT (standards for NFB products): Results of compiled draft standard revision 3 NFB accepted by grassroots science and technology council (12/2016)	✓	
8	TCVN 9030:2017 Draft (2 <sup>nd</sup> Publication): Lightweight concrete – Foam concrete and aerated concrete products – Test methods	✓	✓
9	Notes to TCVN 9030:2017 Draft		✓
10	TCVN 9029:2017 Draft (2 <sup>nd</sup> publication): Lightweight concrete - Foam Concrete and Non-autoclaved aerated concrete products – Specifications	✓	✓
11	Notes to TCVN 9029:2017 Draft		✓
12	TCVN 7959:2017 Draft (3 <sup>rd</sup> Publication): Lightweight concrete - Autoclaved aerated concrete products - Specifications	✓	✓
13	Notes to TCVN 7959:2017 Draft		✓
14	Draft of Circular 09: Regulation on using NFB in construction works	✓	✓
15	Modified Contents of circular 09: Regulation on using NFB in construction works		✓
16	Report: results of supporting six (06) provinces/cities in establishing a roadmap for gradually elimination of fired clay bricks; strategy, plan and policies for production development and use of NFB (09/2017)		✓
17	Report: Support four (04) provinces to develop and approve planning/ plan/ policies on timeframe for replacement of old clamp brick kilns and promotion of NFB investment and utilization (12/2016)	✓	
18	Tien Giang Resolution No 03/2016/NQ-HDND of Tien Giang Province dated August 5, 2016: Through development planning of construction materials Tien Giang Province to 202, vision 2030	✓	
19	Nam Dinh Decision No. 1327 / QD - UBND dated June 27, 2016 approval of adjustment of development planning construction materials 2020 Nam Dinh province, orientation to the year 2030	✓	
20	Lao Cai Decision No. 3778 / QD - UBND dated October 31, 2016: Development plan approved construction materials in Lao Cai 2020, Vision 2030	✓	
21	Plan (No: 310/KH-HDND) Implementation roadmap kilns remove material production craft built in the province of Bac Kan Province (September 9, 2016)	✓	

No	Document name	English	Vietnamese
<b>Component 2</b>			
1	Monitoring and Evaluation Guidelines for Measuring the Impact of the Comprehensive Training Programme for the NFB Project	✓	
2	Completion report: website setup for non-fired brick project (duangachkhongnung.vn) (03/2017)	✓	
3	Training Materials (module PNFB-1): Basic knowledge on NFB, policies and standards (5/2016)	✓	✓
4	Module 2 lecture: Construction and acceptance of construction block, using NFB (04/2017)	✓	✓
5	Training materials (Module 3): Production Technology of Autoclaved Aerated Concrete (AAC) Blocks	?	✓
8	PowerPoint Presentations (Module 3)		✓
9	Training materials (Module PNFB-4): Technology for NFB production (05/2016)	✓	✓
10	PowerPoint Presentations (Module 4)	✓	
11	Training material (Module PNFB-5): Preparation of investment plan and loan documents for NFB projects in Viet Nam (05/2016)	✓	✓
12	Report of implementing training courses of modules 1, 2, 4 in Can Tho Province (05/2017)	✓	
13	Report of implementing training courses of modules 1, 2, 4 in Nha Trang City (09/2017)	✓	
14	Report of implementing training courses of modules 1, 2, 4 in Da Nang City (06/2017)	✓	
15	Report of implementing training courses of modules 1, 3, 4, 5 in Hanoi and Binh Duong Province (09/2016)	✓	
16	Report of implementing training courses of modules 1, 4, 5 in Ho Chi Minh City (10/2016)	✓	
<b>Component 3</b>			
1	Consultancy report: Study on the viable financing sources for scale-up of NFB investments (04/2016)	✓	✓
2	Guidelines for setting up loan dossier applied for Viet Nam Environmental Protection Fund (VEPF)	✓	✓
3	Consultancy report No. 1: VEPF Loan Dossier for "NFB and fresh concrete commercial Production Plant" project, Thien Vu Dac Nong Commercial Production One Member Ltd. Company (03/2017)	✓	✓
4	Consultancy report: Loan application dossier at Viet Nam's Environment Protection Fund for project: "Thanh An non-fired brick manufacturing plant", Thanh An JSC (06/2017)	✓	
5	Instruction manual for small and medium-sized enterprises Participating in the "Non-fired brick" Project and seeking support of the Loan Guarantee Program executed by the National Foundation for Science and Technology Development (2015)	✓	
8	Some provisions for the implementation of loan guarantee program for "non-fired brick" projects executed by NAFOSTED (For internal use only)	✓	✓
9	Decision 567/QDD-TTg dated 28/04/2010 on approval of NDB development plan by 2020 by Prime Minister		✓
10	Circular 06/2014/TT-BKHCHN dated 25/04/2014 regulate principles, criteria for selection of scientific and technological projects under National Science and Technology Innovation Fund		✓
11	Some provisions for the implementation of loan guarantee program for "non-fired brick" projects executed by NAFOSTED <sup>15</sup> (for internal use only)	✓	
12	Introduction Manual for SME participating in the (Non-Fired Brick) Project and seeking support of the Loan Guarantee Program executed by the National Foundation for Science and Technology development	✓	✓
13	Other related documents		

<sup>15</sup> The National Foundation for Science and Technology Development (NAFOSTED)

No	Document name	English	Vietnamese
<b>Component 4</b>			
1	Project “Toan Cau NFB manufacturing plant capacity 150 million SBUs/year”, Toan Cau Building Material JSC, Report Summary (09/2017) Project location: Hoang Son hamlet, Hoa Son commune, Luong Son district, Hoa Binh province	✓	
2	Project: “Non Fired Building Material Production Line, design Capacity of 40 million SBUs/year”, by Investment and Industrial Production JSC. Project location: – Branch Company, Luu Xa Cement Factory	✓	✓
3	Final demonstration project report - “Non Fired Building Material Production Line at Luu Xa cement factory – Thai Nguyen Province, 04/2017		
4	Project: “The NFB Production Line (TP54), Design Capacity of 55 million SBUs/year” invested by Thanh Phuc Mechanical And Construction Material JSC Project location: No. 160 Hoang Quoc Viet, Ngoc Son Ward, Kien An District, Hai Phong City	✓	
5	Project “the 2nd NFB Production Line, Design Capacity of 30 million SBUs/year” invested by Hong Hoang Hong Investment Joint Stock Company Project location: Hoa Nhon commune, Hoa Vang District, Da Nang City	✓	
8	Project “Non-fired brick production line, Thien Vu Dak Nong Factory”, invested by Thien Vu DakNong Manufacturing – Trading Company Project location: Tam Thang Industrial Zone, CuJut district, Dak Nong Province	✓	
9	Project M&E Report “Non-fired brick production line Thien Vu Dak-Nong factory” (09/2017)	✓	
10	Replication Project: “Vinh Long NFB Manufacturing Plant”, by Vinh Long Green Material Ltd. Project location: Vocational College No. 9, Ward 9, Ho Chi Minh City. Vinh Long, Vinh Long province	✓	
11	Final Report - “The completion of technology process for demo project of NFB production”, Investment and Industrial Production JSC., Luu Xa Cement Factory (09/2017)	✓	
12	Report of survey results of some autoclaved aerated concrete factories	✓	
13	Brochure “Demonstration project of Concrete brick production	✓	
14	Workshop Summary: “Promotion of NFB Production and Utilization in the Central Highlands”, 07/2016	✓	
15	Workshop Summary: “Promotion of NFB Production and Utilization in Hai phong City”, 12/2016	✓	
16	Workshop Summary: “Promotion of NFB Production and Utilization in Thai Nguyen Province”, 10/2016	✓	
<b>Project management and monitoring</b>			
1	<i>Project work plans</i>		
	2015 Annual work plan (AWP)	✓	
	2016 Annual work plan (AWP)	✓	
	2017 Annual work plan (AWP)	✓	
	2017 2 <sup>nd</sup> QWP	✓	
	2017 3 <sup>rd</sup> QWP	✓	
	2017 4 <sup>th</sup> QWP	✓	
	Various activities implementation plans		✓
2	<i>Project progress reports</i>		
	2015 Annual project progress report	✓	
	2016 Annual project progress report	✓	
	2017 Q1 Funding Authorization and Certificate of Expenditure (FACE)/Q1PR)	✓	
	2017 Q2 Progress report (Q2PR)	✓	
3	Project Implementation Reports (PIR's) 2016	✓	
4	Project Implementation Reports (PIR's) 2017	✓	
5	PowerPoint Presentation “2016 implementation results and 2017 working plan”, 01/2017		✓



No	Document name	English	Vietnamese
6	PowerPoint Presentation “ Project Progress to Present”, Oct 2017	✓	
7	Progress implementation report “Standard of Energy efficiency and GHG emissions of NFBs		✓
8	Difficulties in implementation of Demonstration project on using of NFBs (Sep 2017)		✓
9	Internal Control Audit report, 01/2015 – 09/2016	✓	
10	<i>Monitoring and oversight reports</i>		
11	Minutes of meeting (MoU) with Thanh Phuc Company in Hai Phong , 06/2017		✓
12	Various project field missions reports with demonstration projects		✓
11	<i>Project Steering Committee (PSC) Meetings</i>		
13	3rd meeting minutes of the Project Steering Committee, 01/2017	✓	✓
14	2rd MoU of PSC, 2016		✓
<b>Project communication</b>			
1	Survey report “Awareness, understanding and demand on communication contents, approaches of stakeholders on NFB”, 09/2017	✓	✓
2	Communication Strategy for Promotion of NFB Production and Utilization in Viet Nam, 09/2017	✓	
3	Workshop report “Promotion of non-fired materials to replace clay bricks in Dong Thap province”, 09/2017	✓	
4	Conference summary of 6 year implementation of the Prime Minister's NFBD Program and the displacement of coal-fired clay brick kilns in Quang Ngai Province, 08/2017	✓	
5	Conference summary of 5 year implementation of the Prime Minister's NFBD Program and the displacement of of coal-fired clay brick kilns in Thua Thien Hue Province, 08/2017	✓	
6	Various emails exchanges project implementation between PMU and UNDP	✓	
<b>Project Co-Financing</b>			
1	Project co-financing overview	✓	
<b>Project guidelines</b>			
1	2015 UN-EU Guidelines for Financing of local cots of development co-operation with VN (UN Cost Norms)	✓	✓
2	Viet Nam – United Nations Harmonized Programme and Project Management Guidelines (HPPMG) including annex	✓	✓

## 6.11. Co-financing table

Sources of co-financing	Committed		Delivered	
	Type of co-financing	Amount (USD)	Type of co-financing	Amount (USD)
<b>Government of Viet Nam</b>				
Ministry of Science and Technology	Grant (cash)	3,000,000	Grant & in-kind	1,770,000
Ministry of Construction	Grant (cash)	1,000,000	In-kind	1,356,000
Viet Nam Environmental Protection Fund	Soft loan	3,000,000	Soft loan	1,101,322
National Foundation for Science and Technology Development (NAFOSTED)	Loan guarantee	1,000,000	---	0
Department of Construction, Hai Duong City	In-kind	220,000	---	0
<b>GEF Agency</b>				
UNDP	In-kind	550,000	Grant (cash)	305,000
<b>Private Sector</b>				
Vietin Bank	Market-based loan	21,200,000	Market-based loan	18,237,885
Viglacera corporation	Equity / investment	3,000,000	Equity / investment	5,973,451
Private sector entrepreneurs*	Equity / investment	3,000,000	Equity / investment	28,137,416
Viet Nam Association of Building Materials (VABM)	In-kind	110,000	In-kind	34,700
<b>Total</b>				
<b>Total</b>		<b>36,080,000</b>		<b>56,915,774</b>

\* Note that, at this point in the project, 7 companies have delivered co-financing: Luu Xa Cement Factory (\$300,000), Thanh Phuc Company (\$8,013,317), Hong Hoang Hong Company (\$385,000), Minh Tuan Company (\$402,655), Dak Nong Company (\$610,444), Duc Thanh JS Investment and Technology Company (\$11,182,000), DmC Corporation (\$7,244,000). For Thanh Phuc Company, Duc Thanh Investment and DmC Company, co-financing includes revenues from selling NFB production lines (which are investments in NFB production lines by their clients, NFB producers).



### 6.12. Evaluation Consultant Code of Conduct and Agreement Form

#### Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

#### Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Frank Klinckenberg

Name of Consultancy Organization (where relevant): Klinckenberg Consultants BV

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Meerssen, The Netherlands* on 27 October 2017

Name of Consultant: Vu Thi Thu Ha

Name of Consultancy Organization (where relevant): Fichtner Viet Nam Co

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Hanoi, Viet Nam*, on 27 October 2017



6.13. *Signed MTR final report clearance form*

Added on cover page. Note that this requires signing by UNDP, not by the MTR team.



6.14. *Audit trail from received comments on draft MTR report*

Comment	Referring to report section	Comment by	MTR team response
Revised closing date: June 2020	1.1	PMU	No revised closing date is known to MTR team; UNDP also confirmed that there is no revision of closing date
Added “policies (decree 24a (2016), decree 139 (2017), Circular 13 (2017) and 03” to summing up of main achievements	1.3	PMU, UNDP	“policies” added to text
In response to item “training and capacity building” in the summing up of main achievements: “This also create momentums for provinces to take action by themselves on building their own capacity and awareness raising on NFB.”	1.3	UNDP	Agree. This matches what is listed.
Added “use side” to achievement summary in rating table	1.4	PMU	Not adopted in main report, as the MTR team believes that training on the use side is not yet fully developed. This is in line with the PMU’s initiative to focus more on the user side in coming years
In response to the finding that financing for the production on NFBs has matured much faster than planned: “As mentioned in section 5.2 of the report (financial barriers), the majority of NFB producers (existing and potential) might be small firms without much capacity or resources, many of whom might be FCB producers looking to shift into NFB production. They might still need support from the project. The technical help could be in the form of light advisory support (common helpdesk facility) for most of them, specialised support for a select few who are more serious, support for accessing commercial loans, training, awareness raising etc. see additional comments on this in section 4.2.1”	1.5	UNDP	This is discussed in other sections of the report. This section and statement is limited to the observation that financing has developed (matured) much faster than expected, which is substantiated by the observation that commercial financing (bank loans) are already widely available whereas it was expected that the project would need still to provide government-supported loans at this stage of development. Since there is agreement about this observation, the statement as is seems fine.
In response to the observation that the project is now running into barriers in the demand side of the market: “May need to include the root cause of this barrier”	1.5	UNDP	This would require an in-depth review of the market that goes beyond the scope of an MTR, which is why the MTR recommends that the PMU conducts such a review and develops a comprehensive strategy.
In response to section summary of recommendations: “It is suggested to include a responsible party for each recommendation”	1.6	UNDP	All recommendations are addressed at the parties responsible for the project: UNDP, Steering Committee, the NPD and the PMU. Linking recommendations to a single party

			would suggest that it is their sole responsibility to address an issue, whereas the characteristic of UNDP-supported GEF-funded projects is that implementation is a shared responsibility of parties.
In response to the recommended action: “A strategy for improved compliance with government requirements for non-fired bricks”: Incentive policy framework may need to be included	1.6	UNDP	Perhaps, that’s something that should be assessed in such a strategy. This MTR would not want to pre-empt the strategy review for which the project partners (and stakeholders) and perhaps recommend an incentive policy when other, less costly measures have not yet been explored.
Addition “Ministry of Construction” to developers of the project	3.1	UNDP	Addition adopted
Corrected targets for NFB production from 20% by 2015 and 30% by 2020 to 20%-25% by 2015 and 30%-40% by 2020	3.1	PMU	Correction adopted
Added 3 <sup>rd</sup> component (foam concrete and non-autoclaved aerated concrete) to description of NFB types addressed in programme 567	3.1	PMU	Addition adopted
Name correction of Law on Economical and Efficient Use of Energy to Law on Energy Conservation and Energy Efficiency	3.1	PMU	Correction adopted
In response to introduction of the EC&EE law to improve the energy efficiency of the construction sector: “it was not specific to the construction sector”	3.1	UNDP	Sentence changed to “..., also in the construction sector”
In response to an overview of barriers highlighted in the project document, technical barriers, item Local investors with limited financial sources: “And also poor knowledge of both the technical and business management aspects of NFB production”	3.2	UNDP	Perhaps, but that was not written in the project document. Since this section presents an overview of barriers as identified in the project document, a later addition would be incorrect.
In response to an overview of the barriers highlighted in the project document, concluding section, “It is anticipated that targets of market share of NFBs in Decision 567 are not likely to be met without overcoming the barriers related to policy, institutional arrangements, knowledge and awareness, and financing”: “Technical barrier also	3.2	UNDP	See previous comment
In response to the list of stakeholders, MoIT, with the description: “MoIT is responsible for the entry of locally manufactured NFB equipment and the NFB manufacturing production lines into the List of Key Mechanical Products and the List of Key	3.6	UNDP	The MTR team has not encountered an implementation report or other progress report stating a changing role of MoIT. It therefore assumes that their role has remained the same.



Mechanical Product Investment Projects period from 2009 to 2015; this is to be done for the industry to access financial incentives and preferences provided by GoV in accordance with Decision No. 10/QD-TTg on 6/1/2009 of the Prime Minister.”: “The period mentioned is before the project implementation period – are they still in charge?”			
In response to the list of stakeholders, Viet Nam Environment Protection Fund, “VEPF is a state financial institution responsible for financial support through soft loans, loan guarantees, funding grants for programs and projects on natural conservation and bio-diversity operations, prevention and control pollution of national <u>inter-disciplinary</u> and inter-region pollutions, <u>depression</u> and settlement of local environmental problems”: [underlined words] not clear	3.6	UNDP	This text stems directly from the project document. Since UNDP approved the project document, the MTR team assumes that the same stakeholder description is sufficient for the MTR report.
Same section: “coal ash from thermal power plants” (to replace “ashes from thermal power plants”	3.6	UNDP	Correction adopted
In response to the list of stakeholders, NAFOSTED: “Presently, NAFOSTED is managing a USD 1.7 million loan guarantee fund (LGF) after completion of PECSME project. NAFOSTED is involved in the NFB project as a provider of loan guarantees for SME brick producers to access credit from financial institutions for their NFB project investments.”: “sentence is not clear, but maybe what is meant is that NAFOSTED is using the remaining funds from the PECSME project”	3.6	UNDP	Sentence clarified
Correction of policy document: decree changed to circular No.9 / 2012	4.1.1	PMU	Correction adopted
“Time and budget may be not enough to have full detailed preparation.”, in response to comment in report about the need to update the project’s strategy to a new Government circular issued after the PIF was approved (but well before CER submission date)	4.1.1	PMU	Noted. However, PPG budgets are routinely assigned to address such issues, and this circular was issued at the start of the PPG phase, leaving sufficient time to address this issue. No change made in text.
In response to section Project design and formulation: “The report should also review the extent to which relevant gender issues were raised in the project design”	4.1.1	UNDP	A paragraph discussion how gender issues were raised in the project document has been added to section 4.1.2.
In response to observation that “Some activities have a direct connection to the overall objective and seem well thought-out; others less so. “ and “Most activities are	4.1.2	UNDP	Several examples have been added to demonstrate the point made.

formulated in terms of what needs to be done, not in what needs to be achieved": "This should be provided with more specific examples to support statement made in this para and to make the reader understand what is exactly the problem"			
Numbers of technical standards added to item "three national standards on NFB (approved"	4.2.1, output 1	PMU	Addition adopted
Added "( In 2018 work plan, PMU will support to improve training material for 20 high colleges of construction and to conduct 3 training courses for 120 teachers from 20 high colleges of construction.) and produce 3 videos on construction procedures for NFB products; conduct communication activities on this aspect etc ...." To discussion about the need to address the lack of skills in the correct usage of concrete bricks	4.2.1, output 2		Added as footnote.
Regarding a discussion about the inclusion of AACs in the project: "AAC is defined in Government program 567 and take about 25 % of total NFBs. By this time, AAC technology are imported from China with low technology level and have many issues in usage and lost confidence in users. VABM and MOC remarked that project should take measure for AAC."	4.2.1, output 2	PMU	Thanks for the clarification. The text has been updated to reflect this. Nevertheless, the observation remains that AACs are not a direct replacement for clay bricks (whereas concrete bricks are). Since the changeover to concrete bricks is already challenging, it might have been more efficient to focus solely on that.
Same section, additional comment: "Since the review suggests that project implementation is well on track and may even realise targets before project end, it can be useful to make recommendations on what more the project could do in case there is available time and resources.  It is not known for sure if AAC could be an interesting additional path to look at but I do remember that "hollow NFBs" were considered a very interesting product because it would have even less energy consumption for production and moreover the hollow brick itself has higher insulation levels. This means that this product can contribute to the project goal in two ways.  It would be good if the MTR consultant can give some recommendations of what additional efforts may be possible in the project in case there is time and resources remaining."	4.2.1, output 2	UNDP	Additional suggestions are already included in section 5.2.2.  Hollow concrete bricks are already common for larger size bricks; the project could indeed investigate if this would also be an option for regular size bricks, although that might introduce new quality or usability concerns with users – see also the discussion around output 4. Because of these concerns, it is not yet recommended since there are already existing market barriers for NFBs that probably need to be addressed first (that is also the gist of recommendations in section 5.2.2)  The additional insulation level of hollow concrete bricks (compared to massive concrete bricks) is probably not so significant; more relevant might be the relatively lower insulation value of concrete bricks compared to standard

			<p>clay bricks – and more relevant that either factor is probably air tightness (especially for air conditioned buildings), which is primarily influenced by build quality and construction design.</p> <p>Given that recommendations are already included, no changes were made to the text.</p>
Correction of “UNDP transferred funds left over from a previous project, to UNDP transferred funds [...] to MOST, which MOST then assigned to NAFOSTED”, and “UNDP had transferred funds (USD 1 million) as loan guarantee funds managed by a previous project (Viet Nam Promoting Energy Conservation in Small and Medium Enterprises- PECSME), to NAFOSTED to provide loan guarantee for financing of investments in EE project including NFB technology”	4.2.1, output 3	PMU / UNDP	Correction adopted
<p>Same section, sentence “(2) since this was originally UNDP (or even GEF-funding), was it correct to list the NAFOSTED funding as co-financing in the project budget”: “Once UNDP transferred the fund to the GoV, this became Gov asset/budget, so should consider as co-financing</p> <p>Also, it could it be useful to discuss how this deadlock situation may be overcome by support from the project and if there may be ideas of where a guarantee mechanism could still be of help to support the project? E.g. SMEs are known to have difficult access to finance; a guarantee may be used to explicitly support SMEs in NFB applications to back up loan requests?”</p>	4.2.1, output 3	UNDP	Discussion about correct transfer of funds and labelling as co-financing removed. The MTR has looked into ways to unlock this funding, however, has not yet discovered any. UNDP and the PMU should, of course, continue to look into this, however, the MTR cannot discuss options that have not yet been encountered.
“training courses” added to workshops in activity description	4.2.1, output 4	PMU	Correction adopted
Regarding discussion of the project’s focus on demo factories: “New NFB investments still need the knowledge on how to operate and manage efficiently NFB plant to produce NFB of good quality and with competitive price”, “investors with less budget and buy medium technology equipments and less knowledge in operation and management” and “as result from low product quality and less knowledge	4.2.1, output 4	PMU	Agreed – that is exactly the point the text is making: rather than focusing on a few demo factories, make sure that all factories start using good technology and produce good quality bricks.

in how to use NFB and how to build correctly; situation from most provinces says that"			
Same section, additional comment relating to statement "more NFB factories built without than with the project": "May be wrong structure"	4.2.1, output 4	UNDP	The comment is unclear (No follow-up received).
<p>Same section, additional comment relating to statement "There is no shortage of knowledge, demonstrations or even production technology for good NFBs in Viet Nam": "Help might still be needed for the production side (see next comment), not through resource intensive demos/replications, but through less resource intensive but effective means – eg, common helpdesk facilities, inter-firm/industry-wide cooperation etc .</p> <p>Demos and replications in the project were also becoming a bit repetitive and prescriptive in the sense that it was offering a standard solution, mainly in optimising the raw material mix design and fine tuning the process for it – better would have been to give a solution package, tailored for the needs of each demo facility – that would have given more lessons learnt, for dissemination": "The producers are not homogenous – : there are very few firms with adequate internal capacity and these are the early movers many of whom were chosen by the project for collaboration; a larger group of firms who will wait and follow, with limited internal capacity and resources – they need and deserve help; a third group who are indifferent and might only be looking for making some easy profits – they don't deserve any help from the project. The poor quality NFBs might be coming from the second and third groups</p> <p>The first group may not need more direct support from the project, but the project now may have to focus on the second group. The third group has to be weeded out of the system or forced to become more serious, using regulatory tools"</p>	4.2.1, output 4	UNDP	The comment seems to support the findings presented. No change of text needed.
Same section, same sentence: "The project has also supported a number of company to improve production efficiency, improve product quality, such support need to be documented as lesson learnt/best-practice for other company/NFB industry"	4.2.1, output 4	UNDP	Agreed. Sentence added to text ("Lessons learnt in working with demonstration plants can, of course, be used to help a wider group of producers improve their operations and product quality." To include this point.

Same section, sentence “The project should look into the marketing side of NFBs,”: “Maybe “marketing” is too limited.  As there are many supply side and use related issues, this maybe not solved by better marketing alone. As mentioned later in the document, a more integrated strategy covering all aspects of the NFB market is needed. “			“Marketing” changed to “market development, which could include training and other user side components”
Same section, sentence “The biggest concern of users is that there are good and bad NFB bricks on the market and it is difficult to tell these apart. The project should investigate ways of helping consumers select good quality bricks. The PMU as well as the Ministries of Science and Technology and of Construction have recognized this issue and are looking into this, however, an overarching market development strategy has not yet been developed. A coherent market development strategy, which links together several aspects of market development (such as product quality recognition or certification, construction sector education, building owner outreach and improved enforcement of requirements for the use of NFBs), is urgently needed. This strategy also would need to set targets for NFB usage in line with GoV policy.”: “The users are also not sure if the problem is due to bad bricks or improper construction. A proper research covering both the production and construction side, is yet to be done. MOC has assured that they are doing this, but the project could support it if possible, to ensure that it is comprehensive enough and is done faster. Ideally the proposed integrated market development strategy could come after this research is done.”	4.2.1, output 4	UNDP	This comment sounds like a good point for a follow-up discussion with the project team and stakeholders. It is unclear why, if MOC is conducting the suggested research, the project should support this; it is not something that came up during the review of the project. Therefore, this comment / suggestion is not included in the report, however, UNDP is encouraged to bring this up during follow-up discussions.
Corrections of and updates to activities per year overview	4.2.1, results per activity table	PMU	Corrections and additions adopted.
The below table should include the Rating provided in section “1.4. MTR Ratings & Achievements Table”- page 3, so that the reader can more easily connect the ratings for each outcome with the justification behind the ratings. (See the template for this table in the	4.2.1, results per activity table	UNDP	This comment is unclear: the template for the ratings & achievements table has been used, as required in section 1.4. The template specified in the TOR does not include a results per activity table; that is simply an addition made by the

MTR TOR)  Also I seem to see only a limited selection of indicators per Outcome?			review team to facilitate data collection and presentation. Ratings per objective (outcome) have been copied to the results per activity table to facilitate the reader; there don't seem to be further useful changes related to this comment.  Note that the results per activity table was included in the body of the report in the draft version and was moved to an annex in the final version, to improve readability of the report.
Related to action 1.2, 10 provinces selected for NFB supporting: Need to be more specific on which support or policy or what	4.2.1, results per activity table	UNDP	Entry was removed on request of the PMU. More generically, an MTR cannot describe every aspect of the project in all detail: this is one item, for one year, out of 4 items for the same output, out of 26 outputs in the LogFrame. The level of detail provided is already exceptionally high for an MTR (7+ pages of activity and results-overview), and if anything, should be reduced rather than added to.
Related to action 1.3: "Result is at activity level/action statement, so may need to replace by result statement or assessment of potential for achievement of results at Output/outcome level"	4.2.1, results per activity table	UNDP	The table provides a detailed overview of project activities and results – at the output level. It is not intended nor presented as an assessment at outcome level, merely as supporting information for the reader and the MTR team.
Related to action 1.5: "Standards are being implemented": "or developed?"	4.2.1, results per activity table	UNDP	Documentation reviewed suggests "implemented"; PMU review of the document confirms this.
Related to action 2.2 "Training materials on Design and construction are being developed; Training materials prepared by NC and IC: Module 2 (PNFB-2: Design and Construction of Projects using NFB:" The 2 are the same so may use only 1	4.2.1, results per activity table	UNDP	Agreed, one entry removed.
Related to action 2.2, "PNFB-02: Completed preparation of the training materials on Design and Construction of works using NFB": "Should check with PMU: PNFB started being developed in 2016 and completed in 2017."	4.2.1, results per activity table	UNDP	PMU has reviewed the results per activity table
Related to activity 2.6, 3 workshops: "These are themes of 3 workshop so may need to be formatted as sub-bulleted points"	4.2.1, results per activity table	UNDP	Agreed, formatting adapted



Related to activity 2.6, “Website operated with 30,000 visitors to Project page and 500,000 visitors to VABM page”: “Need an assessment of quality of the website- information update/ sharing on the website”	4.2.1, results per activity table	UNDP	Indeed, that is something UNDP could have insisted on while managing the project. Since no such assessment was conducted, the MTR cannot comment on the quality of website information, updating or sharing.
Related to activity 3.5, “Guidelines on Loan and Loan Guarantee applications issued by NAFOSTED”: “Guidance or applications”	4.2.1, results per activity table	UNDP	“applications”: as the statement indicates, these are issued guidelines for loan guarantee applications.
Related to activity 4.1: “Monitoring and evaluation completed for a demonstration project implementation”: “Should be specific on which project”	4.2.1, results per activity table	UNDP	As indicated before, this is a 7+ page overview of activities, for 26 activities, 3 years and multiple results per activity. The level of detail is more than sufficient for an MTR report, and UNDP is asked to exercise some restraint in its request for more details.
Related to activity 4.5, “TA report to improvement of production technology at Luu Xa Demo project completed”: “May need to re-wording to state technical results achieved by Luu Xa thanks to support by the project”	4.2.1, results per activity table	UNDP	To the knowledge of the MTR team, the TA report has been completed, and we cannot yet state that technical results were achieved by the recipient.
Related to activity 4.8, “Survey to select demo site conducted in Ha Noi and Da Nang cities. But no demo site been chosen after many months of work.”: “May need to re-word like: ongoing selection of demo site instead of “no demo site...”	4.2.1, results per activity table	UNDP	Since the overview describes results achieved, it would be confusing to list on-going, but not yet completed, activities. The original formulation seems to correctly state the progress made.
In response to discussion of demo projects: Correction of number (6 to 5) and addition: “3 demo projects has been completed, 01 demo on AAC technology being under implementing, 01 demo on technical use of NFB in building works not yet started.”	4.2.2	PMU	Correction adopted.
In response to discussion about the geographical focus of activities in/ around Ha Noi: “PMU have visited and worked with many Departments of construction, Department of Science and Technology of provinces: Quang Ninh, Thai Nguyen, Ha Nam, Hoa Binh, Phu Tho, Nghe An, Thanh Hoa, Hue, Da Nang, Quang Nam, Quang Ngai, Dak lak, Dak Nong, Khanh Hoa, Ho Chi Minh, Binh Duong, Dong Nai, Can Tho, Kien Giang, Vinh Long Dong Thap ect...) “	4.3.1	PMU (similar comment received from UNDP)	Agree with response. Recommendation about focus of activities removed, as the project already covers many activities outside of Ha Noi.
This section seems to be missing a review of UNDP’s role. It should cover the following topics, among others -whether there is an appropriate focus on	4.3.1	UNDP	Thank you for the reminder. A discussion of UNDP’s role has been added to section 4.3.1, following the list of aspects to be discussed from UNDP’s

<p>results</p> <ul style="list-style-type: none"> <li>-adequacy of UNDP support</li> <li>-candor and realism in reporting</li> <li>-quality of risk management</li> <li>-responsiveness to significant problems, if any</li> </ul>			evaluation guideline.
In response to a discussion about government co-financing being labelled as “grant and cash” in the CER, commented: “edited as in kind”	4.3.3	PMU	The CER supplied to the MTR team (version 06 Feb 14) lists “Grant and cash”, the ProDoc does not include a breakdown of cofinancing by type. The GEF has not uploaded the final version of the CER to its website. The MTR team assumes that the documents provided by UNDP are correct and final versions, and that these include accurate information. Therefore, no changes are made to the report.
Include a review of whether strong financial controls have been established and if the project demonstrates due diligence in the management of funds	4.3.3	UNDP	A review has been added to section 4.3.3
<p>Sentences “The project document defines targets at activity level (which are adequately monitored) and an overall objective (market share of NFBs), which is monitored through Ministry of Construction statistics. Neither are relevant indicators for the impact of the project. This, however, is largely a failure in project design, and not of project implementation.”: “This may repeat the assessment of the log-frame.</p> <p>Even though it states that the original targets and indicators were not “meaningful”, this section should still review the M&amp;E tools and processes. Was the M&amp;E plan sufficiently budgeted? Are enough resources being allocated to M&amp;E? Do the monitoring tools provide the needed info and are key partners involved? Are they mainstreamed with existing national systems? Is the project team using inclusive and/or participatory monitoring systems? Were follow up actions taken in response to PIRs?”</p>	4.3.4	UNDP	<p>The text has been adapted.</p> <p>In addition, a discussion of the M&amp;E plan and system has been added to the report. This discussion has also been taken into consideration for the rating of project performance.</p>
In response to a discussion about the representation of construction companies in the project steering committee: “Construction sector is important stakeholders. Construction company and professional associations has been invited to participate 15 Workshops and 21 training courses.”	4.5.5	PMU	We agree that construction companies are important stakeholders and that their participation in workshops and training courses is of great value. Workshop / training course participation does not give a stakeholder the same opportunities to help direct a project as membership of the steering

			committee does. Given the importance of training and convincing construction companies and workers to use NFBs well, this recommendation still appears to be valid.
In response to the observation that “there are no indications that an extension of the project would be needed”: “It needs to be extended to June 30th 2020 for closing project.”	4.4	PMU	This possible extension has not come up in the review of the project, and there is so far no indication that the project is behind schedule. The MTR team therefore sees no reason to recommend an extension of the project. We can review this again if the PMU can indicate why an extension of the project would be needed.
Sentence “On a detailed level, the project’s strategy is not always coherent: Some activities have a direct connection to the overall objective and seem well thought-out; others less so.”: “As commented above, these need clear examples as it is not clear now how / where / if to improve.”	5.1	UNDP	Addressed with first comment
Paragraph “There are further substantial mismatches between (activity / component) targets and (overall) objectives in the project document: these simply don’t add up. So far, this has not led to major issues in the project; however, there is a substantial risk that, if the strategic results framework is not revised to better reflect reality, the project focuses on ineffective activities in coming years, simply to meet ill-advised targets included in the project document.”: “This lack of the general review of the project progress”	5.1	UNDP	The comment is unclear and cannot be addressed as currently written (no follow-up received to the request for clarification)
In response to a discussion about progress by component, part training and capacity building: “Target Group stakeholders has participated in 21 training courses: Module 1: Target participants: Technical managers of NFB factories; officers of governmental departments in provinces (such as Department of Construction), districts, financial organisations Module 2: Target participants: Technical managers of design consultant companies, contractors, CBB factories, local government authorities. Module 3: AAC managers and workers of plants Module 4: - Target participants: Technical managers of CBB factories; equipment suppliers, technical service providers, CBB	5.1.1	PMU	This comment matches what was observed during the MTR, and it is good to see that the PMU is already preparing for extending training to the much larger group of stakeholders, including construction companies and workers, recommended in the MTR. The comment is seen as a confirmation of the MTR conclusion.

investors and users.  Module 5: Target participants: Technical managers of CBB factories; equipment suppliers, technical service providers, CBB investors and users.  In 2018-2019 PMU will extend training to High college of construction who will supply training to workers"			
In response to a discussion about certification of labelling of quality bricks: "According Code/Regulation No. 10: All NFB products must have product quality certificate before selling to market. "	5.1.1	PMU	Thank you for the update. Text changed to reflect that certification is in existence. Given that there are ongoing quality concerns around NFBs, it seems that more work is needed to make sure the market trusts these certificates.
As stated in an earlier comment, each recommendation should be specific on who is responsible for carrying it out	5.2.1	UNDP	Already addressed at earlier comment
In response to a discussion about sustainable financing for manufacturing NFBs, and the recommendation to spend less resources on technology development, and more on the demand side of the market: "+ 3 demo project implemented in concrete bricks, one for AAC plant is being under conducting; one for using NFBs; 21 replication: 7 replication projects completed, 8 projects under implementation, others remaining 6 will be conducted in 2018-2019" and "+ policy and regulation already issued: Circular No.13 by MOC on using NFBs extensively building financed by State budget (100 % for Hanoi and Hochiminh cities, and 70 % for others cities..); building from 9 floors up use 80% NFBs. This regulation will expand NFB market quick. + Standards for using NFBs: for AAC and concrete is under preparation by MOC + Training courses for technical and workers of construction companies: PMU will produce videos on construction procedures for different NFB product. Etc...."	5.2.2	PMU	The comments match MTR findings and underline the fast pace of market development in Viet Nam. The MTR recommendation appears to be in line with the comment.
In response to a discussion about sustainable financing for manufacturing NFBs, and the recommendation to assess how market parties could recognise good quality bricks, suggesting certification or labelling: "+ Regulation No.10/2017 of MOC on product quality certificate for Building materials.	5.2.2	PMU	Text adapted similarly to changes in section 5.1.1

<p>+ When constructor buys NFBs from factory A, they have to show Quality certificate (this certificate is given by institution designated by MOC or MOST).</p> <p>+ Department of construction from Provinces is responsible for enforcement of Regulation No.10 NFB product quality and other regulations."</p>			
<p>Item 4, "Sustainable financing for the manufacturing for non-fired bricks has been realized, and it is advisable to reduce the remaining available budget for component 3 of the project (sustainable financing support) to free up budget for the development of the demand side of the market. In addition, within component 4 (technology application) a shift in budget is needed, with less resources going towards further demonstration and replication of production technology, and more towards the demand side of the market.": "This recommendation does not seem to have been shown in the conclusions or in the executive summary.</p> <p>While doing this shift of budget within component 4, the need for further support in the production side could be kept in mind – see earlier comments regarding it."</p>	5.2.2.	UNDP	<p>The conclusions section (5.1.2) includes the following: "Project finances are excellent, with a larger than planned contribution by the Government of Viet Nam (and lower use of GEF funds than planned) and larger than expected co-financing by the private sector as well. The project will, in component 4, need budget to address the development of the demand side of the market for non-fired bricks, which can be freed up by reducing no longer needed activities (planned for coming years) within components 3 and 4 of the project." A shortened version of this conclusion is also included in the summary of conclusions.</p> <p>A line has been added to the summary of recommendations to stress that the recommended shift in focus should be accompanied by a shift in budget.</p> <p>Further support for the production side has been discussed at the relevant sections and comments; there appears to be no need to repeat that discussion in the recommendations section.</p>
List of persons interviewed: full names could be given	6.8	UNDP	Added where retrievable
Meeting notes, interview 3, last sentence "This makes users unconfident in using this type of bricks and make NFB producers who produce qualified NFB to sell their products."	6.9	UNDP	"make" changed to "hinders"
Co-financing table: "Six private sector entrepreneurs" (sources of co-financing): Must be 7, as indicated below?	6.11	UNDP	The co-financing table in the CER specifically lists six entrepreneurs; at this point in time 7 have provided co-financing. Even though the listing is correct (as it refers to the original CER), the word "six has been removed to avoid confusion.

#### 6.15. *Relevant midterm tracking tools*

The MTR has concluded that baseline data, as included in the project document (and used as the basis for the GEF Climate Change tracking tool) are not a good representation of the actual situation at the start of the project. A revision of these data has been recommended, and is being discussed within the project, however, was not completed by the time this MTR was finished. As a result, an update of the GEF Climate Change tracking tool could not be provided.





## 6.16. MTR Terms of Reference

### Midterm Review of the UNDP-GEF Project Promotion of Non-Fired Brick (NFB) Production and Utilization in Viet Nam

<b>Project title:</b>	Promotion of Non-Fired Brick (NFB) Production and Utilization in Viet Nam
<b>Project ID:</b>	87517
<b>Implementing Partner:</b>	Ministry of Science and Technology (MOST)
<b>Duty Location:</b>	Hanoi (Viet Nam) with in-country travel as required
<b>Duration:</b>	September 2017 – January 2018

#### 1. INTRODUCTION

This is the Terms of Reference (ToR) for the UNDP-GEF Midterm Review (MTR) of the *full* sized project titled *Promotion of Non-Fired Brick (NFB) Production and Utilization in Viet Nam (PIMS 4546)* implemented through the *Ministry of Science and Technology (MOST)*, which is to be undertaken in 2017. The project started on the 4 November 2014 and is in its *third* year of implementation. In line with the UNDP-GEF Guidance on MTEs, this MTR process was initiated before the submission of the second Project Implementation Report (PIR). This ToR sets out the expectations for this MTR. The MTR process must follow the guidance outlined in the document *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* ([http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance\\_Midterm%20Review%20EN\\_2014.pdf](http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20EN_2014.pdf)).

The MTR is primarily a monitoring tool to identify challenges and outline corrective actions to ensure that a project is on track to achieve maximum results by its completion. The output/deliverable of a MTR process is the MTR report with issues and management responses that will be useful for the project steering committee, implementing partner (MOST), Project management unit and UNDP for necessary corrective actions (if any) and continued management and implementation of the project towards achievement of its results by its completion.

#### 2. PROJECT BACKGROUND INFORMATION

Viet Nam's socio-economic growth is the rapid urbanization of Viet Nam has lead to development of construction sector and increase in brick demand. The overall demand for building bricks has increased by 6% annually from 2005 until 2011, and is expected grow at a similar pace for the next 10 years. According to the Viet Nam Association for Building Materials (VABM), more than 40 billion SBUs will be required by 2020. Of which, Viet Nam set the target of 20-25% of non-fired brick (NFB) by 2015 and 30-40% by 2020.

The Project "Promotion of Non-Fired Brick (NFB) Production and Utilization in Viet Nam" funded by the GEF/UNDP has been supporting Viet Nam to achieve the set targets for NFBs. It is implemented by MOST and co-implemented by the Ministry of Construction (MOC).

The objective of the Project is to reduce the annual growth rate of GHG emissions by displacing the use of fossil fuels and the usage of good quality soil for brick making through the increased production, sale and utilization of non-fired bricks in Viet Nam. This objective will be achieved by removing barriers to increased production and utilization of NFBs through four components:

- i) Policy support for non-fired brick technology development.
- ii) Technical capacity building on NFB technology application and operation and use of NFB products.
- iii) Sustainable financing support for NFB technology application.
- iv) NFB technology demonstration, investment and replication.

The Project will be implemented over a 5-year period and is expected to generate GHG emission reductions through the displacement of coal-fired clay brick kilns with NFBs. Direct GHG reduction estimates are 383 ktonnes CO<sub>2</sub>. Indirect emission reduction estimates are in the order of 13,409 ktonnes CO<sub>2</sub>, cumulative over a 10-year period after the end of the Project.

The total funding of the project is USD 38,880,000 of which GEF grant funding is \$2,800,000 and the remaining amount of \$36,080,000 is co-financed by national counterparts including MOST, MOC, financial institutions and NFB production companies.

The project was formally launched in November 2014, started its implementation in May 2015 and should end by end of 2019. All project components are under implementation.

### 3. OBJECTIVES OF THE MTR

The MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy, its risks to sustainability.

### 4. DETAILED SCOPE OF THE MTR

The MTR team will consist of two independent consultants that will conduct the MTR - one international consultant as team leader and one national expert as team member.

The MTR team will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

#### i. Project Strategy

##### Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective and efficient? route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?
- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?
- Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.
- If there are major areas of concern, recommend areas for improvement.

##### Results Framework/Log-frame:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART 'development' indicators, including sex-disaggregated indicators and indicators that capture development benefits.

#### ii. Progress Towards Results

##### Progress Towards Outcomes Analysis:

- Review the logframe indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and following the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as "Not on target to be achieved" (red).

**Table. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)**

Project Strategy	Indicator <sup>16</sup>	Baseline Level <sup>17</sup>	Level in 1 <sup>st</sup> PIR (self-reported)	Midterm Target <sup>18</sup>	End-of-project Target	Midterm Level & Assessment <sup>19</sup>	Achievement Rating <sup>20</sup>	Justification for Rating
<b>Objective :</b>	Indicator (if applicable):							
<b>Outcome 1:</b>	Indicator 1:							
	Indicator 2:							
<b>Outcome 2:</b>	Indicator 3:							
	Indicator 4:							
	Etc.							
<b>Etc.</b>								

**Indicator Assessment Key**

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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In addition to the progress towards outcomes analysis:

- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Evaluation.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

**iii. Project Implementation and Adaptive Management**Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency / Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the GEF Partner Agency (UNDP) and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.

Finance and co-finance:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.

<sup>16</sup> Populate with data from the Logframe and scorecards

<sup>17</sup> Populate with data from the Project Document

<sup>18</sup> If available

<sup>19</sup> Colour code this column only

<sup>20</sup> Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU



- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

#### Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

#### Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

#### Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

#### Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.

#### **iv. Sustainability**

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

#### Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

#### Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key



stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

#### Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/mechanisms for accountability, transparency, and technical knowledge transfer are in place.

#### Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

### **Conclusions & Recommendations**

The MTR team will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.<sup>21</sup>

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for guidance on a recommendation table.

The MTR team should make no more than 15 recommendations total.

### **Ratings**

The MTR team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTE report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

**Table. MTE Ratings & Achievement Summary Table for Promotion of Non-Fired Brick Production (NFB) Production and Utilization in Viet Nam**

Measure	MTE Rating	Achievement Description
<b>Project Strategy</b>	N/ A	
<b>Progress Towards Results</b>	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	

<sup>21</sup> Alternatively, MTR conclusions may be integrated into the body of the report.

	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
<b>Project Implementation &amp; Adaptive Management</b>	(rate 6 pt. scale)	
<b>Sustainability</b>	(rate 4 pt. scale)	

## 6. MTR APPROACH & METHODOLOGY

The MTR must provide evidence based information that is credible, reliable and useful. The MTR team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review / PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review). The MTR team will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTE field mission begins.

The MTR team is expected to follow a collaborative and participatory approach<sup>22</sup> ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders. Engagement of stakeholders is vital to a successful MTR.<sup>23</sup> Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/ component leaders, key experts and consultants in the subject area, Project Board, project stakeholders, academia, local government and CSOs, etc. Additionally, the MTR team is expected to conduct field missions to local provinces in Viet Nam, including the project sites where project activities such as demonstration, replication and training have taken place.

The review will follow UNEG norms and standards for evaluations, as well as ethical guidelines.

The final MTR report should describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

## 7. MIDTERM EVALUATION DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
1	<b>MTR Inception Report</b>	MTR team clarifies objectives and methods of Midterm Review	No later than 2 weeks before the MTR mission: (23 September 2017)	MTR team submits to the UNDP and project management
2	<b>Presentation</b>	Initial Findings	End of MTR mission: (6 October 2017)	MTR Team presents to project management and the UNDP
3	<b>Draft Final Report with Notes of all meetings with</b>	Full report (using guidelines on content outlined in Annex B) with annexes	Within 3 weeks of the MTR mission: (27 October 2017)	Sent to the UNDP, reviewed by RTA, Project Coordinating Unit, GEF

<sup>22</sup> For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.

<sup>23</sup> For more stakeholder engagement in the M&E process, see the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 3, pg. 93.



	stakeholders			OFP
4	<b>Final Report*</b>	Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTE report	Within 1 week of receiving UNDP comments on draft: (22 December 2017)	Sent to UNDP

\*The final MTR report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

## 8. TIMEFRAME, DUTY STATION AND EXPECTED PLACES OF TRAVEL

**Duration and Timing:** Estimated 20 working days for an international consultant and 15 working days for one national consultant during the September 2017 - January 2018.

**Duty station:** Home based and Hanoi with in-country travel as required

The detailed schedule will be developed and agreed with the UNDP and project management team (UNDP) before commencing. The assignment shall include a 7-working day mission in Hanoi, Viet Nam. In case of in-country travel (if needed), travel costs will be covered by the Project based on the UNDP policy.

The tentative MTR timeframe is as follows:

TIMEFRAME	ACTIVITY
(24 August 2017)	Application closes
(31 August 2017)	Select MTR Team
(15 September 2017)	Prep the MTR Team (handover of Project Documents)
(20 September 2017)	Document review and preparing draft MTR Inception Report
23 September	Finalization and Validation of draft MTR Inception Report- latest start of MTR mission
7 days (25 September - 6 October)	MTR mission: stakeholder meetings, interviews, field visits
6 October 2017	Mission wrap-up meeting & presentation of initial findings- earliest end of MTR mission
27 October 2017	Preparing draft report including suggestion for Preparation and Issues of management response
27 November 2017	Incorporating audit trail from feedbacks on draft report/Finalization of MTR report (note: accommodate time delay in dates for circulation and review of the draft report)
5 December 2017	Finalisation of Preparation & Issue of Management Response
22 December 2017	Expected date of full MTR completion

Options for site visits should be provided in the Inception Report.

## 9. TEAM COMPOSITION AND EXPECTED QUALIFICATIONS

The consultants cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

The ideal candidates shall have the following minimum qualifications and experience:

**For International Consultant (Team Leader)**

- Master's degree in project management, energy efficiency, environmental sciences or relevant fields.
- At least ten (10) years of international experience in the areas of project development, project implementation, and project evaluation for donor-funded development projects in developing countries.
- Recent experience with results-based management evaluation methodologies; Experience working with the GEF or GEF-evaluations; Project evaluation/review experiences within United Nations system will be considered an asset;
- Work experience in climate change mitigation projects in developing countries in Asia is an advantage;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios; Experience applying participatory monitoring approaches;
- Good interpersonal and analytical skills and ability to work under diverse/varied cultural environments;
- Demonstrated command over writing professional reports in English.

Specifically, the international expert (team leader) will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Decide the division of labor within the evaluation team;
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft related parts of the evaluation report; and
- Finalize the entire evaluation report.

**For National Consultant (Team member)**

- Graduate degree in degree in project management, energy efficiency, environmental sciences or relevant fields
- At least five (5) years of experience in the areas of project development, project implementation, and project evaluation for donor-funded development projects in Viet Nam;
- Familiarity and past experience with evaluation of GEF projects, especially energy efficiency projects, will be an advantage;
- Work experience in climate change mitigation for donor-supported projects is an advantage
- Experience applying SMART indicators and reconstructing or validating baseline scenarios; Experience applying participatory monitoring approaches
- Good interpersonal and analytical skills and ability to work under diverse/varied cultural environments;
- Excellent English skills with evidence through practical experience.

Specifically, the national expert will perform the following tasks:

- Documentation of evaluation and data gathering and consultation meetings;
- Contributing to the development of evaluation plan and methodology;
- Conducting specific elements of the evaluation determined by the International Lead Consultant;
- Contributing to presentation of the evaluation findings and recommendations at the evaluation wrap-up meeting;
- Contributing to the drafting and finalization of the MTR reports, notes of the meetings and other related documents prepared by the international consultant
- Performing translation for the international consultants during meetings with various stakeholders and necessary documents discussed during the international consultant's mission.

## 10. MTE IMPLEMENTATION ARRANGEMENTS

UNDP CO in Viet Nam will be responsible for selection and procurement of both international and local consultants. The international consultant will be the team leader and responsible for overall planning, execution and quality, contents and timely completion of the deliverables. Upon selection and procurement of international and local consultants, the UNDP CO in Viet Nam shall coordinate the initial communication between the two consultants and PMU, after which the international consultant shall assume the leadership role.

The selected consultants will work closely with UNDP programme Officer and Project Management Unit (PMU) under the guidance of the Head of Climate Change and Environment Unit at UNDP Viet Nam. All logistical arrangements (transport, accommodation, communications, visa, arranging meetings, supplying copies of required documentation, etc.) to support evaluation team will be supported by PMU.

With the exception of a 7-day field mission, the members of the MTR team are expected to work mostly from their home based offices and communicate among themselves and with UNDP, PMU and other stakeholders electronically. The MTR team can seek out both UNDP and PMU for reasonable assistance and support that they may require to fulfil their responsibilities.

## 11. PAYMENT MODALITIES AND SPECIFICATIONS

- The first installment of 40% of contract value will be paid upon submission and approval of the draft MTR report with supporting documents and notes of the meetings.
- The second and final payment of 60% will be paid upon the completion of the final products under the contract, with satisfactory acceptance by UNDP.

## 12. CONSULTANT PRESENCE REQUIRED ON DUTY STATION/UNDP PREMISES

NONE

PARTIAL

☒ INTERMITTENT

FULL-TIME

