Empowered lives.
Resilient nations.

GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project

Final Report
MID TERM REVIEW

Frank Pool, Independent Evaluation Consultant and Team Leader, New Zealand
Dr Sameer Maithel, National Consultant, Greentech Knowledge Solutions, India

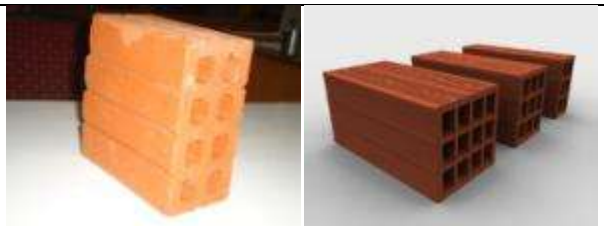
21 October 2012

Table of Contents

1. EXECUTIVE SUMMARY

The GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) project is a four-year planned duration Global Environmental Facility (GEF) funded project. The stated Project Document (ProDoc) goal is to reduce energy consumption and restrict GHG emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for the production and use of resource efficient bricks in India. The term resource efficient bricks (REBs) in the project context is not precisely defined, but in practice REBs in the context of this project refers to perforated or hollow clay fired bricks, as illustrated below.

Perforated brick: In India, most of the perforated bricks have 3 holes and have a 5-15% perforation ratio. The size of these bricks is similar to that of normal bricks. The reduction in clay and fuel is small.



Hollow blocks: The hollow blocks are of a large size compared to normal bricks (typically 2 to 9 times that of normal bricks). The reduction in weight compared to solid extruded bricks is 25 - 65%. The insulation properties of these blocks are much better and the clay and fuel savings are much higher than for simple perforated bricks. The blocks shown on the right are those made by Weinerberger in its large factory in South India.

UNDP is the GEF Implementing Agency (IA) responsible for the project's implementation, TERI (The Energy and Resources Institute) is defined in the ProDoc as the organisation responsible for the operation of the Project Facilitation Unit (PFU) / Project Management Unit (PMU) and the Ministry of Environment and Forests (MoEF) is the Executing Agency (EA) for the project. In the project design, project implementation was to be carried out primarily through five Local Resource Centres (LRCs), covering the five main brick making geographical clusters in India.

The project has US $696,448 of approved GEF funding; brick kiln units are expected to provide US $ 1,854,000 in co-financing through investments in plant and machinery; and a US $ 145,000 in-kind contribution was explicitly and formally agreed to be provided as an in-kind co-financing contribution from TERI. The project took three years (2005-2008) for its formulation and approval processes. The project received its GEF CEO endorsement in April 2008 and the project inception workshop was held in November 2009.

The project in its design has five main components: a) enhancing public sector awareness (5% of GEF budget), b) facilitating project finance access to brick kiln entrepreneurs (11% of GEF budget), c) developing of knowledge on technology and marketing (16% of GEF budget), d) availing efficient technology models in 5 clusters for demonstration projects (42% of GEF

budget), and e) enhancing capacity of brick kiln enterprises (7% of GEF budget).

The India Brick EE project design had a very ambitious stated direct project reduction target of 47,128 tonnes of CO_2 over the project implementation lifetime of four years and a target of 187,840 tonnes of CO_2 reductions over 15 years, comprising the savings in energy consumption by 12 demonstration units in five major brick making clusters in India, as specified in the ProDoc. The CO_2 reduction figures were derived from the anticipated 12 demonstration brick plants all being established near the beginning of year one with major assistance from the project assumed in the attribution of project CO_2 reduction calculations in the ProDoc.

From 27 February to 09 March 2012, the India Brick EE MTR international and national reviewers fielded a review mission to the project in India. The field mission included a wide range of evaluation mission interviews and discussions held with key project stakeholders in Delhi, Bangalore, Ghaziabad, Vadodara (Baroda), Varanasi, and Chandigarh. The field mission visits were greatly assisted by TERI as the project PFC/PMU and the help of TERI in the field visits and in providing informative briefings to the reviewers is gratefully acknowledged. A preliminary report-back presentation was provided to all key project stakeholders on 07 March 2012 (see Annex D). On 09 March, and in subsequent email exchanges, additional information and documentation was provided by UNDP to the reviewers that helped clarify many outstanding unclear project implementation and performance issues. In particular, the UNDP meetings and documentation was able to shed light (through new hard evidence provided) on the observed high TERI project management and other staff input costs, which following the reviewers' careful analysis was revealed to have clearly been 2-4 times the rates in the ProDoc that were explicitly stated to be used in the project. The reviewers then very carefully went through the available project documentation to better understand: the project's lack of focus on geographical areas with extruders (as extruders are a prerequisite for producing perforated bricks or hollow blocks - REBs); the lack of tangible project funding support for demonstration projects (which were the core direct GHG reduction element of the project design); and the lack of focus on supporting REB uptake using the major market opportunity that has arisen with the successful hollow block market created by the advent of Wienerberger in South India. Great care was taken by the MTR reviewers to ensure that all the conclusions reached are able to be fully backed up by documentary evidence. This MTR has gone considerably over its anticipated time frame, which has been largely a result of the considerable extra effort that had to be undertaken (at no additional cost to the project) to unravel the major issues that clearly existed in the project's implementation up to the time of the review. Two drafts of the project report have been provided to TERI for their review, and very extensive and informative feedback has been provided by TERI (as operator of the PFC/PMU) to the reviewers. The MTR report has been extensively updated in response to TERI's very helpful and much appreciated input, and where new relevant evidence was provided this has been incorporated and fully reflected in the revised final MTR report (this report).

This MTR and its report has been primarily undertaken so that GEF, who are the primary funders of the project activities, can maximise the value of the resources that they have committed to this very important area of energy use, and also to maximise the energy efficiency impact of the remaining GEF project funds. Although the reviewers were engaged by UNDP, the reviewers' findings are strictly completely independent of any views of UNDP and TERI, and have been developed without fear or favour to any project participants or stakeholders. The primary purpose of this mid term review (MTR) is to assist the project to maximise its effectiveness with its remaining funds, and to provide GEF with feedback on the value of the funds applied to date, and for GEF and UNDP to learn lessons for the design and operation of future projects.

Based on the documentary information provided by both TERI (as operator of the PFC/PMU) and UNDP as the project's IA (Implementing Agency), during its 2 years and 4 months (November 2009 to February 2012) of implementation, the project progress can be summarized as follows:

- Organization of a large number (around 40) of seminars, workshops, and meetings attended by around 1,600 brick entrepreneurs, 200 architects/builders, 150 government officials, and machinery suppliers.
- Undertaking specific technical studies through experts on REB structural stability, soil suitability, finance, international scenario, energy simulation to quantify the insulation benefits of REBs, etc.
- Some limited facilitation support for the production of REBs at 9 brick plants.
- Preparation of standard DPRs, launch of project website, development of a manual and training elements on REB construction practices.

The results during the first 2 years and 4 months of the project's implementation can be summarized as follows:

Table 1.1 Results of activities undertaken so far in the project

	Target (as per the LogFrame Matrix of Project Document)	**Revised approved target (as per TERI presentation to the evaluation team)**[1]	**Achievement**	**Result**

[1] A revised LFA was submitted by the PFC/PMU on 12 December 2011, but this was after the project had effectively ceased operations, and so it has not been approved. Therefore, this revised but unapproved LFA's targets are not used as the revised project targets in this report.

Objective To make India's five brick producing clusters more energy efficient.	Year 1: reduction of 10,099 tCO_2. Year 2: reduction of 21,544 tCO_2. Year 5: reduction of 59,920 tCO_2.	NA	Year 2: 4,958 tCO_2 using a claimed 100% project causality factor for all REB production at the relevant "demo" brick plants. This is based on production data from 9 brick plants for 2010 and 2011, for which the plants' CO_2 savings are fully claimed as project related demo unit savings. However, 8 units had the necessary machinery (extruders) for producing REBs and at least 4 units were commercially producing REBs before the start of the project. Also, there was no increase in perforated brick and/or hollow block production during 2011 compared to 2010. So claiming 100% or REB production CO_2 savings as due to the project interventions is clearly excessive, as 8 of the 9 brick plants already had the necessary extruders, 4 of the 9 plants were already producing REBs before the start of the project, and REB production did not increase from 2010 to 2011. Hence, a more realistic project causality factor due to the impact of the project to date would be 20% - reflecting the weak linkage between CO_2 savings and project activities.	**The reduction is tCO_2 is less than 1/20th of the target at the end of Year 2** if a more realistic 20% project causality factor is used[2]
Outcome 1 Enhancing public sector awareness on resource-efficient	Usage of REBs by new public department building contract increased by: - Year 2:	Year 4: increase by 3 %.	No evidence of any increase to date.	The project has done useful work in sensitizing govt. departments to REBs and taken steps to initiate a technical

[2] A 20% causality factor is used as per GEF Guidelines for "weak" GEF intervention causality linkages, see para 127 from MANUAL FOR CALCULATING GHG BENEFITS OF GEF PROJECTS: ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS, GEF/C.33/Inf.18 April 16, 2008, as approved by the GEF Council April 22-2, 2008

products	increase by 3% - Year 4: increase by 20%			study and BIS standards. **However, no measurable increase in usage of REBs is foreseen during the 4 year project period in government building contracts that can be directly attributed to project activities.**
Outcome 2 Access to finance for brick kiln entrepreneur	Year 3: Number of loans from local banks/ financial institutions doubled compared to baseline year 2008	Year 4: Number of loans from local banks/ financial institutions doubled compared to baseline year 2008	No data provided on bank loans baseline in 2008 and the status on number of loans for 2010 and 2011.	The project has prepared model DPRs, which have been approved by 1 financial institution. None of the demo units have used project DPRs for financing. **No evidence has been provided of any increase in brick kiln REB related loans due to project efforts.**
Outcome 3: Improved knowledge on technology including marketing	Market share of REBs doubled by end of project.	Market share of REBs doubled by end of project.	No data provided on the baseline or 2010, 2011 market share of REBs at the regional or national level.	The project has organized programmes to increase awareness among architects and builders. It has also provided a platform to international technology suppliers to reach to Indian brick makers. Overall the market for REBs has markedly increased, primarily of Weinerberger's hollow blocks, due to the market development efforts of Weinerberger and currently stands at 20 million blocks/ year (190,000 MT/ year). For the specific planned key project interventions with the demo units, the cumulative production is around 50,000 MT/year and has not shown any increase in 2011 compared to

				2010 (in fact it has marginally decreased). **Project impact is unknown, but is assessed as 20% of any overall increase.**
Outcome 4: Availability of resource efficient technologies	Year 1: All 12 units established by end of Year 1	Year 1: All 12 units established by end of Year 1	9 brick kiln units are producing REBs, which are referred to as demo units. However, at least 4 of these units were commercially producing REBs and eight had the necessary machinery (extruders) for producing REBs prior to the start of the project.	None of the 'demo' brick kiln units have received the systematic support as envisaged in the ProDoc. There is a lack of documentation of specific brick kiln unit project related interventions. **This outcome was allocated 42% of the projected GEF funds. In practice this activity received far less funding than envisaged and the project impact under this outcome is not quantifiable.**
Outcome 5: Improved capacity of brick kiln entrepreneurs	At least 5 brick kiln entrepreneurs in each cluster invest in technology upgradation by end of project	1 entrepreneur in each cluster invests in technology upgradation	The project has organized 16 cluster meetings and 11 exposure visits for brick kiln entrepreneurs. Some brick makers in North (Punjab/ Haryana/ HP) and South (around Bangalore) are considering investments in mechanization through use of extruders. The move towards mechanization is primarily driven by emerging labour shortages being faced by the traditional brick making industry.	**It is possible that some new investments in technology upgradation (in particular extruders) will take place by the end of project and that a part of the installed technology upgradation capacity is used for REB production.**

At the time that the MTR was fielded, the project had expended around 65% of its GEF budget, but as is clear from the table above, the project had achieved less than 50% of its expected results in its approved LFA.

At the time the MTR mission was fielded (Feb – March 2012) implementation progress on the project had effectively stopped over the issue of TERI's billing its staff out for PFC/PMU and expert roles at 2-4 times the ProDoc's explicitly specified rates. The background to this issue is reviewed in the body of this MTR report, possible measures to resolve this impasse are developed, and recommendations are made in this report for options to get the project operating

fully again.

A summary of the rating of the project on relevant implementation criteria is provided in the table below.

Table 1.2 Rating of the project on relevant implementation criteria

S. No	Criteria	Rating
1	*Project Formulation*	
	a) **Conceptualization / Design (R)**	**Marginally Satisfactory** The project development process has been a very long process (almost 7 years from 2001 onwards). TERI, MoEF and UNDP remained committed to the project development during this long development period. However, the project development lacked a suitable Professional and Independent Project Design and that the Project Document has several key weaknesses, e.g.: - Project document talks about REBs in the widest sense without really defining explicitly or properly that in the context of the project, REBs refer to clay-fired perforated or hollow bricks**.** • Project document is based around a regional approach to EE Brick/REB popularization without considering the demand and the necessary preconditions for REB manufacturing in different regions; • Project document was not developed with independent international professional input, so the project design assumptions were never clearly reviewed or articulated; • Project did not develop a strong and realistic LFA;
	b) Country-ownership / Driveness	The project has high relevance to India and is in-line with the policies of the Indian Government. However, the India Brick EE project lacked a suitable strong and directly related government implementation focused agency to provide the necessary local ownership, and in particular no central government co-funding was provided.
	c) **Stakeholder participation (R)**	**Satisfactory** The project document provides details of a well organised and well-reported stakeholder workshop organised on March 21, 2006. In all, 45 participants, mainly government officials, brick manufacturers, brick production machinery manufacturers and a few architects participated in the workshop.
2	*Project Implementation*	

	a) **Implementation approach (R)**	**Marginally Satisfactory** The project is weak in its adaptive management to the clear need for green brick production mechanisation as a prerequisite for REB production. The project lacked a suitable approved logical framework as a project management tool. The project document envisaged a major role for Local Resource Centres (LRCs) for the implementation of project activities in 5 regions. However, shortcomings were observed in the level of funding, staffing and involvement of LRCs in project management and execution. For example, while the project document proposed service contracts worth US $ 304,400 (mostly for funding LRCs) the value of service contracts actually awarded to LRCs and local consultants during the 28 months of project implementation was only around half of this value.
	b) **Monitoring & evaluation (R)**	**Unsatisfactory** The project monitoring and oversight by the PFU, UNDP, and the PSC has clearly been weak. While going through the minutes of PSC meetings, the MTR team has noted that key issues such as the selection processes to be followed for the hiring of consultants, the use of TERI staff to provide technical inputs without suitable TOR being defined or for their remuneration rates being known to or approved by the PSC, and the demonstration units and their CO_2 savings came up for discussion only during the 5th PSC meeting held on 22nd September 2011 (two years after the inception of the project). The oversight of project related contracts by the PFU clearly needs to be significantly improved. None of the presentations by PFU to the PSC cover details regarding project progress vis a vis the project's LogFrame, outcome related budgets and expenditure, etc. The level of detail presented, and discussed by the PSC was clearly inadequate to monitor the project's progress and outputs in a meaningful way, and certainly the monitoring and evaluation by the PSC was inadequate to pick up the charging of inputs by TERI at 2 – 4 times the ProDoc's explicitly defined project management staff and technical consultancy rates.
	c) **Stakeholder participation (R)**	**Marginally Satisfactory** The project reached out to a large number of brick makers, architects, etc through seminars, meetings and the project web site. However, as explained elsewhere, the key stakeholders like LRCs, had very little real role in the project's overall management.

	d) Financial planning	The financial planning by the PFU has been unsatisfactory. The staff-rate charges charged by TERI for PFU operation and for providing technical experts are 2-4 times of the rates as explicitly budgeted in the ProDoc. For example, the project document specified US$ 576/week as the professional fee for the Project Co-ordinator and US$ 750/week for Technical Experts, however as per data available for 2010, TERI has charged out its staff at rates varying between US $ 1000 to 3100/week[3]. The high staff-rate charged by TERI has had several negative implications on the project implementation: - Due to high staff charge out rates, the time inputs of persons managing the PFU and providing technical support in terms of number of person-week of inputs has been drastically reduced over that planned for. - The share of financial resources available for service contracts (for managing LRCs and hiring technical experts) has been significantly reduced. While the project document had proposed service contracts worth US $ 304,400 (44% of the budget), the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation was much less and was only around half of the envisaged amount. In terms of co-financing, TERI was supposed to provide in-kind co-financing of US $ 145,000, however no details are available whether or what part of this co-financing has been provided so far.

[3] TERI, in its comments on the draft MTR report, informed the reviewers that TERI had informed UNDP in September and December 2009 that TERI would be charging its existing manpower at rates higher than that specified in the ProDoc, however, the minutes of these meetings do not support these claims. TERI in its comments on the draft MTR also sets great store by the fact that overall budgets were duly submitted and approved and that expenditure was kept within approved limits - but such arguments are not convincing as the rates being charged by TERI were not explicitly stated by TERI in these budgets and reports. TERI continues to not recognise that a key issue is that the rates charged were never explicitly stated or approved, and the rates are 2 – 4 times those explicitly stated in the ProDoc, TERI has informed the reviewers that a detailed response clarifying the basis for arriving at the TERI rates was provided to UNDP auditors on 28 April 2011, although that argument has clearly not been accepted by UNDP or the PSC. But in any case, the allowable rates that were to be used were clearly documented in the ProDoc, which was developed by TERI, so TERI must have been aware of the approved rates. However TERI calculated its rates for charging the project for its staff inputs, and regardless of how TERI justifies its rates and whether these rates are accepted by other clients, the allowable rates for this Brick EE project are quite clear in the approved ProDoc. If different rates were to be allowed, this should have been approved in writing, and no such evidence of approval by UNDP/MoEF on behalf of GEF to use rates 2 – 4 times higher than those specified in the ProDoc has been sighted by the reviewers. No TERI staff charge out rates were specified in any document supplied to the PSC. So as far as the MTR reviewers can ascertain. UNDP/MoEF were unaware of the higher rates being charged by TERI until this was highlighted in the regular independent financial audit undertaken 21 months into the project's implementation.

		An additional, US $ 1,854,000 funding was expected to come from brick kiln units. Out of the nine brick making units being claimed as demonstration units by the PFU, eight were either producing REBs/ or had the capability to produce REBs before 2009 and hence had already made major capital investments before the starting of the project. In addition, the so-called demonstration units have received only token support from the project, hence the amount of co-financing that can be attributed to the project activities is estimated as US $ 258,000 (assumed to be 20% of the data provided by the PFU for the cumulative investments made in10 demonstration units – please refer Annexure F).
	e) Sustainability	The project has started the development of some activities, in particular BIS REB certification standards, and some awareness raising activities that may produce useful ongoing results beyond the project's end. A key area of concern is the sustainability of the LRCs. As per the project document, the ability of LRCs to continue providing services to the brick industry after the end of the project is a critical element to ensure project sustainability. As per the assessment of the MTR team, among the 5 LRCs, only LRC-North (PSCST) seems capable of continuing to provide support to the brick industry after the project's end. Hence there is an urgent need to prepare and implement a suitable sustainability plan for the LRCs in the remaining project's implementation time.
	f) Execution and implementation modalities	The execution and implementation modalities indicate significant shortcomings in the PFU's operations and in project management, and this calls for major improvements in its functioning during the remaining part of the project, in particular: • A significant part of the project's limited financial resources have been spent on TERI's in-house manpower providing services as Technical experts. This has been done without defining clear TOR or defined deliverables for these TERI experts' work. • The PFU's budgets and reporting have lacked sufficient detail for meaningful project oversight, in particular as evidenced by the subject of TERI' s (higher than ProDoc specified) staff rates not being

		explicitly raised or approved and only being identified in a scheduled annual external project financial audit. • The ToRs for several of the assignments are not sufficiently detailed. In some specific cases, there is a significant deviation between the submitted reports by experts and the ToRs e.g. the work undertaken by Eckhard Rimple clearly does not align with the scope of the ToR for his contracted work. • Coordination with LRCs and sustainability of LRCs is an issue.
3	***Results***	
	Attainment of Outcomes/ Achievement of objectives (R)	**Marginally Satisfactory** The reduction is tCO_2 is around 1/20th of the target at the end of Year 2. None of the 9 brick kiln units have received the level of systematic support as envisaged (for 12 brick units) in the ProDoc. The project's implementation management has clearly lacked a suitable strategic focus. However, the project has done some useful work in creating awareness. South India now offers the most significant opportunity to expand the market for REBs in India.

MTR recommendations:

1 **Revision of LFA –** The project is well short of its targets as per the original LFA, and there is no realistic likelihood that the project could now fully meet the targets set in the original LFA. The project is left with around 1/3rd of its budget and 1/3rd of its time, thus it is important at this stage to prioritise actions (several of these are provided later in this section) and it would be appropriate to revise the LFA. The PFU has already submitted a revised LFA to UNDP, but it is recommended that the revision in the LFA should be done in full and open consultation with LRCs, and with other key stakeholders, as well as with MoEF and UNDP.

2 **Actively Support Replication of Hollow Block Manufacturing, Training and Awareness in South India** - One very promising development that has occurred since the current India Brick EE project was conceived is that a large modern world best practice brick making plant has opened near Bangalore, which is now successfully mass producing hollow blocks (owned by one of the largest brick making companies in Europe, Wienerberger; which is expected to produce 20 million hollow blocks during 2012). Wienerberger has single handedly created a major new market for clay hollow blocks in South India[4], and local brick entrepreneurs are also starting to produce similar hollow blocks, although this combined capacity (of 2-4 million blocks/ year) is still unable to meet the huge market demand for hollow fired clay blocks in South India. The UNDP-GEF project has been able to engage

[4] The predominant position of Wienerberger can be gauged from the fact that the total annual production of 20 million blocks or around 190,000 MT/ year is almost four times the cumulative production of all types of perforated and hollow bricks/blocks produced by the so-called 9 demonstration units (estimated at around 50,000 MT/ year).

and utilize Wienerberger facilities and resources for some project activities, which is a useful starting point. It is therefore recommended that the India EE Bricks project now clearly moves to a strategic replication focus on hollow block entrepreneurs support in South India - to piggyback on Wienerberger's hollow block market already created in South India and the existing replication of this hollow block product with manufacturers that already have extruders, and with manufacturers which the India EE Brick project will separately assist in obtaining extruders. It is also recommended that the India Brick EE project should more pro-actively partner with Wienerberger in mason training, architect and engineer site visits, hollow block market awareness and training. The project needs to now focus on targeted awareness raising of REBs in areas where REBs can be produced, such as the promotion of hollow clay blocks in South India where there is now an established market that now cannot be met by Wienerberger alone.

3 **Need Real Timeframes and Clear Leadership in Updating Bureau of Indian Standards (BIS) REB/EE Brick Standards** - A clear barrier to the uptake of perforated bricks and hollow blocks in India (particularly among the government and public-sector builders) is the existence of outdated technical standards. It is therefore recommended that the project ensures that BIS formally initiates the process for review/modifications of IS: 2222-1991 and IS: 3952-1988 and the process of getting public comments on the draft modifications suggested by the technical committee is fully completed.

4 **Focus on demonstration/replication projects (Outcome 4)**: One of the key shortcomings of the project has been a lack of focus on demonstration or replication REB projects. Though almost 66% of the funds for the component have already been spent, the so-called 9 "demonstration" projects were in most cases already producing REMS or were no longer interested in producing REBS, and have received only minimal support from the project. It is acknowledged that the long time delay in project development and approval meant that the originally envisaged 12 demonstration sites were no longer fully relevant, but this is a common occurrence in GEF projects, and an experienced PFU/PMU provider such as TERI should have found alternative demonstration units as required. There is a need to set clear guidelines for the selection of REB manufacturing units as project demonstration/ replication units and to provide systematic support in the form of specific technical support to streamline/stabilize and increase the production, monitoring, documentation, and support for market development, so that there is a demonstrable improvement in the production volume/quality/productivity of these units and the project is able to meet at least some significant part of its CO_2 reduction target.

5 **Explicitly Focus on Extruders and Dryers as Key REB/EE Brick Technologies** – The sourcing of suitable extruders is a major issue for REB production in India. While India has some limited production capability in extruders, and the European extruders are considered expensive by Indian brick makers, however there are numerous extruder manufacturers in China that make suitable and affordable extruders for Indian conditions. It is recommended that the India Brick EE project facilitate/organise interested Indian brick entrepreneurs to travel to China and Vietnam (where Chinese extruders have been successfully deployed) to enable the Indian brick entrepreneurs to upgrade their extruder knowledge and help them source specific, affordable and maintainable extruders for ongoing reliable use in India. In addition, the brick making units which own extruders are often not able to fully utilize them because of lack of both knowledge and equipment for artificial or controlled green brick drying. Hence, providing knowledge and training on artificial or controlled brick drying along with help in sourcing suitable dryers should be a focus area for the project.

6 **Strengthen and Prioritise Support Funding in South and North India** – As the project is now left with only limited resources, it is recommended that the India Brick EE project strengthens and prioritises its remaining funding in South India (around Bangalore) and North India (around Chandigarh) and, with a new explicit clear end-of-project replication real results focus.

7 **Enhance Government of India Ownership and Inclusion of REBs/EE Bricks in 13th Five-Year Plan** – Resource efficient building materials like REBs are a key in making the fast growing construction sector more sustainable in India. It is recommended that UNDP and MoEF work together to find an appropriate government Ministry/ Agency (e.g. Building Materials Technology Promotion Council (BMTPC) under Ministry of Housing and Urban Poverty Alleviation, or a suitable agency within MoEF, or the Ministry of Commerce and Industry, or the Bureau of Energy Efficiency, or the Ministry of Micro Small and Medium Enterprises) to consider co-funding the project for its enhanced impact and ongoing sustainability. It is also recommended that UNDP assist MoEF, and any new agency that may take the lead role in REBs/EE Bricks, in including EE/REB perforated bricks/hollow blocks using clay and industrial wastes into the planning for the upcoming Indian 13th Five-year Plan.

8 **PFU to Operate within ProDoc Defined Staff Rates and Operate In Line with UNDP-GEF guidelines** – It is recommended that UNDP/MoEF should first attempt to reach a mutually acceptable agreement with TERI on PFU staff costs/rates and operational modalities, in line with the GEF approved Project Document. Alternatively, TERI should be asked to provide its PFU/PMU inputs from its explicitly agreed in-kind $145,000 project co-funding. If these approaches are not successful, one of the stronger LRCs such as the Punjab State Council for Science & Technology (PSCST) should be approached to act as the new project PFU. Alternatively, the new PFU could be contracted out to a suitable consulting firm/organisation, or it could be provided by a suitable contractor working at UNDP India under the direct supervision of UNDP. Whatever may be the composition of the PFU, the functioning of the PFU needs to improve drastically for the improved performance of the project. It is also important that the PFU operates in line with UNDP-GEF guidelines.

2. INTRODUCTION

All GEF Medium Sized Projects (MSP) and Full Scale Projects (FSP) are subject to mid-term and final evaluations, and as such the India Brick EE project ProDoc states: "A mid-term evaluation will be initiated after 2 years from the start of the project."

The official project start date was when the ProDoc was approved by the GEF CEO (March 2008) but the actual start of project implementation is normally taken to be the holding on the project inception workshop (held in November 2009). As the India Brick EE MTR (Mid Term Review) RFP was originally published in November 2011 this was then a suitable timing for the commissioning of the MTR.

This MTR (evaluation) covers the period of the India Brick EE project operations from its GEF CEO project endorsement in April 2008 (for a then firm project closing date of no later than April 2012) and in particular from its inception workshop that was held in November 2009 - and until the MTR mission was fielded in India in February - March 2012. This India Brick EE MTR therefore covers nearly two years and four months of operations and in principle would inform remaining project implementation activities in the period until the planned end of the India Brick EE project's four years of scheduled operations. At the time that the MTR was fielded the project had expended around 65% of its GEF budget. It should be noted however, that the tangible start of the project was nearly 12 months later than scheduled, while its end date of April 2012 has not yet been confirmed as having been extended accordingly.

For this India Brick EE project's MTR (midterm review), some project background and project related documents were emailed to the reviewers starting from 22 February 2012. From 27 February to 09 March 2012, the India Brick EE MTR international and national reviewers fielded a review mission in India. The field mission included a wide range of evaluation mission interviews and discussions held with key project stakeholders in Delhi, Bangalore, Ghaziabad, Vadodara (Baroda), Varanasi, and Chandigarh. A preliminary report-back presentation was provided on 07 March 2012 to a well-attended participatory stakeholders meeting in Delhi. The report back presentation was followed by very useful discussions with UNDP Delhi (the project Implementing Agency (IA)) management and TERI (the Project Facilitation Unit/local implementing partner). TERI was the local implementing partner and TERI was supposed to be operating through the Ministry of Environment and Forests (MoEF), as the Project Executing Agency (EA). The EA specified in the ProDoc was MoEF, and the Joint Secretary, MoEF is specified as the National Project Director and Chairman of the Project Steering Committee (PSC). For reference, Annex D contains an updated copy of the preliminary findings' report-back presentation.

This India Brick EE MTR (Mid Term Review), as should be done for all such reviews, logically started by examining the project's development history to clarify how the project (as designed and as approved) was linked (or not) to the available information regarding its background context and relevant (then existing) project analyses. The India Brick EE MTR reviewers then looked at the baseline problem definition, the incremental activity analysis, and the barrier removal activity specifications in the project design. This sort of information is typically defined in a comprehensive Logical Framework Analysis (LFA) exercise undertaken by specialist GEF funded consultants under a specific PDF-A or PDF-B grant and presented in a comprehensive LogFrame table in the applicable Project Document (ProDoc). However, while a LogFrame and baseline and incremental analysis was included in the approved ProDoc, it is now clear that the

LogFrame and its underlying analysis was very generic and not very closely tailored to the project's specific context and desired outcomes. So the project had a weak and vague starting point and underlying background analysis. An updated LFA was prepared by the PFU/PMU but was never implemented, as by the time the updated LFA was ready for consideration in December 2011 the project had effectively ceased operations over the still unresolved issue of TERI staff charge out rates being 2-4 time higher that those specified in the ProDoc.

This MTR then looked at the appropriateness of what the project set out to do. In the case of the India Brick EE project, the overarching goal was to reduce GHG emissions (as is required for GEF funding) and the stated overall project objective was to "Make India's five major brick producing clusters more energy efficient". The primary means to achieve the project objective was to be by installing 12 demonstration projects in the five major brick making clusters. The technology focused Outcome 4 that primarily dealt with the demonstration projects accounted for 42% of the project's scheduled GEF budget.

The midterm review then looked at the links and alignment of its activities (as planned and as undertaken) with the overarching stated project goal and objective. This MTR then looked closely at the various project related documents and visible project outputs to date to ascertain how well the various activities were undertaken compared to what was expected in its original design, or in any conscious and documented changes in the project's approach. This MTR then finishes by looking at the current project status, the remaining project budget and the remaining project duration - to develop appropriate recommendations for the best use of the remaining project budgets and timescales, and to develop lessons learned for future similar GEF projects.

The MTR also looked closely at the quality, completeness, relevance and evidence of project operational priorities in the project's ongoing reporting through: its AWPs (Annual Work Plans); its QPRs (Quarterly Progress Reports); its five PSCs (Project Steering Committee) meeting minutes (PSC meetings were held at 4 to 8 monthly intervals); its annual APR/PIRs (Annual Project Reviews/Project Implementation Reports); its Combined Delivery Reports (CDRs); and in the alignment of its activities with its original and any updated project descriptions.

This midterm review report has overviewed and examined a wide range of project related documents (see Annex C), and has greatly benefited from the very helpful inputs received from the many project stakeholders met during the evaluation mission interviews and meetings (see Annexures B and E). In particular, specific and helpful input to the draft report formulation was received from Mr Srinivasan Iyer (Team Leader) and Dr SN Srinivas (Programme Officer) of the Energy and Climate Change Unit of UNDP Delhi and from Dr Nayanika Singh (GEF Consultant) at the MoEF (Ministry of Environment and Forests). The MTR team also had three useful interactions with the key TERI team members involved in the implementation of the project, namely Mr Girish Sethi, Mr N Vasudevan, Mr R Johri and Mr Sachin Kumar. A very detailed, extensive and useful written commentary was received from TERI regarding the draft report. Inputs provided to the draft MTR report were very informative and were greatly appreciated, but the analysis and conclusions reached and any remaining errors or omissions remain the responsibility of the authors alone. The structure of this MTR report broadly follows that specified in the MTR TOR.

3. THE PROJECT AND ITS DEVELOPMENT CONTEXT

3.1 Project Evolution, Stated Purpose(s), Duration and Problems Addressed

Brick Making in India

India accounts for an estimated 10% of global brick production[5]. India is the second largest single market for clay-fired bricks in the world after China (which accounts for around 50% of world brick production[6]). Around 200 billion fired clay bricks a year are estimated to be produced in India[7]. However, in contrast to China, where most of the bricks are machine moulded, in India it is estimated that 99.5% of bricks are still hand moulded.

Hand moulded bricks can only really be produced as solid bricks. The intermediate technology of soft moulding machinery (as used in India and elsewhere) can also only really produce solid bricks. To produce bricks with a useful level of perforations effectively requires the use of mechanical clay extruders, and also vacuum pumps to reduce the entrained air in the green bricks and to create uniform holes or hollow areas in the green (still wet and unfired) bricks. Solid (both hand moulded and soft (low pressure) mechanically moulded) bricks intrinsically use more clay, have a lower fired mechanical strength, and require more energy for firing than perforated or hollow bricks. Solid bricks also have low thermal insulation levels, which are an important consideration when they are used in the construction of buildings that will be heated in winter and/or mechanically cooled in summer, as is now the case in a large number of new urban Indian buildings.

Brick making in India is a generally very backward and locally focused industry, using mid 19th Century brick kiln designs and firing methods in the seasonal moulding, air drying and firing of solid clay bricks in the traditional brick making clusters that are located outside nearly all Indian urban centers. Around 10 million poorly paid laborers and their families (mostly landless agricultural laborers seeking any available paid work in the agricultural dry season when there is less agricultural employment available) work in an estimated 100,000 brick kilns in appalling pre-industrial revolution hot, dusty and poorly housed conditions hand moulding, hand transporting, hand loading and hand unloading kilns, and working as kiln firemen and living on the hot and dusty brick kiln roof. However, India is now starting to face labor shortages and hence rising wage costs in laborers for brickmaking, due to the rural employment guarantee scheme of the Government of India as well as other low skill jobs now becoming available with better working conditions. In India, brick making is a seasonal industry that generally operates for around 6-7 months a year in the dry season.

India is a marked contrast to China, where semi mechanized brick plants were introduced from the 1960's, along with mechanical clay extruders. In China the technical capacity in making machine moulded bricks is and has been widely available and promoted by the government for decades, while India has minimal government brick making modernisation knowledge and

[5] Maithel, Sameer, 2003. Energy Utilization in Brick Kilns. PhD Thesis. Energy Systems Engineering, Indian Institute of Technology, Bombay

[6] India Cleaner Brick Production Roadmap Executive Summary - Greentech et al - Jan 2012

[7] The numbers referenced on brick kilns, total production and coal use are estimates that are often quoted by brick industry associations and experts. However, no agency in India actually physically gathers data or keeps records of actual brick kiln numbers, production or brick kiln coal use.

focus. India also lacks China's large industry making and selling clay mixing machines, vacuum pumps, mechanical extruders, extruded clay column cutting tables and basic very low cost brick transport vehicles and other brick making mechanisation machinery.

Developments in the Indian Brick Industry since the 1970's

In the period from 1996-2002, of the 100,000 brick making kilns in India, around 30,000 of the larger kilns were transformed from traditional (1858/1873 European era design) MCBTK (Moveable Chimney Bulls Trench Kiln) to FCBTK (Fixed Chimney Bulls Trench Kiln). This change was primarily made for pollution control purposes. FCBTK are now estimated to account for 70% of brick production firing in India[8]. There was an around 15% energy efficiency gain also achieved as a by-product of these pollution control focused efforts. However, no major changes to brick moulding mechanisation were required for this change to brick firing in FCBTKs rather than in MCBTKs.

In addition to the FCBTK (and residual MCBTK) larger kilns, primitive low cost and highly energy inefficient Clamp and also Down Draft Kilns (DDK) are still widely used in India for brick making.

In the early 1970's, the zigzag brick stacking and firing kiln concept was introduced into India (from Germany via Australia) as a further refinement of the FCBTK. The zigzag kiln gives a higher proportion of top quality bricks, further reduces the fuel used for brick firing, and further reduces kiln air pollution. The zigzag kiln concept is achieving an ongoing steady ongoing uptake, and now accounts for approximately 5% of brick production in India. There are ongoing efforts underway to increase the proportion of zigzag kilns in India. But again, the zigzag kiln does not require moulding mechanisation for its mostly solid fired clay bricks.

Strong and ongoing attempts have been made since 1996 to introduce the Vertical Shaft Brick Kiln (VSBK) concept to India, as the VSBK concept is the most energy efficient brick firing technology currently available anywhere. However, the VSBK concept has only achieved limited uptake in India, for a variety of reasons, in particular including from a lack of the necessary extruders to mechanically form the green bricks. Interestingly, the VSBK technology has been more successfully introduced into Vietnam than has been the case in India. It seems that the VSBK concept is not really applicable to India, including due to its lower production rate, higher brick kiln investment cost, the lower level of government support in India, the general absence of mechanical clay extruders and the general lack of a reliable electricity supply to machine mould the green bricks in India, as well as the VSBK requirement for a more skilled workforce to operate the kilns.

Project Evolution

The GEF-UNDP-MoEF Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project (also known as the Resource Efficient Brick or REB project) concept was first developed from 2001-2002 as a proposed $5 million GEF Full Scale Project (FSP). At that time, the proposed project's focus was on demonstrating energy efficient brick kilns' performance and improving the energy efficiency of the brick firing process, as these were the key focus areas for energy efficiency in brick making at that time in India. The project proposer for this original proposed full-scale GEF project was the Punjab State Council for Science and Technology (PSCST), which had then already been active in supporting the development of improved brick making in North India for many years. The Energy and Resources Institute (TERI) also played a major role in developing the 2001-2002 earlier brick EE project proposal. The proposal was

[8] India Cleaner Brick Production Roadmap Executive Summary - Greentech et al - Jan 2012

developed with a sizeable GEF PDF-B (Project Design Facility) grant to review the then existing brick kiln firing situation in India and to develop the necessary detailed and integrated project barrier removal elements for the then proposed project. However, this FSP proposal was unable to obtain GEF funding approval and its funding application then lapsed.

From 2005 to 2008 the India Brick EE project was then reformulated as a four-year duration US $696,448 GEF Medium Scale Project (MSP), with a quite different focus but with the same name as the former FSP that was not funded by GEF. The project objective and scope shifted to a focus on resource efficient bricks (REBs), including perforated clay bricks, hollow clay blocks, and bricks made fully or partly from industrial wastes such as the fly ash produced by coal fired power stations and industrial boilers. So the India Brick EE project shifted from a focus on improving the energy efficiency in brick firing through primarily developing suitable technical demonstration projects and training, to a new focus on the production of REBs to reduce clay use, reduce energy used for firing, and produce higher insulation value bricks. This was then a very different new project focus, although the project name stayed the same.

The reduced budget and reformulated project received a GEF PDF-A grant of US$ 25,000 to develop the project document, which was developed by TERI, and apparently without any independent international design leadership as is generally the case for such projects. A new formal project baseline and project alternative development phase was apparently not included, presumably due to a lack of specific funding to undertake such work.

The important point to note is that one cannot make REBs without mechanisation, and that one cannot mechanise or operate extruders without a reliable electricity supply. In addition, to produce REBs one really requires the addition of controlled drying of the newly moulded extruded green bricks, at a minimum in drying sheds, and that once production reaches a certain level then mechanically ventilated drying chambers need to be used. Mechanical clay mixing, the provision of vacuum pumps to de-aerate the clay for improved extruder ability to produce REBs with a higher proportion of holes or voids, and the use of mechanical ventilation for chamber dryers all require a reliable electricity supply, which in practice in India means the provision of backup diesel generators or alternative more affordable means of electricity supply such as the use of rice husk gasifiers feeding their producer gas to modified producer gas engines.

The history of successfully bringing mechanisation to moulding fired clay products in India is mixed. Some mechanisation of clay product moulding in India occurred in South India from the 1870's, but it only spread to and was replicated in the production of clay roof tiles, not in bricks. Early brick mechanisation attempts in India took place from the early 1970's, but only limited sustainable success and minimal replication was achieved. Along with these early mechanisation attempts, there was also the development of extruded brick BIS standards, but unfortunately the minimum perforation level was set at 30% for bricks, and it has transpired that this level of perforation was too ambitious. This is now an inadvertent barrier to the uptake of perforated bricks, as with the 30% minimum perforation level set in BIS standards, government related brick purchase contracts are unable to use bricks with lower levels of perforations. Requests to amend the relevant BIS standard to include levels of acceptable brick perforations of lower than 30% have been made, but the process of amending the standards is long and time-consuming and the real status of such efforts are still unclear to the MTR reviewers.

The initial key critical step in clay brick production mechanisation is extruders[9]. The current Indian capacity for producing extruders is limited. There are only a handful of extruder

[9] There are a number of challenges in the mechanization apart from the availability of extruders such as need for reliable and affordable electricity supply, a proper drying system, trained manpower, efforts required for educating the end-users and developing the market for extruded bricks, competition from low-cost hand moulded bricks, etc.

manufacturers producing around 20-25 small/medium-sized extruders per year in India. Until the Indian market can grow to the point that India manufacturers can produce robust and affordable extruders in large numbers, the most likely source for the necessary extruders is China or Europe. China is a huge brick manufacturing country (around 50% of world output and around five times the level of brick production of India) with around 100,000 brick making plants that generally use extruders. However, there are many manufacturers in China making extruders of varying quality, and with varying technical support capacity if their extruders are to be imported into India. Several European manufacturers of extruders have visited India in recent years, and some of these visits and interactions have been facilitated by the UNDP-GEF project. However, the high price of European extruders remains a major barrier to their adoption in India. Indian brick entrepreneurs are interested in investigating the potential to import suitable extruders from China and some of them have already imported extruders from China. However, experience has shown that importing extruders is not enough for the production of REBs, successful REB production also requires expertise and equipment for preparation of the proper clay raw-mix, a commissioning period of several months to fine-tune the extruder, as well as proper controlled or artificial green brick drying facilities. One very promising development that has occurred since the current India Brick project was conceived is that a large modern world best practice brick making plant has opened near Bangalore, which is now successfully mass producing hollow blocks (owned by one of the largest brick making companies in Europe, Wienerberger). This Bangalore Wienerberger brick making plant has single handedly created a major new market for clay hollow blocks in South India, and local brick entrepreneurs are starting to produce similar hollow blocks, although this combined capacity is still unable to meet the huge market demand for hollow fired clay blocks in South India.

UNDP-GEF Project

The GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) project is a four-year duration Global Environmental Facility (GEF) funded project. The stated Project Document (ProDoc) goal is to reduce energy consumption and restrict GHG emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for production and use of resource efficient bricks in India. The term Resource Efficient Bricks (REBs) in the project context is not precisely defined, but in practice REBs refers to perforated or hollow clay fired bricks.

UNDP is the GEF Implementing Agency (IA) responsible for the project's implementation, TERI (The Energy and Resources Institute) is defined in the ProDoc as the organisation responsible for the operation of the Project Facilitation Cell (PFC) / Project Management Unit (PMU) and the Ministry of Environment and Forests (MoEF) is the Executing Agency (EA) for the project. Project implementation was to be carried out primarily through five Local Resource Centres (LRCs), covering the five main brick making clusters in India.

The project has US$ 696,448 of approved GEF funding; brick kiln units are expected to provide US $ 1,854,000 in co-financing through investments in plant and machinery; and a US $ 145,000 in-kind contribution was expected as co-financing from TERI. The project took 3 years (2005-2008) for its formulation and approval processes. It received its GEF CEO endorsement in April 2008 and the project inception workshop was held in November 2009.

The project has five main components: a) enhancing public sector awareness (5% of GEF budget), b) facilitating project finance access to brick kiln entrepreneurs (11% of GEF budget), c) development of knowledge on technology and marketing (16% of GEF budget), d) availing efficient technology models in 5 clusters for demonstration projects (42% of GEF budget), and e) enhancing capacity of brick kiln enterprises (7% of GEF budget).

3.2 Main Stakeholders

The main stakeholders of the India brick EE project are, in approximate order of in-principle ownership and involvement: -

- TERI (The Energy and Resources Institute) officially operating as the PFU (Project Facilitation Unit) and in practice operating as the PMU (Project Management Unit) for the project. TERI was also the developer of the GEF project. The PFU's main role was to coordinate the planning and implementation of the activities of the project, day-to-day monitoring of the project's implementation, and periodic reporting to MoEF, UNDP and PSC. The PFU was stated in the ProDoc to consist of a half time (104 person-weeks) Project Coordinator (PC) and a quarter-time assistant (52 person-weeks). The PFU had a total GEF budget of US$ 65,000 for four years, which included US $ 10,000 GEF funds per year (a total of US $ 40,000 of GEF funds for 4 years) towards hiring of Local Consultants. An additional budget of US $ 60,000 was specified in the ProDoc (Part E. PROJECT MANAGEMENT BUDGET/COST) to be provided as co-financing for the operation of the PFU, although the source of the cofunding was not specified, it seems likely that this was envisaged to be part of the TERI $145,000 of in-kind co-funding.

- UNDP as the Implementing Agency (IA) of the India Brick Energy Efficiency (EE) project for the core US $696,448 GEF grant cash funding. UNDP is responsible to GEF for project implementation, funds disbursement, and monitoring and accountability;

- MoEF (Ministry of Environment and Forests), which acts as the GEF focal point in India, and is thus responsible for India's GEF funding priorities in a whole-of-Government-of-India sense. As the brick sector is one of the most polluting industries in India, in 1996 the Government of India introduced air emission standards for brick kilns through regulations enforced by MoEF, later it also introduced regulations for utilization of fly ash in brick making. Thus MoEF was the responsible government Ministry under the original 2001-2002 FSP GEF project (which focused on brick kiln air pollution reduction). MoEF stayed as the responsible Executing Agency (EA) in the new MSP project design and approval phase in 2007-2008. MoEF also provides the India Brick EE project's National Project Director (NPD), provides the chair (the MoEF Joint Secretary) of the Project Steering Committee (PSC) which provides policy guidance to the project and in principle oversees the implementation of the project.

3.3 Results Expected

The India Brick EE project design had a very ambitious target of direct emissions reduction of 187,840 tonnes of CO_2 in five major brick making clusters in India over 15 years, comprising the savings in energy consumption by the 12 demonstration units that were to be installed by the project and that were to be fully operational by the end of year 1. The CO_2 reduction figure was derived from the anticipated 12 demonstration brick plants being established near the beginning of year 1 and in Year 1 leading to a reduction of 10,099 tCO_2, and slightly higher reduction for the next 15 years from the 12 demonstration plants. The

CO_2 savings were calculated to come from a reduction in thermal energy demand for brick firing and a slight increase in electricity energy demand (presumably from increased electricity demand from mechanization (extruder etc.)). No replication savings were included in the project's GEF CO_2 reduction calculations. The mid-tem review (MTR) assessment is that the direct project CO_2 savings are running at around $1/20^{th}$ of the anticipated levels. This $1/20^{th}$ impact estimate is a combination of the "demonstration" plants only providing ¼ of the CO_2 emissions from REB manufacture as envisaged in the ProDoc, and the project impact attribution of these CO_2 saving being weak. Eight of the "demonstration" plants had the necessary machinery (extruders) for producing REBs before the project start, and at least four units were commercially producing REBs before the start of the project. Also, there was no increase in perforated brick and/or hollow block production during 2011 compared to 2010. Hence, a more realistic project causality factor due to the impact of the project to date would be 20% as per GEF guidelines for projects having a weak linkage between GEF interventions and any GHG reductions achieved.

4. FINDINGS AND CONCLUSIONS

4.1 Project Formulation

Conceptualization / Design - Marginally Satisfactory

Development History of the Project

- 2001-02: The first attempt to develop a GEF project addressing the issue of energy efficiency in the brick industry in India took place in 2001-02.
    - A GEF PDF-B grant was utilized to develop a project entitled "Efficiency improvements in the Indian brick industry". The project proposer was the Punjab State Council for Science and Technology (PSCST); and TERI played a major role in developing the project proposal.
    - The proposal was for a five-year full-scale project (FSP) with a proposed GEF grant of US$ 5.06 million. The proposed project's focus was on the large-scale training of brick manufacturers and brick industry workmen in undertaking energy-efficiency improvements in the brick firing process and in the demonstration of four different technological options (pre-dominantly efficient brick kilns) through 20 demonstration projects.
    - The proposal did not ultimately result in a funded GEF project.
- 2005-08: The present project also entitled "Energy Efficiency improvements in the Indian brick industry" was developed between 2005 and 2008.
    - A GEF PDF-A grant of US$ 25,000 was requested and was utilized to develop the new proposal's project document (ProDoc).
    - TERI developed the project document.

- During the proposal preparation, a stakeholder workshop was organized in March 2006; and then the GEF focal point of the Government of India provided an endorsement letter in September 2006.

- A formal proposal for a GEF medium sized project (MSP) with a GEF grant of US $ 696.448 was prepared. The focus was on promotion and production of resource-efficient bricks (perforated, hollow and fly ash bricks) in 5 brick-making clusters with an aim to reduce clay and fuel use in brick production.

- The new MSP ProDoc was submitted for GEF CEO approval in July 2007. It was re-submitted twice in March 2008. GEF CEO approval was granted on 3rd April 2008.

Conceptualization/Design

- The project had a very long project formulation phase i.e. 7 years, if one takes into account the time taken from 2001 onwards spent developing the two quite separate ProDocs.

- The two proposals developed in 2002 and 2007 had very different focuses, however, the 2007 proposal despite having only 1/7th of the budget of the 2002 proposal, was not sufficiently scaled-down in its ambition and activities to reflect its reduced budget.

- The project problem statement provided in the GEF funded MSP was very general; and in particular it did not clearly build the necessary explicit case for the need to move from traditional hand-moulded solid clay fired brick production to machine produced resource-efficient bricks. The MSP project document refers to perforated, hollow and fly ash bricks as resource-efficient bricks, but nowhere in the project document, is the term "resource-efficient bricks" either properly defined, nor are technical specifications provided for such bricks or for the machinery and kilns required to produce and fire such bricks. The MSP project document does not provide any analysis/perspective on the market for resource-efficient bricks at the time of preparation of the document, nor does the MSP ProDoc provide any evaluation of the success and remaining challenges from the several past efforts to produce resource-efficient bricks in India. The description of the past efforts is mainly on energy-efficiency and pollution control in brick firing operations, which is not the focus of this 2008 India EE Bricks MSP project.

- The project aims at establishing 12 demonstration projects. Nowhere in the project document is there any elaboration or definition provided of the necessary attributes of such demonstration projects.

- The selection of the project's five brick making clusters did not take into account the preparedness of the clusters' brick-makers for the necessary technology upgrading, the existence of a suitable reliable electricity supply for the necessary brick extruders and other mechanisation machinery, as well as the local market readiness to accept resource efficient bricks.

- One of the weakest links of the project document is its LFA (Logical Framework Analysis) section.

- The indicator for outcome 1 is “usage of resource-efficient bricks by new public department building contracts increased by 20% by end of project”. The ProDoc provides no explanation how this indicator was arrived at. There is no quantification of the yearly baseline demand for bricks in public department buildings and hence no quantification of the required production capacity addition to meet a 20% increase. Therefore, there is no meaningful baseline figure to compare any project outputs against.

- Outcome 4 assumes that all the 12 demonstration units would be established and would start production early in Year 1 of the project. This assumption of being able to establish all demonstration units almost immediately in the beginning of the first year of the project’s implementation is clearly totally unrealistic.

- The project document overestimates CO_2 savings. The calculations are based on a simple assumption of 30% reduction in weight of bricks uniformly across all different types of resource-efficient bricks, without giving any technical specifications of the resource efficient bricks or giving any reference to relevant studies to support the claimed savings percentage. Further, for estimating CO_2 savings for Year 1, it is assumed that all 12-demonstration units would produce around 80% of their production in Year 1, which would only be possible only if all the demonstration units were commissioned in the first quarter of Year 1. This is clearly unrealistic.

Country-ownership/Driveness

The project document provides a history of steps taken by the Ministry of Environment and Forests (the relevant central/Union Government Ministry) to justify the claimed country country-ownership of the India Brick EE project. The project has high relevance to India and is in-line with the policies of the Government. However, the India Brick EE project lacked a suitable strong and directly related government implementation focused agency to provide the necessary local ownership, and in particular no Indian central government co-funding was provided.

Stakeholder participation - Satisfactory

The project document provides details of a well organised and well-reported stakeholder workshop organised on March 21, 2006 at TERI. In all, 45 participants, mainly government officials, brick manufacturers, brick production machinery manufacturers and a few architects participated in the workshop. Some useful suggestions were provided by stakeholders on the strengthening of the institutional set-up for the development of the brick industry in the form of: (a) defining the role and required capacities of local resource centers (LRCs); (b) setting up of a “Technology Development Board” for the promotion of new technologies in the brick industry; and (c) the role of “industry associations” and “think tanks”. However, the discussions seem weak on aspects related with the application and market for resource efficient bricks.

Replication approach

As regards to the design variable: Replication Approach incorporated at the project’s design stage, the ProDoc elaborates a generally sound project strategy based on: -

a) Successful demonstration of the technology for production of REBs (Outcome 4): The demonstration projects in five clusters were expected to serve as models for large number of similar brick kiln units operating in the clusters. Validation of the demonstration units with their techno-economic feasibilities were supposed to further enhance replication. The LRCs

in each cluster were expected to play a key catalytic role during the demonstration phase as well as thereafter;

b) Increasing the markets of bricks (Outcomes 1 & 3): Enhanced awareness of various stakeholders including policy makers would help in creating a stable and demanding market for resource-efficient bricks. This would enable large number of brick kiln units to adopt technology-upgrading measures and produce suitable resource-efficient bricks.

The ProDoc envisaged some replication to happen within the project time period. The LFA provided in the ProDoc envisages (under outcome 5) that at least 5 Brick kiln entrepreneurs in each cluster would invest in technology upgrading measures by the end of project.

4.2 Project Implementation

Implementation Approach – Marginally satisfactory

The project has been weak in its adaptive management and also in developing and using a suitable logical framework as a management tool.

No meaningful discussion on the project's logical framework seems to have occurred during the project's inception meeting. TERI now[10] state that they (TERI/PMU) did not want, at the inception workshop and also afterwards, to put any hurdles in the way of the project's start or immediately afterwards. TERI acknowledge that they knew that the LFA at the inception workshop stage was based on a then 8 ½ year old project concept dating back to the very different focussed project as described in the April 2001 Project Concept Note developed by TERI, and subsequently elaborated by international design experts for the original project design. TERI now state that they knew that the LFA had not been significantly updated in spite of the focus of the project radically changing from EE in brick kiln design and firing - to a new focus on EE through the enhanced production and uptake of perforated bricks and hollow blocks, and also that the new project only had 1/7th of the originally envisaged budget. So the project was implemented by TERI, and most of its available fund expended by TERI, based on what TERI now say they knew was the design of a project with a very different objective and seven times the budget.

As indicated earlier, the targets for several outcomes are unrealistic for the project's budgets, and were formulated without proper baselines in the project design stage. The minutes of the five PSC meetings do not refer to any discussion on the logical framework or actions by the PFU/PSC/Executive Agency/ Implementation Agency to address the issue of problems with an inadequate logical framework or to suggest modifications to the original logical framework. The PFU in the later half of 2011 (two years after the inception of the project) submitted a revised logical framework, however it is yet to be discussed in the PSC as by the time the modified LFA was ready for consideration the project's implementation had effectively stalled over the issue of TERI's use of 2-4 times the ProDoc specified staff charge out rates. The project followed a very general implementation approach that was too ambitious for its available funding levels, and the key prerequisite of reliable electricity supply followed by the supply of affordable and appropriate extruders was never explicitly identified or followed in the project's implementation. It is therefore recommended that the LogFrame should be revised at the earliest opportunity when

[10] P17 in the TERI response #2 of 12 September 2012 to the draft MTR

the project's implementation is resumed. It is recommended that a completely new LFA updating exercise be undertaken, to reflect the findings and recommendation of this MTR.

One of the key areas of deficiency in the project's implementation has been with respect to the PFU/PMU developing an effective institutional mechanism for the implementation of the project. The project document envisaged a major role for Local Resource Centres (LRCs) for implementation of project activities in 5 regions. However shortcomings are observed in the capabilities, effectiveness, level of funding and involvement of LRCs in project management and execution. For example, while the project document proposed service contracts worth US $ 304,400 (44% of the budget), with a large part for funding of LRCs, the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation is much less and is around US $110,000 for non-TERI providers, and $178,281[11] including the operation of TERI South based on the local TERI office and the use of TERI staff.

There are no overarching MOUs/agreements between the PFC and LRCs covering the objectives and expected operations for the entire duration of the project; and most of the annual contracts with LRCs are not sufficiently detailed for accountability purposes. Among the five LRCs, only LRC-North is properly equipped (technical capacity, leadership, links with industry and government) and is playing the role of LRC effectively. LRC South (based at TERI Bangalore) has carried out some useful awareness activities and has good links with the industry but it lacks effective local leadership and strategic focus. LRC–East has good links with the industry but does not have any technical staff and has been only used for conducting a few meetings and workshops. LRC-West is academic and research focused on application of REBs; it does not have strong links with the local brick industry and has limited capability in brick making technology. LRC North-East never started in practice. Some specific recommendations with respect to LRCs are provided later in the report.

The project has an operational website, which provides useful information on the project and provides access to the technical reports, papers, and test results. However, there is a need to improve the quality control by PFU prior to uploading of the documents on the website, for example, several of the reports (particularly DPRs) are not of a very high standard and most of the reports do not have proper branding and acknowledgement. If one of the purposes of the website is to reach to brick makers, good case studies on the demonstration units should be available on the website and translation of important information into Hindi would be desirable.

A major breakdown of understanding and trust is now evident between the key responsible parties, in particular between TERI and MoEF/UNDP, which has resulted in the slowing down of project activities since the middle of 2011 and their almost complete stop since late 2011. The involvement of the LRCs in the planning of their project activities has been low, from the feedback received (from the three non-TERI based) LRCs during the MTR mission. There is a need to improve communication and interaction between the PFC and the LRCs to be undertaken in a properly transparent manner.

Monitoring, review and evaluation - Unsatisfactory

The monitoring and oversight by both PFU and PSC has clearly been weak. While going through the minutes of PSC meetings, the MTR team has noted that several important issues like the selection processes to be followed for hiring of consultants, the identification of

[11] According to TERI in its response to the #2 draft MTR of 12 September 2012.

demonstration units and their CO_2 savings came up for discussion only during the 5th PSC meeting held on 22nd September 2011[12] (two years after the inception of the project) at the time when the project had effectively ceased operations. None of the presentations by PFU to the PSC covers details regarding project progress vis-a-vis the project's LogFrame, outcome related budgets and expenditure, etc.

The oversight of contracts by the PFU needs to be improved. In some cases there have been major deviations between the signed contract (scope of work) and the reports provided by the expert, which clearly indicates either poor detailing of scope of work at the time of contracting or inadequate output vs TOR based oversight by the PFU[13]. This is illustrated with an example (please refer to table below) in the case of the agreed scope of work contract signed with the international expert Mr Eckhard Rimple, and the work Mr Rimple actually produced, that was accepted by TERI on behalf of the project.

Table 4.1: Scope of work vs report for an assignment by an external expert

Scope of work	**Report by the expert**
Brick industry profile: Brief description of construction materials used internationally (mainly Europe, Latin America and China) and the technologies employed for brick manufacturing (types of kilns, production capacities, product profile, specific energy consumption, etc)	Description of construction material provided. No description provided on the technologies used for the relevant brick manufacturing in China, which is clearly the main likely source of imported low cost and "good enough" technology extruders for Indian brick entrepreneurs.
Technology profile of major machinery manufacturers/ suppliers of hollow blocks/ perforated bricks (mainly Europe, China and Latin America) – Documentation and database of technologies and their detailed specifications and costs	Technology profile provided for European manufacturers only. No information provided for Chinese or Latin American manufacturers. No information on specification and costs provided for Chinese manufacturers, noting that Chinese manufacturers are clearly the most likely source of affordable brick making machinery for Indian brick entrepreneurs.
Identification of large international brick manufacturers having interest in Indian market	No information provided on international brick manufacturers who might have an interest in in coming to India.
Technical inputs on tunnel kilns for brick making suitable to Indian conditions, including detailed cost for setting-up a demonstration plant in India	No information provided on tunnel kiln designs that would be relevant to Indian conditions.

[12] TERI has claimed in its response to the #2 draft of the MTR that the issues around the identification of the demonstration units and their CO_2 savings were raised at the Project Steering Committee meeting on 06 January 2011 in its presentation. However the TERI/PFC presentation to the 06 Jan 2011 PSC only states "Production trial of REB in 7 brick kiln units commenced" without any further elaboration. There is no evidence that TERI/PFC raised the very significant issue that 100% of the CO2 savings could now not realistically be claimed by the project.

[13] TERI claims that as detailed feedback was provided and addressed by the consultant, and the report was shared with UNDP and LRCs, that therefore the MTR claims of poor quality are not justified. However, the MTR reviewers view is that the primary responsibility for ensuring adequate output quality rests with the PFC/PMU, and the onus should not have been with UNDP or LRCs to pick up quality issues, as is now being claimed by TERI.

Stakeholder participation - Marginally Satisfactory
The information dissemination of the project to the brick manufacturers has been satisfactory in 3 out of the 5 regions i.e. around Bangalore (LRC-South), around Chandigarh (LRC-North), and around Varanasi (LRC-East). In terms of information dissemination to Government officials for utilization of REBs, LRC- North has undertaken more activities compared to other region. The information dissemination to private sector end-users of REB is low in most regions except in LRC-South.

The PFU has so far not sufficiently involved LRCs in the real planning and decision-making of the project activities. This fact was highlighted by 3 LRCs during the interaction of the MTR team with them (please refer to meeting notes – Annexure E). The LRCs may have been informed as to project planning, but they clearly did not have a significant level of ownership of the expected project activities and results.

Similarly, the project has been engaging with specific technical experts like NIIST, IZF and CEPT as well as large brick producers like Wienerberger and there is a potential to develop these into strategic partnerships. Increased stakeholder participation would help in ensuring the sustainability of the project. There is also a potential to leverage the relationship with MoEF to plan and launch a larger initiative for energy efficiency in the wider brick industry in India.

Financial Planning - Unsatisfactory
The project's financial planning by the PFU has been highly unsatisfactory. The staff-rate charges charged by TERI for PFU operation and for providing technical experts are 2-4 times of those explicitly and clearly budgeted in the ProDoc. The project document specified US$ 576/week as the professional fee for the Project Coordinator and US$ 750/week for Technical Experts. However as per data available for 2010, TERI charged out its staff at rates varying between US $ 1000 to 3100/week. In addition, TERI as the operating agent of the PFU, did not seek external contractor quotations for many technical tasks that could have been undertaken by lower cost external consultants[14]. According to the documentation made available to the MTR reviewers, and several opportunities for TERI to provide such documentation, these key points regarding TERI charging higher staff rates than those explicitly mentioned in the ProDoc (a ProDoc that was developed by TERI) were never formally clarified by TERI with UNDP/MoEF, as TERI keeps claiming to the MTR reviewers.

These charge out rates anomalies were not noticed for nearly two years until the first project financial management audit was undertaken[15]. In its ongoing responses to this issue to UNDP,

[14] Although legally TERI is a registered NGO, as per the information provided by TERI to UNDP to explain the basis for its high manpower charges, it clearly actually operates with similar overhead cost recovery imperatives as does any medium/large consultancy. Like any medium/large consultancy, TERI has strong incentives to use its own staff in preference to using independent consultants. This is because, like any medium/large consultancy, TERI has major corporate/business overhead costs that can only be funded by billing out its own staff, or by adding a significant margin to any independent consultants used. So, without a separate project management budget for TERI in the ProDoc, or an explicit and written and signed-off understanding that TERI was to meet its overhead costs from its (undefined purpose) in-kind contribution, in retrospect it was unrealistic to have expected TERI to provide or even supervise a half time project coordinator and a quarter time project assistant for four years for a total cost of $75,000 as stated in the GEF approved ProDoc. TERI also had strong incentives to utilise its own staff as experts (as it did), instead of contracting this out to lower cost independent consultants at cost, where the use of independent consultants would not be making any contribution towards TERIs overhead costs.

[15] The first audit only took place only after 1 year and 9 months of project operations. It did not take place in the first year since UNDP apparently does not mandate audits for less than USD 100,000 expenditure. For TERI's response on its higher than ProDoc specified staff charge out rates, please refer to footnote 1/ page 10

to the project steering committee, and to the mid term reviewers, TERI keeps insisting that as the TERI staff consultancy charges were included in the various approved annual work plans and financial and other progress reports that somehow this makes the excessive charge out rates (that were never explicitly stated in annual work plans or financial expenditure reporting) to have also been approved. However, neither UNDP, or the project steering committee, or the mid term reviewers accept this argument.

The high staff-rates charged by TERI have had several negative implications on the project implementation, as follows:

- Due to the high staff-rate, the time inputs of the persons managing PFU and providing technical support in terms of number of person-week of inputs has been drastically reduced, which may be one of the reasons for the PFU management of the project having led to most of the project funds being spent but with only partial project outputs being achieved.
- The share of financial resources available for service contracts (for managing LRCs and hiring technical experts) was significantly reduced over the level specified in the ProDoc. While the project document proposed service contracts worth US $ 304,400 (44% of the budget), the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation is much less and is around US $110,000 (26% of the expenses incurred till December 2011) for the non-TERI LRCs. This may be the reason for very limited support being provided to demonstration units by LRCs.

In terms of co-financing, TERI was supposed to provide in-kind co-financing of US $ 145,000. However no details are available whether or what part of this co-financing has been provided so far. TERI claims that there was no format to provide this information, but no information was provided by TERI on TERI's actual cofunding provided to date when this issue was raised by the MTR reviewers in a previous draft of this report, which raises doubts as to whether any TERI co-funding has actually been provided to date towards the $145,000 pledged by TERI in the ProDoc.

An additional, US $ 1,854,000 funding is expected to come from brick kiln units. Out of the nine brick making units being claimed as demonstration units by the PFU, eight were either producing REBs/ or had the capability to produce REBs before 2009 and hence had already made major capital investments before the starting of the project. In addition, the so-called demonstration units have received only token support from the project, hence the amount of co-financing that can be attributed to the project activities is likely to be small (estimated to be around 20% in the absence of better data being supplied). No attempt seems to have been made by TERI/PFU to find new suitable demonstration units to replace some of the originally scheduled demonstration units that were no longer interested or appropriate as demonstration units when the project actually started.

The year and outcome wise GEF fund utilization table based on the project CDRs is presented below. It shows that 62% of the project budget has been expended till 31st December 2011. It is surprising to note that 66% of the budget on Outcome 4 (the outcome having the highest budget allocation) has already been spent though the achievements for this Outcome are poor. It is important to note that US $ 20,271 (31% of the total 4-year allocated GEF budget for Project Management) was spent during the first 4 months of the project in 2009 according to the CDR. There is no entry for expenditure under Project Management for 2010 and a very small amount of US $ 2835 is booked under this head for 2011. The MTR reviewers were subsequently

advised by TERI that Project Management costs were coded to “Monitoring, learning and evaluation”. TERI figures provide to the MTR reviewers are that the full $65,000 project budget for Project Management was already expended from GEF funds by TERI for the PMU by the end of 2011.

Table 4.2 The year and outcome wise GEF fund utilization table based on the project CDRs

Table: Overall GEF Fund Utilisation	**Project Budget as per ProDoc**	**Fund utilisation 2009**	**Fund utilisation 2010**	**Fund utilisation 2011**	**Total spent to 31 Dec 2011**	**%**
GEF - Budget Allocation and Fund Utilisation	6,96,448	1,18,605	1,93,597	1,15,294	4,27,496	**61.38%**
Outcome 1: Enhancing Public Sector Awareness	35,148	6,076	12,026	5,134	23,236	**66.11%**
Outcome 2: Facilitating project finance access to brick kiln entrepreneurs	77,200	9,375	17,397	8,027	34,799	**45.08%**
Outcome 3: Developing knowledge on technology and marketing	1,08,500	11,250	29,478	24,033	64,761	**59.69%**
Outcome 4: Availing efficient technology models in 5 clusters for demonstration projects	2,95,600	48,245	97,617	49,615	1,95,477	**66.13%**
Outcome 5: Enhancing capacity of brick kiln enterprises	50,000	12,239	10,779	7,520	30,538	**61.08%**
Outcome 6: Monitoring, Learning and evaluation	65,000	11149	26,300	18,130	55,579	**85.51%**
Project	65,000	20,271	NA	2,835	23,106	**35.55%**

Table: Overall GEF Fund Utilisation	Project Budget as per ProDoc	Fund utilisation 2009	Fund utilisation 2010	Fund utilisation 2011	Total spent to 31 Dec 2011	%
Management						

Regarding co-financing, the details are provided in Annexure F.

From the cost effectiveness point of view, the CO_2 savings achieved till the end of year 2 are estimated to be only 1/20th of the targeted CO_2 savings as given in the project document. The details of the CO_2 savings are provided in the table below:

Table 4.3 Estimated CO_2 Savings

#	Brick Manufacturing Unit	Product	Production (2010)	Production (2011)	Fuel used	Estimated Fuel Savings	CO_2 Savings	CO_2 Savings (20% causality factor)[16]
			tonnes/ year	tonnes/ year		tonnes/ year	tonnes/ year	tonnes/ year
1	Jay Jalaram Bricks, Gujarat	Perforated Brick	10,314	8,100	Mainly coal	223	557	111
2	Bharat Bricks, Punjab	Perforated Brick	4,760	8,855	Mainly coal	32	79	16
3	Prayag Bricks, UP	Perforated Brick & Hollow Block	2,339	2,622	Mainly coal	42	106	21
4	Kusum Bricks, UP	Perforated Brick & Hollow Block	7,370	6,030	Mainly coal	200	498	100
5	Dadoo Bricks, UP	Perforated Brick & Hollow	0	8,375	Mainly coal	125	311	62

[16] A 20% causality factor is used as per GEF Guidelines for "weak" GEF intervention causality, see para 127 from MANUAL FOR CALCULATING GHG BENEFITS OF GEF PROJECTS: ENERGY EFFICIENCY AND RENEWABLE ENERGY PROJECTS, GEF/C.33/Inf.18 April 16, 2008, as approved by the GEF Council April 22-2, 2008

#	Brick Manufacturing Unit	Product	Production (2010)	Production (2011)	Fuel used	Estimated Fuel Savings	CO_2 Savings	CO_2 Savings (20% causality factor)[16]
		Block						
6	Sai Bricks, UP	Perforated Brick	26,800	16,000	Mainly coal	1,223	3,049	610
7	Aanjaneya Bricks, Karnataka	Hollow Block	1,875	0	Biomass	180	330	66
8	Marikamba Bricks, Karnataka	Hollow Block	242.5	0	Biomass	13	23	5
9	Lakshmi Venkateswara, Karnataka	Hollow Block	15	0	Biomass	3	5	1
			53,716	**49,981**		**2,040**	**4,958**	**992**

Notes:

i) The calculations are based on production data provided by the PFU. None of the units have been monitored for the reduction in fuel consumption. The fuel consumption is assumed to be proportional to the reduction in weight of the REBs w.r.t solid extruded brick of the same volume.

ii) The calculations do not take into account the CO_2 generation due to use of additional electricity in the mechanized brick making.

iii) CO_2 emission factors of 2.49 kg of CO_2/ kg of coal and 1.83 kg of CO_2/ kg of biomass has been considered.

Sustainability – marginally satisfactory

The increase in labour costs and a growing shortage of labour is steadily forcing the Indian brick industry towards mechanization, which includes the use of extruders and other machinery for brick making. This trend is expected to gain even further strength in the future. The brick making units equipped with extruders will be capable of producing REBs but a large part of the production from these mechanized brick units in the near future is likely to remain as solid bricks in the business-as-usual scenario. In this context, the work started by the project in creating awareness about REBs, having revised BIS REB certification standards, showcasing of demonstration units is likely to help in REB market development beyond the project's end.

A key area of concern is the sustainability of the LRCs. As per the project document, the sustainability of LRCs to continue providing services to brick industry after the end of the project is a critical element to ensure ongoing project sustainability. As per the assessment of the MTR team, among the 5 LRCs, only LRC-North (PSCST) seems capable of continuing providing significant support to the brick industry after the project end. Hence there is an urgent need to take steps to strengthen the LRCs and prepare sustainability plans for LRCs in the remaining project time.

Execution and implementation modalities - unsatisfactory
As indicated earlier, there are serious shortcomings in the execution and implementation modalities followed by the PFU and there is an urgent need for major improvements in its functioning during the remaining part of the project[17]. The relevant issues are listed below:

- The services of TERI's in-house experts and LRC-South (TERI, Bangalore) have been hired without clear ToRs and defined deliverables. This should not continue to be the case in the future.
- The ToRs for several of the assignments are not sufficiently detailed and there are significant deviations between the submitted reports by experts and their ToRs. The PFU should improve its contracting process and contract oversight.
- The amount of money spent on service contracts to LRCs and hiring of external experts is much lower than that proposed in the project document. The real involvement of LRCs in project planning and management is clearly low - which needs to change to ensure ongoing project sustainability.

Outcome 1: Enhancing public sector awareness on resource efficient products (Marginally satisfactory)

Baseline: No increase in usage of RE bricks in public buildings

Target: 3% increase by year 2 and 20% increase by year 4

Activities description as per Project Document
Public construction contracts: Inclusion of energy-efficient bricks in public construction contracts will be a focus under this component.

Policy advocacy: PFC would make a special effort to obtain the support of state and local governments in the promotion of resource efficient bricks

Activities undertaken:
a) 13 meetings, 3 focused group discussions and 4 regional workshops resulted in reaching out to 150 government officials (CPWD, BIS, MES, and State PWDs).

b) Interactions with BIS on

- Inclusion of REBs in IS: 2212:1991 (Brick works – code of practice)
- Revision of IS: 2222:1991 (Burnt Clay perforated building bricks)

c) Commissioned "report on structural stability using REBs" by IIT Roorkee

Assessment

[17] The TERI view (as per 12 September review comments on the previous MTR draft) is that "The project has been implemented as per the approved AWPs and the project progress is duly reported through quarterly progress reports (QPRs) to UNDP/MoEF and is also presented in the PSC. Till December 2011, the project has submitted 9 QPRs and participated in 5 PSCs and never the issue of shortcomings or need of improvement was raised. Apart from these time-bound correspondences, the project team has met number of times with UNDP team and this issue was never raised." The MTR reviewers however, do not agree with this TERI argument. The role of the PFU/PMU (operated by TERI) is to operate the project efficiently and effectively. It is not enough for a PFU/PMU to hide behind general planning and reporting requirements for poor implementation and execution that have occurred at a lower level of operational detail - that AWPs, QPRs and PSC meetings would never have discussed.

No evidence was made available to the MTR reviewers which show that the usage of RE bricks has increased in public buildings during the project's implementation to date. It appears that such REB uptake data for public buildings has not been gathered. The possibility of a measurable increase in usage of RE bricks in public buildings during the remaining period of the project is clearly now low.

Discussions with the PFU and PSCST (Northern Region LRC) suggests that the project has put considerable effort in reaching out to the government offices involved in the construction of public buildings (CPWD, state PWD in Punjab and Haryana, MES).

Two major hurdles in acceptance of hollow blocks and perforated bricks for public buildings are:

a) Absence of comprehensive test reports by government labs on code of practice and structural stability of construction with perforated and hollow bricks.
b) Absence of up to date standards on perforated and hollow bricks, namely: -
    - Specification for burnt clay perforated building bricks (IS: 2222-1991)
    - Specification for burnt clay hollow bricks for walls and partitions (IS: 3952-1988)

The project team, with support from the office of the National Project Director, had put considerable efforts in commissioning a government lab to undertake structural stability tests. The efforts to engage Central Building Research Institute, Roorkee were not successful and the project has now contracted the Indian Institute of Technology (IIT) in Roorkee for the study. The required bricks for testing were supplied to IIT Roorkee in December 2011. A draft progress report on fired clay REB masonry structural panel strength work undertaken at IIT Roorkee were made available to the MTR reviewers by UNDP, so the MTR team can verify that the work was well underway by 31st March 2012. The report when available (apparently due in May 2012) is expected to pave the way for experimental use of perforated bricks and hollow blocks in public sector building projects as well as inclusion in the common schedule of rates by CPWD or state PWD(s) – although not for hollow block walls as hollow block masonry systems are apparently not being tested for structural strength by IIT Roorkee under the brick EE project. The predominant and fastest growing REB product in India, the hollow clay blocks produced by Wienerberger and others in South India were not apparently provided by the EE Brick project to IIT Roorkee for structural testing, as TERI has advised that "that the hollow clay blocks produced by Wienerberger and others in Southern India were not included in the study being undertaken by IIT- Roorkee. This is due to the fact that the hollow blocks being produced in South India are mostly of same size as Wienerberger. The project was aware of the fact that Wienerberger has already carried out the all the tests on their product and the corresponding reports have already been submitted to CPWD for inclusion in their specifications and to BIS for modification of their existing codes. BIS has already included these products in their draft specifications, which was circulated to TERI also for the comments during November 2011. Therefore, these products were not included in the present study by IIT- Roorkee. However, no such study has been undertaken for the REBs being produced in Northern India."

The BIS standard for burnt clay perforated bricks (IS: 2222-1991) specifies that the area of perforations shall be between 30-45% of the total area of the corresponding face of the brick for it to be considered as a perforated brick. As most of the perforated bricks being produced in India have lower levels of perforations (10-15%), TERI has been pursuing with BIS an amendment to the specifications. As per documents provided, TERI has written a letter to BIS on 25th November 2011 to this effect.

During the stakeholders meeting held on 7th March 2012 with the MTR team, the representative of Wienerberger informed that they have been pursuing for the last 2 years the modifications in IS: 3952-1988 to include the larger sized hollow blocks produced by Wienerberger and others in the specifications.

The representative of BIS present in the stakeholders meeting held on 7th March 2012, informed the meeting that the modifications in any BIS standards are done by a technical committee and any modifications suggested by the committee must be placed in the public domain for a period of 3 months. In his view a minimum period of 1 year would be required for making the modifications to BIS standards.

During the interaction with PSCST at Chandigarh, it was mentioned that after the availability of the structural stability test report by IIT Roorkee, it might be possible to influence state PWDs in Haryana and Punjab to start experimental use of REBs in some of their projects.

Recommendations

The MTR team is of the view that:

a) The project should come out with a clear time frame and action plan for the completion of structural stability tests at IIT Roorkee and also with follow-up actions for experimental use of perforated bricks and hollow blocks in public sector building projects and inclusion in the common schedule of rates by CPWD and/or state PWD(s). The project team should clearly identify and energise the work of suitable champions who are in a position to influence and assist the project in achieving this objective.

b) The initiatives by the PFU for revision of perforated bricks and by Wienerberger for the revision of hollow blocks require better synergy and coordination. Again, this activity requires clear time frames and action plans to ensure completion well within the remaining time available in the project. The project team should clearly identify champions who are in a position to influence and assist the project in achieving this objective.

Due to the issues as discussed above, the MTR team is of the view that a minimal increase in use of REBs in public buildings should be expected to be achieved during the project duration. The target of 20% increase in use of REBs in public buildings is thus considered to be unrealistic, and should be replaced by a more realistic target.

TERI has proposed the revised target (in the revised LFA submitted to UNDP, but unfortunately by then the project had effectively stopped over the still unresolved issue of TERI's higher than ProDoc specified charge out rates) as:

- Specifications for use of REBs included in the Common Schedule of rates of at least one major government organization like CPWD/ relevant State Government department

- BIS initiates the process for review / modify the existing REB standards

The MTR team would suggest the following revised targets in the LFA:

- Specifications for use of REBs included in the Common Schedule of rates of CPWD and 2 state PWDs.

- REBs are used in at least 1 CPWD and 1 state PWD building project as walling material on an experimental basis.

- BIS formally initiates the process for review/modifications of IS: 2222-1991 and IS: 3952-1988 and the process of getting public comments on the draft modifications suggested by the technical committee is completed.

Outcome 2: Access to finance for brick kiln entrepreneurs (Unsatisfactory)

Baseline: Number of loans will not increase

Target:
Year 3: Number of loans doubled compared to baseline year 2008

Year 4: Number of loans tripled compared to baseline year 2008

Activities description as per Project Document

- Identification of national and regional financial institutions (FIs): In the initial phase of the project, PFC and LRCs will interact extensively with various financial institutions and local banks, which would help in enhancing understanding of FIs on the brick sector and the project objectives. The interactions will assist the project in identifying the interested national and regional financial institutions for providing finance to brick making units.

- DPR preparation for 12 demonstration projects: The LRCs would prepare detailed project reports (DPRs) for the new projects (12 no.) with the guidance of PFC. It would also prepare user-friendly guidelines and model DPRs which would help other brick kiln units to prepare suitable DPRs on their own.

- Development of resource efficient brick production project profiles: The experience gained during the planning and implementation of the demonstration will be collated, and detailed project profiles relevant for a particular cluster/ region will be prepared.

Arranging finance for the 12 demonstration projects: The project will be setting up 12 (twelve) resource efficient brick kiln units in 5 (five) different clusters. PFC and LRCs would prepare DPRs for approaching the banks. It would also facilitate interaction between individual entrepreneurs and banks for provision of loans based on DPRs and fulfilment of bank's criteria in providing loans. These activities would also help in developing suitable financial packages for the brick industry.

Activities undertaken:

- Interactions with financial institutions/ banks
- Study report on 'Barriers to options for accessing finance' by brick kiln entrepreneurs
- Preparation of 5 model DPRs for different production capacities (3 for Northern region and 2 for Southern region)

Assessment

The MTR team visited 8 brick-manufacturing units. All the units visited were successfully accessing bank finance – comprising working capital and/or term loans. Access to finance does not appear to be a key concern of these leading brick makers (who are relatively better and are generally leading brick kiln enterprises in a cluster) opting for REB production.

The report on 'Barriers to options for accessing finance' prepared by the Fourth Vision Consultants for the project corroborates this fact; it states: -

- "On the whole, access to bank finance is not a barrier which prevents brick industry from launching new/expansion/technology upgradation projects. This is because bank-credit has become, in recent years, entrepreneur-centric rather than project-centric. If there is a competent and resourceful entrepreneur, access to bank credit is easy. Out of 15 entrepreneurs whom we interacted with, eight have availed of term-loan assistance, though some did so as long ago as 1985. They expressed satisfaction with the quantum of term-loan assistance. No entrepreneur indicated failure to secure term-loan. All fifteen entrepreneurs possess working capital limits sanctioned by the banks."

- The report on 'Barriers to options for accessing finance' captures some other issues:
  - "The statutory/desirable standards are not couched in terms of resource efficiency. TERI/LRC's need to capture baseline position and develop efficiency concept. There is a need to formulate the definition and detailed standards for REB in terms of resource-use as well as finished product specifications. This is also essential to communicate the concept of REB to brick producers as well as brick-users. The definitions/standards are a precondition for seeking policy support as well as preferential terms for credit. It is only following REB definition/standards that the banking system will recognize REB's as a reasonably distinct sector from the general brick sector. So long as this is not done, the credit providers will continue to view REB's almost as bricks (rather than REB's).
  - "The model report presumes a greenfield REB project. It outlines viability of a Greenfield project. In reality, REB projects will be generally brownfield; an existing brick-maker will launch it. The report should clearly state existing facilities, estimate additional capex, additional income/operating expenditure and additional profitability (or lack of it in initial years). This is essential to enable a brick maker to evaluate REB project and arrive at an informed decision. There is a need to shift focus from new to upgradation/ modernization.
  - The report claims saving of energy (firing) up to 20% and soil up to 30%. This also calls for detailed back-up work. There is a need to validate and quantify (economic value, shadow price) these advantages, relate the quantification to the size/composition of national brick industry and put the resource inefficiency in a clear perspective.
  -

After going through the 5 model DPRs prepared by the project, the MTR team is of the view that the model DPRs still require substantial revision and several improvements, namely:

- The DPRs do not provide the specification of the product i.e. REBs (size, perforation, physical characteristics) that would be manufactured, nor do the DPRs include any references to current or proposed BIS REB specifications.
- The DPRs have no description of the relevant REB manufacturing process
- The assumptions on arriving at the cost of production are not stated in the DPRs
- None of the DPRs seems applicable for the production of hollow blocks

One of the achievements stated by the project is that Karnataka State Financial Corporation and Corporation Bank have approved DPRs. Quoting from the report on 'Barriers to options for accessing finance' -- " The Corporation Bank at Chandigarh, for instance, has expressed

general support for REB based on the report. It has issued a letter to PSCST accordingly. However, the support appears based on PSCST brand-equity rather than on a critical appreciation of REB project". It appears that the two letters of approval from the financial institutions have had little practical significance or utility to date in assisting brick entrepreneurs in investing in the necessary mechanisation required to produce REBs. Supporting this contention, the report on 'Barriers to options for accessing finance' states on p4 "The cumulative impact in terms of non-access to bank credit ….is limited. On the whole, access to bank finance is not a barrier, which prevents brick industry from launching new/expansion/technology upgradation projects. This is because bank-credit has become, in recent years, entrepreneur-centric rather than project-centric. If there is a competent and resourceful entrepreneur, access to bank credit is easy. Among the entrepreneurs whom we met, we did not come across a single entrepreneur who expressed unhappiness about availability of bank credit."

Recommendations
Given the lack of identified need for financing support for REB manufacturers, and the fact that the project is now in its end stage with only limited funds still available, it is recommended that no further work except a revision of the DPRs and some critical follow-up with financial institutions by LRCs be done under this outcome.

Outcome 3: Improved knowledge on technology incl. marketing (Marginally Satisfactory)

Baseline: Market share of resource-efficient bricks remains low

Target: Market share of resource-efficient bricks doubled by end of project

Activities description as per Project Document
Market research and strategies for market development: A marketing professional will help each LRC in studying market and demands for the resource efficient bricks in the cluster. LRC would also facilitate testing of resource efficient bricks (e.g. compressive strengths of bricks).

Sensitizing and educating end-users: LRCs and PFC would sensitise and educate end-users such as builders, architects, masons and house builders regarding the advantages of resource efficient bricks.

Activities undertaken:

- Report prepared on the study using simulation modelling to showcase the material and monetary savings with REB use
- Four (4) B2B meetings organized between Technology Suppliers and brick kiln entrepreneurs: comprising 2 Indian manufacturers; 9 European manufacturers; and 1 Chinese manufacturer
- Approach paper prepared for developing markets for REB
- Two manuals on better construction practices using REBs: (1) Web- based and (2) booklet
- Exposure visit of architects / builders on REB production site

- REB stall put up in 3 exhibitions including India International Trade Fair (this is separate from the B2B meetings activities)

Assessment

Useful work has been done in sensitizing and educating end-users, this includes preparation of background material for sensitizing end-user in the form of:

- testing of resource efficient bricks from 4 brick producers
- manual on better construction practices using hollow blocks

Reaching out to around 200 builders and architects through awareness programmes and exposure visits. During interactions with LRCs and the brick manufacturers at Malur (LRC-South), Chandigarh (LRC-North) and Varanasi (LRC –East) it is clear that they appreciated the efforts made by the project, in this area. However, there was no evidence of similar efforts by LRC –Western region.

The project proposal proposed market assessment and strategy development at the cluster/regional level. There is no evidence that such an exercise has been undertaken. From a careful review of project reports and briefings, the PFC and the LRCs still do not seem to have a comprehensive understanding of the current and the future market potential for REBs and the practical means to deliver REBs to key sectors of the Indian brick markets (and this is not just due to a lack of clear definition for REBs). This is distinct from the project focus on rather generic REB marketing to date. This is an area that requires an appropriate focus in the remaining duration of the project.

Based on the interactions with the different stakeholders during the field trips, the MTR team's assessment of the REBs market is presented below: -

Table 4.4. MTR team assessment of the REB market

Cluster/ Region	Assessment
Karnataka, Tamil Nadu and Kerala	Kerala, Mangalore and Bangalore have a long history (>100 years) of use of extruders for making fired clay roof tiles. Several manufacturers (around 10) have been making hollow blocks in small quantities for several decades. The game changer for hollow blocks has been the entry of a large European brick manufacturer – Wienerberger[18], which started production near Bangalore in 2009. Wienerberger produces hollow blocks (two sizes: 200 x 200 x 400 mm and 200 x 150x 400 mm). The selling price varies between Rs 42 to 49/ block. The current production capacity of 440 tonnes/day is fully booked for next 1-year's current production. It has plans to add 50% more capacity in the existing plant by June 2012 and is also considering starting a new production facility of 660 tonnes/ day in Tamil Nadu. The current sales come from two main market segments.

	Construction of high-rise flats to builders and developers in metro cities --Bangalore, Chennai, Cochin. The main reason for buying hollow blocks is the reduction in weight and lower construction cost. This constitutes about 60% of sales. Construction of individual houses in tier II and III cities – e.g. Belgaum, Bellary, Hubli, Mysore, Madurai. Main reason for buying Wienerberger hollow blocks is thermal comfort. This constitutes about 40% of sales. Current estimation of the market for REBs (2012) in South India: Wienerberger – 15-20 million blocks/year. Rest (8-10 manufacturers in Karnataka and Kerala) - 2 – 4 million blocks/year. *The South Indian market offers an opportunity for existing manufacturers to piggyback on the market development efforts of Wienerberger to expand the market for hollow blocks, particularly for the construction of residential buildings. This region currently has the best conditions for further REB market development.*
Gujarat	No manufacturing of hollow blocks; only 1 manufacturer for perforated bricks at Godhara (around 20% of his total daily production of 240,000 bricks/day is perforated bricks). The production has started recently and had not yet fully stabilized when the MTR team visited the factory in early-March 2012. As per the manufacturer at Godhara, the small town/rural housing market has responded positively to the perforated bricks. *With only one manufacturer, the REB market is in a very nascent stage. A successful REB market still requires the entry of a few more manufacturers; starting production of hollow blocks and undertaking demonstration of the use of hollow-blocks in building projects, as well as focused awareness generation efforts to establish REBs as a viable option with end-users.*
NCR	No manufacturing of hollow blocks; 4-5 manufacturers making perforated bricks. Perforated brick production estimated to range between 10-20 million bricks/year. *The market is in its initial stages of development. The current market for perforated bricks is mainly in the government sector. The sales to the government projects are lumpy; so there is a need to also develop markets in the private sector. Starting production of hollow blocks and undertaking demonstration of*

	use of REBs in building project and focused marketing efforts to establish REBs is a viable option with end-users in this region.
Chandigarh and nearby areas	No manufacturing of hollow blocks; 4 manufacturers making perforated bricks. Perforated brick production estimated to be 10 million bricks/year. Main market for perforated bricks is in government projects and institutional buildings. *The market is in its initial stages of development. The current market for perforated bricks is mainly in the government sector. The sales to the government projects are lumpy; so there is a need to also develop markets in the private sector. Starting production of hollow blocks and undertaking demonstration of use of REBs in building project and focused marketing efforts to establish REBs is a viable option with end-users in this region.*
Varanasi	One unit that manufactures both hollow blocks and perforated bricks. Perforated brick production – 2- 3 million/year; Hollow blocks – 200,000 to 300,000 /year. Main market is in institutional and residential buildings. *With only one major manufacturer in each region, the REB market is in its very initial stages of development*

Outcome 4: Availability of resource efficient brick technology models in 5 clusters through Local Resource Centers (Unsatisfactory)

Baseline: No EE brick kiln units established

Target: Year 1: All 12 Units established by end of year 1

Activities description as per Project Document

Identification of brick kiln units and signing MoUs: During implementation, the project will shortlist the brick kiln units based on a well defined 'selection criteria' for up-gradation of technology. The next step would be finalisation of MoUs with each of the brick kiln units. The project will work closely with the local industry associations during this phase, so as to ensure the involvement of the entire brick industry in the cluster in the demonstration projects.

Technology sourcing: During implementation phase, the project would extensively interact with technology/ machinery suppliers and prepare a list of potential technology suppliers to be made available to the project developers. The project through the PFC and LRCs will facilitate sourcing of plant and machinery for individual demonstration units.

Facilitating commissioning of demonstration projects: The Project Facilitation Cell (PFC – aka TERI) would facilitate the implementation of the project through the local resource centres (LRCs) identified in the short-listed clusters.

Monitoring and evaluation of projects: PFC will prepare a comprehensive monitoring and evaluation framework for the monitoring of individual brick kiln units. It would help the LRC in carrying out the evaluation by experts in the field. For each brick kiln unit, a baseline report and a post-commissioning report will be prepared. These reports would cover performance evaluation of energy consumption, environmental emissions and resource efficiency (e.g. reduction in soil consumption level) along with other operational parameters (production, breakage, production costs and sale of bricks). LRC would also help individual brick kiln units in preparation of suitable formats to document various operating parameters and carrying out energy and environmental monitoring of the plants, which would help in the evaluation process.

Activities undertaken

Facilitated production of REBs in 9 brick kiln units e.g. Strengthened their confidence in REBs; Supported marketing efforts; Testing of their products; Technical inputs by sectoral experts.

On-site technical guidance by sectoral experts from NIISR (India) and IZF (Germany) to brick kiln entrepreneurs for REB production.

Assessment

The ProDoc or any other document of the project does not elaborate sufficiently on the concept of demonstration projects and the level of support to be provided by the project so that these projects can be termed as formal project-initiated “demonstration projects”. There are no documents which indicate that during the project implementation, the PFU has tried to define the criteria for selection of the “demonstration units” or the level of support that would be provided to these “demonstration units”

The level of support provided to demonstration units in very small compared to what was described in the project document. Based on the information provided by the PFU and from visits to some of the brick manufacturers who are listed as demonstration units, the following is the MTR reviewers’ assessment of the support provided by the project to these units: -

Table 4.5 MTR team assessment of the support provided to demonstration units

		Support Provided by the Project						
	Year of starting REB production	**DPR preparation**	**Facilitation of financing from banks**	**Facilitation of purchase of technology**	**Facilitating commissioning**	**Technical support to improve / streamline production**	**Support for market development**	**Monitoring and Evaluation of the project**
Prayag Bricks, Varanasi	2005-06	No	No	No	No	No	Participation in Exhibition/ seminar	No
Kusum Bricks & Dadoo Bricks, Hapur	2005-06	No	No	No	No	Visit by a technical expert. No documentation of results.	Participation in Exhibition/ seminar	No
Sainath Tiles & Bricks, Gaziabad	2009 -10	No	No	No	No	Visit by a technical expert. No documentation of results.	Participation in Exhibition/ seminar	No
Aanjaneya Bricks, Malur	Regular production in 2011	No	No	No	No	Some support for extruder die design through LRC-South	Participation in Exhibition/ seminar	No
Marikamba Bricks, Malur	Regular production yet to start	No	No	No	No	Some support through LRC-South	Participation in Exhibition/ seminar	No
Lakshmi Venkateshwara Bricks, Malur	Regular production yet to start	No	No	No	No	Some support through LRC-South	Participation in Exhibition/ seminar	No
Jai Jalaram Bricks, Godhara	Regular production in 2011	No	No	No	No	No	Participation in Exhibition/ seminar	No
Bharat Bricks, Dera Bassi	2001-02	No	No	No	No	Some support through LRC-North	Participation in Exhibition/ seminar	No

Out of 8 'demonstration' units visited, at least 4 were producing REBs prior to the start of the India Brick EE project in 2009. Another two units had prior experience of production of REBs before 2009. Except for one unit, all others had extruders (the necessary basic machinery needed to produce hollow or perforated bricks) prior to 2009. Furthermore, the addition or buying of the necessary technology, its financing, and its commissioning has been done by the enterprises without any support of the India Brick EE project. These details and facts about the demonstration units were not brought to the attention of the relevant PSC meetings, and hence suitable adaptive management measures to respond to these facts were not undertaken. TERI in its response to the previous version of the MTR report claims that "During the 4th and 5th PSC meetings the project has deliberated on this [prior production of REBs and REBs being produced with out project support] particular point." However, the minutes of the 4th and 5th PSC meetings do not corroborate this view. The minutes of the 4th PSC meeting held on 06 January 2011 do not mention the issue as being discussed, and the relevant part of the 5th PSC meeting (held on 22 September 2011) minutes simply states "TERI for the first time informed in the PSC that 9 brick kiln manufacturing REBs had been selected which by now have also achieved a reduction of about 7,000 tCO2. PSC asked TERI and UNDP to develop criteria for selecting such units under the project and also inform the PSC on how many more units will be undertaken under this project."

The analysis of the data also shows that almost 92% of the production was of perforated bricks and only 8% was of hollow blocks.

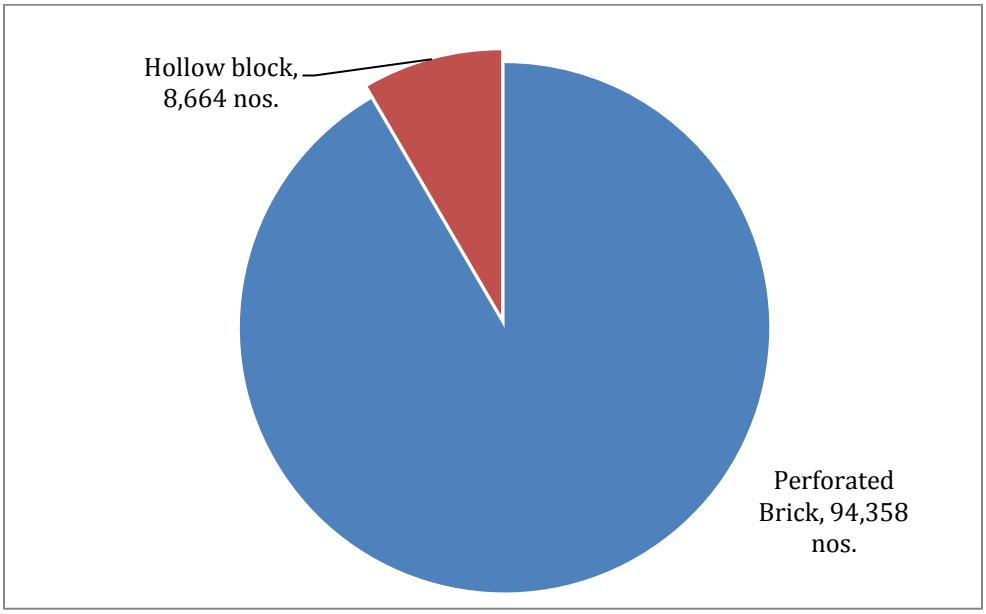


Figure 4.1 Distribution of perforated bricks and hollow blocks in the 2010 and 2011 production by the 9 brick units

It is to be expected that the project intervention would result in an increase in the production of REBs in these 9 brick units. However, an analysis of data provided by PFU shows otherwise, the overall production of REBs and in 6 out of 9 units has reduced in 2011 compared to 2010.

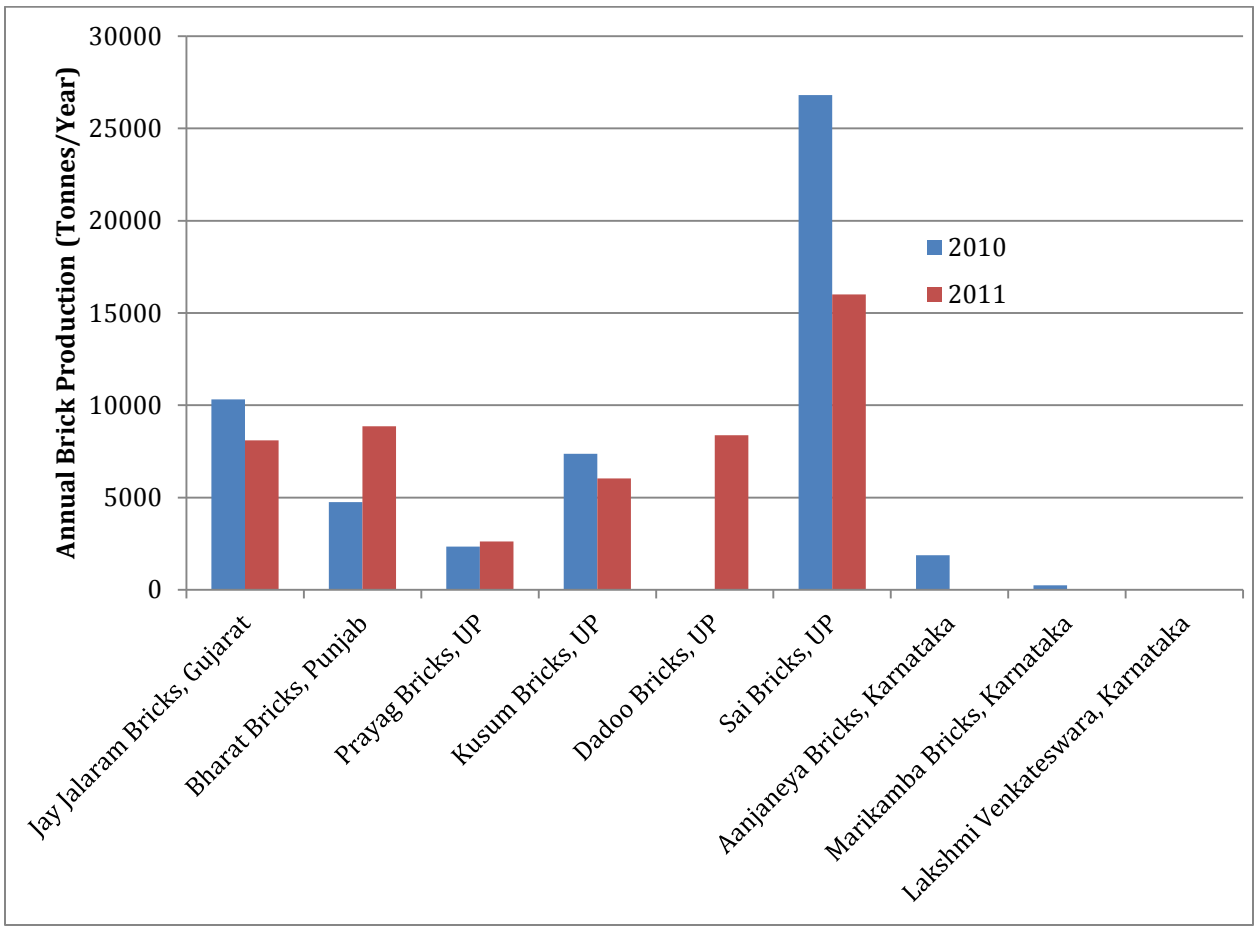


Figure 4.2 Production figures for 2010 and 2011 for the 9 demonstration units

Overall the annual production of REBs is around 1/5th of what was assumed while making the CO_2 calculations in the project document.

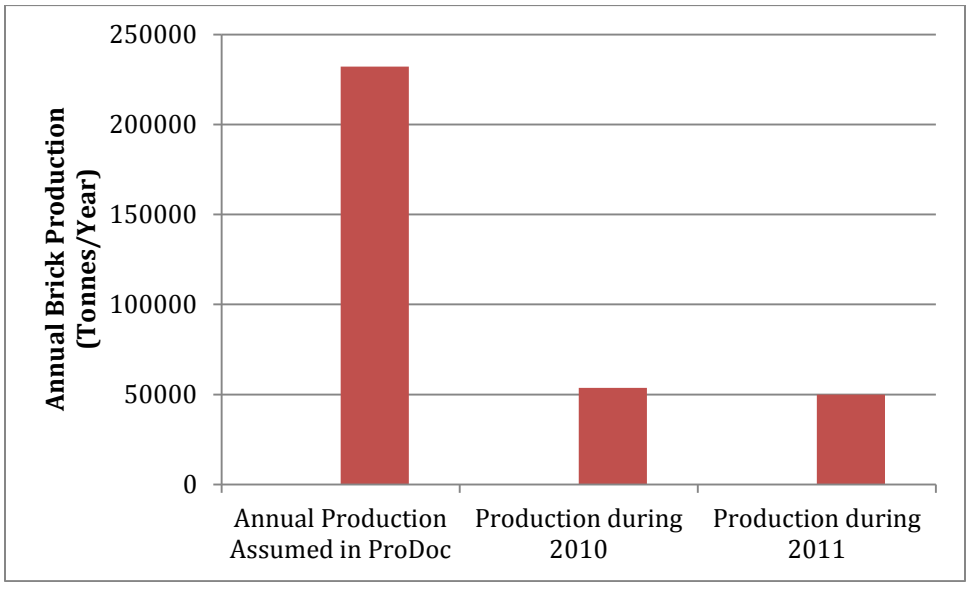


Figure 4.3 Annual production as assumed in ProDoc vs Actual Production

The limited support that was provided to demonstration units pertains to:-

- Participation by brick entrepreneurs in exposure visits to REB manufacturing plants (to Kerala and Wienerberger) organised by the project.
- Providing REB brick entrepreneurs with opportunities to showcase their products in seminars and workshops to a new/larger set of potential REB end-users.
- Getting their products tested by suitable laboratories and obtaining information on relevant REB standards
- Some limited technical support (die for the extruder for 3 producers in South India, brick setting arrangement for natural drying for 1 producer in North India) for making improvements in the REB production process

It is clear that the support provided by the PFU and LRCs to the individual brick units has been far lower than what was envisaged in the project document. None of the demonstration units have received the systematic technical support and monitoring and evaluation support as envisaged in the ProDoc. None of the demonstration units have been monitored for their performance, particularly energy consumption and clay use, which is crucial for the calculation of CO_2 savings and establishing a case for clay and fuel savings by REBs.

The PFU claim of the demonstration units benefitting from the visits of technical experts from NIISR (India) and/or IZF (Germany) is not backed up by documentation of any significant improvements implemented by the units subsequent to these technical visits.

The major areas where the enterprises are looking for India Brick EE project and/or other external support are:

- Evaluation and potential sourcing of machinery (extruders, material handling equipment and dryers) from China. The manufacturers located near Bangalore are very keen to visit China and are looking for technical support in arranging and facilitating such necessary hands-on visits from the project where detailed discussions with suppliers and end users of the machinery is required to give the Indian brick entrepreneurs the confidence to make the necessary large capital investment decisions required.

- Technical support for choosing and installing appropriate drying systems for sustained /enhanced production of REBs.

- Help in making unit specific marketing plans and in carrying out focused marketing/awareness efforts.

Outcome 5: Improved capacity of brick kiln entrepreneurs

Target (as per project document): At least 5 brick kiln entrepreneurs in each cluster invest in technology upgradation by the end of the project

Target (revised as per TERI): 1 entrepreneur in each cluster invests in technology upgradation

Activities description as per Project Document

- Development of training module for energy efficiency improvements
- Organization of training programmes: 2 training programmes per year per cluster. Total programmes planned are 40 and estimated number of beneficiaries is 2000 brick kiln units.
- Exposure visits/study tours within India
- Conducting awareness seminars: Total of 5 regional level awareness seminars
- Development of promotional materials and website

Activities undertaken:

- Brick kiln entrepreneurs exposed to REB production through five exposure visits to REB producing sites.
- 33 Brick kiln entrepreneurs, 18 masons and 2 contractors trained on REB use in construction at Wienerberger Mason Training Facility, Bangalore.
- 16 cluster meetings and 11 exposure visits for brick kiln entrepreneurs
- Brochure highlighting project details and benefits of producing and using REBs
- Project web-site (http://www.resourceefficientbricks.org)

Assessment

During interactions with LRC-North, it was informed that several brick makers are seriously thinking of investing in extruders. This interest is primarily more due to shortage of labour and brick industries trying to reduce their dependence on labour, then for production of REBs. It is expected that some new investments in technology upgradation (in particular extruders) will take place by the end of project. The majority of the production from these units is expected to be solid bricks or bricks with low levels of perforation. The possibility of investments in new extruders is relatively lower in the East (around Varanasi) and the West (Gujarat).

5. LESSONS LEARNED

Some of the specific lessons learnt in project design and implementation are as follows:

5.1 Need Professional and Independent Project Design

The 2005-2008 development of the new MSP ProDoc: -

- proceeded without any new comprehensive situation analysis or incremental analysis;
- talks about promoting REBs, but without really defining them explicitly or properly;
- is based around a regional approach to EE Brick/REB popularisation without considering if the five regions had the necessary preconditions for REB manufacturing;
- was not developed with independent international professional input, so the project design assumptions were never clearly questioned and reviewed, nor were they articulated;
- did not develop a strong LFA

5.2 Developing a New Project with the Same Name But with a Different Objective as a Previous Project is Risky

The India Brick EE (REB) project kept the same name during its 2005-2008 (MSP) design and approval phase as the earlier 2001-2002 (FSP) larger project that had a very different focus. The new MSP project retained an all-India focus, although the available GEF resources were for only 1/7th of that available in the earlier project design. The PFU at TERI implemented the project with a lot of awareness raising work, which would have been applicable in the earlier 2001-2002 project focusing on brick kiln firing. As an example of suitable adjustments not being made in the project from its earlier design, in the new project the implementation got the "cart before the horse" for most regions of India in terms of most regions needing a reliable electricity supply first and only then would extruders and other mechanisation be applicable. There is little real point in raising awareness and developing a market for REBs if the electricity supply is unreliable for the necessary extruders and other mechanisation without which REBs just cannot be made. TERI claims in its comments to the previous draft of the MTR report "This point about the importance of reliable electricity supply is well known to everyone." but the fact is that TERI as the operator of the PFU/PMU did not focus its general awareness work in areas with a suitably reliable electricity supply that could be used to power the extruders without which REBs cannot realistically be made.

5.3 Role of LRCs is key for effective project implementation and sustainability

The project is being implemented in 5 regions. Each region is served by an LRC. The project design envisaged a key role for the LRCs in project implementation, which has not been the case so far due to a number of reasons such as the low-level of resource allocation and the low-level of engagement with LRCs on project implementation by the PFU (as explained in section 4.2). This has been one of the main reasons for the overall poor performance of the project so far. To improve the performance of the project and to ensure post project-end sustainability the LRCs need to be better financially supported and they need to be motivated to work effectively by involving them more in project operations.

5.4 Strong Government Project Ownership is Critical

The Government of India has not provided any co-funding to the project and the role of MoEF in the project is primarily limited to providing project steering. The India Brick EE project would have greatly benefitted if a suitable strong and directly operationally focused brick industry EE related government agency would have been involved in the project's implementation and if there was co-funding provided from the government. It is important to increase government ownership during the remaining duration of the project, so as to continue the momentum of the project once it ends.

5.5 Strong Oversight by Implementing Agency/ Executive Partner/PSC is Critical

The UNDP/MoEF/ PSC project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off, until the first routine financial audit conducted during early 2011 identified the issue of the manpower rates being charged by TERI at 2-4 time the level explicitly specified in the ProDoc. In addition, the selection processes to be followed for hiring of consultants, and the identification of demonstration units and their CO_2 savings came up for discussion only during the 5th PSC meeting held on 22nd September 2011 (two years after the inception of the project).

6. ANALYSIS AND RECOMMENDATIONS

6.1 Revision of LFA

The project is well short of meeting its targets as per the original LFA, and there is now no likelihood that the project could meet the targets set in the original LFA. The project is left with around 1/3rd of the budget and 1/3rd of the time, thus it is important at this stage to prioritise actions (several of these are provided later in this section) and it would be appropriate to revise the LFA. The PFU has already submitted a revised LFA to UNDP, but it is advised that the revision in LFA should be done in consultation with LRCs and other key stakeholders, apart from MoEF and UNDP and the PFU.

6.2 Actively Support Replication of Hollow Block Manufacturing, Training and Awareness in South India

At the time of the MTR field visits, the Wienerberger Brick Industry Pvt Ltd plant had been operating near Bangalore in South India for three years, it was producing around 40,000 fired clay hollow blocks per day, and it was already undergoing a 50% capacity expansion that would be in place in June 2012. Wienerberger is also already looking at building an additional new plant in South India to meet the never met and growing demand for its hollow blocks, which are now already sold out nearly a year in advance. Wienerberger are also in the process of introducing new innovative products, in particular a 16-hole 8" hollow block with rock wool insulation in the holes that has an overall U-value of 0.6[19].

The reason that Wienerberger is singled out for specific mention is that they are a significant European brick making company with 227 plants worldwide, of which its Bangalore plant is the most technologically advanced, and the Bangalore plant is very advanced by Indian standards as it uses a tunnel kiln, a chamber dryer and is fired by petcoke and LPG. After its June 2012 expansion, the South Indian Wienerberger plant's output will be around 20 million/year of its 200 x 200 x 400mm 16 hole 11kg hollow blocks (each equivalent to around 8-9 standard bricks as they are of a larger size than standard bricks).

Other brick plants near Bangalore had already produced similar fired clay hollow blocks around 10 years ago, but there was no significant market for such products then. Wienerberger have undertaken considerable awareness raising and training, they have around five in-house masons and two applications engineers focusing on providing training, and they have trained around 4,500 masons in the proper placing and mortaring of hollow blocks (noting that this is around ten times the applications focused technical training delivered by the India Brick EE project to date). So Wienerberger have almost single handedly built a major and expanding market for fired clay hollow blocks in South India where manufacturing capacity but no significant market existed prior to Wienerberger's operations.

In South India around 10 manufacturers (that already have extruders and can make use of their existing kilns) are already producing around 2-4 million hollow blocks with a potential

[19] The standard Wienerberger Indian hollow block has a U-value of 1.1 and standard bricks have a u-value of 1.8 to 2.2, so the new product will have 3 to 3.5 times the insulation value of standard bricks

production of around 5 million/year similar fired hollow REB clay blocks to Wienerberger (for example AB&T are producing 2,500 hollow blocks per day of the same dimensions as the Wienerberger hollow block product and AB&T are selling their hollow blocks for around a 8% to 15% lower price than the Wienerberger hollow blocks).

Wienerberger seems happy to cooperate with the UNDP-GEF India EE Bricks project in growing the wider market for hollow blocks, and providing wider hollow fired clay block training to masons, architects, and other relevant brick specification and application specialists. The India Brick EE project through its (modest) funding of LRC South has worked closely with Wienerberger, but unfortunately there is no evidence that there is a clear strategy to utilise this major replication opportunity in the India Brick EE project[20]. So it is recommended that the India EE Bricks project now clearly moves to a strategic replication focus on hollow block entrepreneurs support in South India - to piggyback on Wienerberger's hollow block market already created in South India and the existing replication of this hollow block product with manufacturers that already have extruders, and with manufacturers which the India EE Brick project will separately assist in obtaining extruders. It is also recommended that the India Brick EE project pro-actively partners with Wienerberger in mason training, architect and engineer site visits, hollow block market awareness and training. This needs to be combined with separate efforts to facilitate the uptake of extruders, including the proposed facilitation of brick entrepreneur visits to extruder manufactures and end users in China.

6.3 Need Real Timeframes and Clear Leadership in Updating BIS REB/EE Brick Standards

A barrier to the uptake of perforated bricks and hollow blocks in India (particularly in the Government and Public-sector)[21] is the existence of outdated technical standards, respectively: -

- Specification for burnt clay perforated building bricks (IS: 2222-1991); and
- Specification for burnt clay hollow bricks for walls and partitions (IS: 3952-1988)

In addition, there is a need for REBs to be specifically mentioned in IS: 2212:1991 (Brick works – code of practice), in particular for the CPWD (Central Public Works Department) and then subsequently by the State PWD's, for perforated brick and/or hollow blocks to be specified in the common schedule of rates for use in central or state government buildings or in any government supported building project.

The problem with IS: 2222-1991 is apparently that it specifies a minimum level of perforation of 30-45% for a brick to meet the standard and to be considered as a perforated brick, while perforated bricks made in practice in India are only able to achieve a 9 -15% perforation ratio (9% if a basic 3 hole perforated brick is produced). TERI has written a letter to BIS (Bureau of Indian Standards) on 25th November 2011 to this effect. There is now a need to develop clear action-oriented timeline for this task, and actively follow it up as required.

[20] In military strategy terms this is called "reinforcing success and abandoning failure" and a relevant example in this case would mean dropping project supported general awareness raising activities in areas of India with no extruders and no reliable electricity supply to support the use of extruders, and instead focusing on supporting the uptake of extruders in South India and linking this to the existing and expanding market for hollow fired clay blocks created by Wienerberger, and pro-actively utilising the clear willingness of Wienerberger to assist in such efforts.

[21] The experience of Wienerberger clearly shows that it is possible to develop large market for REBs in the private sector even without BIS standards.

In addition IS: 2222-1991 does not specify any brick strength characteristics, so even if a perforated brick meets IS: 2222-1991 in terms of its perforation ratio, any CPWD or state PWD enabling such a brick to be used will have no assurance of the perforated brick's minimum tested compressive strength. As detailed under Outcome 1 Section 4.2, IIT Roorkee has been engaged to undertake structural stability tests and IIT Roorkee was provided the required bricks for testing in December 2011.

The issue under the "Specification for burnt clay hollow bricks for walls and partitions" (IS: 3952-1988) is apparently that it does not include the larger sized hollow clay REB block sizes produced by Wienerberger in its specifications. During the stakeholders meeting held on 7th March 2012 with the MTR team, the representative of Wienerberger informed the meeting that they have been pursuing modifications to IS: 3952 -1988 for the last 2 years.

It is clear that the India Brick EE project needs a clear and pro-active focus on relevant BIS REB/EE Bricks standards updating process, timeframes, champions and coordination between activities.

It is therefore recommended that: -

- The project should urgently develop a clear time frame and action plan for the completion of structural stability tests at IIT Roorkee, and also with follow-up actions for experimental use of perforated bricks and hollow blocks in public sector building projects and their inclusion in the common schedule of rates by CPWD and state PWD(s). The project team should clearly identify and fully support relevant champions who are in a position to influence and assist the project in achieving these objectives.

  The initiatives by the PFU/TERI for revision of perforated bricks standards and those initiated by Wienerberger for the revision of hollow blocks standards require synergy and better coordination. Again, this activity requires clear time frames and action plans to ensure completion well within the remaining time available in the project. The project team should clearly identify and fully support champions who are in a position to influence and assist the project in achieving these objectives.

- As the ProDoc's project target of a 20% increase in use of REBs in public buildings is now clearly unrealistic, it should be replaced by a more realistic targets, namely: -
  a) Specifications for use of REBs (in practice for the project this means clay fired perforated bricks and hollow blocks) included in the Common Schedule of rates of CPWD and 2 state PWDs.
  b) REBs are used in at least 1 CPWD and 1 state PWD building project as walling material on an experimental basis.
  c) BIS formally initiates the process for review/modifications of IS:2222: 1991 and IS 3952 -1988 and the process is fully completed of getting public comments on the draft modifications suggested by the technical committee.

6.4 Focus on Demonstration Projects (Outcome 4)

One of the key shortcomings of the project has been lack of focus on its REB demonstration projects. Though almost 66% of the funds for the component have already been spent, the so-called 9 REB demonstration projects have received only minimal support from the project. There is a need to enhance support to these or new demonstration projects (to be identified by the project) in the form of specific technical support to streamline/stabilize and increase their production, monitoring, documentation, and support for REB market development, so that these units can really be called demonstration projects and so that the project is able to meet at least some part of its CO_2 reduction target.

6.5 Explicitly Focus on Extruders and Dryers as Key REB/EE Brick Technologies

The first key element in machine made bricks is extruders, and also the machine mixing of clay and the use of vacuum pumps to de-aerate the clay for improved extruder ability to produce REBs with a higher proportion of holes or voids. In addition, to produce REBs one also really requires the addition of controlled drying of the newly moulded extruded green bricks, at a minimum in drying sheds, and once production reaches a certain level then mechanically ventilated drying chambers really need to be used.

The initial key step in clay brick production mechanisation is extruders. Until the market can grow to the point that India manufacturers can produce robust and affordable extruders, the most likely source for the necessary extruders is China. China is a huge brick making market (with around five times the annual brick making production of India) with around 100,000 brick making plants that generally use extruders. However, there are many manufacturers in China making extruders of varying quality and with unclear technical support capacity if their extruders are to be imported into India. Many Indian brick entrepreneurs are very interested in investigating the potential to import suitable extruders from China, but the Indian brick entrepreneurs are not quite sure how and where to start in identifying the most suitable extruders.

It is therefore recommended that the India Brick EE project facilitate interested Indian brick entrepreneurs to travel to China to visit relevant brick and tile research institutes and to be briefed about brick making mechanisation, visit representative Chinese mechanised brick making plants, and to enable Indian brick entrepreneurs to attend suitable industry meetings or conventions to meet a range of brick extruder and other mechanisation machinery makers. It is recommended that lower cost visits to Bangladesh or Vietnam (where significant numbers of extruders are now being successfully deployed) also be investigated. Such visits could also building on the success of previous UNDP-GEF funded projects in China, Vietnam and Bangladesh.

Meetings like the “Mechanization in Brick Industry” conference in March 2011 organised in Chandigarh that attract European manufactures selling beautiful but too expensive technology are no substitute for hands on visits to manufactures and end users of the mechanisation equipment in a more affordable mechanisation plant cost supply county like China. This is confirmed by LRC- North (PSCST) who informed the MTR team that there are around 10 brick makers from the region who have either ordered or are in the process of ordering extruders from China, while none of the brick makers have opted for the European manufacturers to provide extruders. It would seem that Indian brick entrepreneurs would be able to meet the full part of the cost of such visits themselves, what they need is planning support and help in visiting the right manufacturers and talking to actual unbiased users of the machinery. The project’s assistance with

arranging study tours by key technical staff and interested brick entrepreneurs to Bangladesh/Vietnam/China will enable the brick entrepreneurs to upgrade their extruder knowledge and help them source specific, affordable and maintainable extruders for their ongoing reliable use in India.

As India has now some Chinese extruders under commissioning/ operation, it is recommended that the project carries out a quick technical and operational audit of these extruders and make the information public. This would also help other Indian brick makers in their decision making processes.

6.6 Strengthen and Prioritise Support Funding in South and North India

A significant feature of the India Bricks EE project design was the use of five regional LRCs (Local Resource Centers) that were expected to deliver on-the-ground project activities.

Unfortunately, excessive and ultimately unproductive project efforts were expended in engaging agencies in the West and Northeast of India. No suitable Northeast region LRC eventuated, and it is not recommended that any further effort be put into this by the project. The LRC West is based at the Faculty of Design of CEPT University in Ahmadabad, which is however not significantly focused on REB manufacturing, but is rather mainly interested in the research on application of REBs in new buildings, for reducing the need for operational (HVAC) building energy use. The manufacturing side of REBs is just not CEPT's core competency or interest.

LRC East based in Varanasi is based around a local brick manufacturers association, and given their level of funding to date they have been doing a credible job of raising awareness regarding REBs in their region. However, the LRC East region generally lacks extruders, and it also has a generally unreliable electricity supply as well. LRC East also sees it as a critical prerequisite success factor that the government starts to specify and buy REBs, as per section 6.3 as above. So it is recommended that the project continues to support the REB awareness raising work of LRC East, but does not expand their role, and instead the project focuses more on updating key REB standards and in getting central and state governments to specify REBs in their own buildings and in buildings that they support anyway.

As detailed in Section 6.2 as above, there is a highly promising opportunity for the India Brick EE project to support REB enhanced local manufacturing in South India alongside the hollow block market essentially developed by Wienerberger, and utilising Wienerberger's professed willingness to strongly partner with the project on appropriate activities. However, the LRC South is based at the local TERI office, and although the local TERI staff, with the support from a local consultant, seemed to be doing a good job of supporting the project, there is a wider issue of TERI's high staff costs and the sustainability of LRC South post project-end. If TERI continues to provide the LRC South role, it will require much closer supervision in future by the PSC and UNDP to ensure that technical tasks are contracted out to lower cost external consultants wherever possible and that the local TERI staff are in future actually charged to the project at the staff rates explicitly specified in the ProDoc.

LRC North are based at the Punjab State Council for Science and Technology (PSCST) in Chandigarh. PSCST have been working with the brick sector since 1997, and they were the key partner in the 2001-2002 FSP proposal that was unfortunately not funded by GEF. PSCST have been very active in supporting project activities, and they have

around 3 brick plant extruders (from China) ordered in their region and they expect 7 more (from China) to materialize by mid 2013, with more in the process of being ordered.

It is therefore recommended that the India Brick EE project strengthens and prioritises its remaining funding in North and South India, with a new explicit clear end-of-project replication real results focus.

6.7 Enhance Government Ownership and Inclusion of REBs in 13th Five-Year Plan

Resource efficient building materials like REBs are key in making the fast growing construction sector more sustainable in India. It is recommended that UNDP and MoEF work together to find an appropriate government Ministry/ Agency (e.g. Building Materials Technology Promotion Council (BMTPC) under Ministry of Housing and Urban Poverty Alleviation, or a suitable agency within MoEF, or the Ministry of Commerce and Industry, or the Bureau of Energy Efficiency, or the Ministry of Micro Small and Medium Enterprises) to consider co-funding the project for its enhanced impact and ongoing sustainability. It is also recommended that UNDP assist MoEF, and any new agency that may take the lead role in REBs/EE Bricks, in including EE/REB perforated bricks/hollow blocks using clay and industrial wastes into the planning for the upcoming Indian 13th Five-year Plan.

6.8 PFU to Operate Within ProDoc Defined Staff Rates

A major breakdown of trust is now evident between the key responsible parties, in particular between TERI and MoEF/UNDP, which has resulted in the slowing down of project activities since the middle of 2011 and their almost complete stop since late 2011. There is a clear need for the India Brick EE project to have a PFU that focuses on hands-on strategic leadership and also on affordable, effective and cost-effective project management staff inputs.

It is recommended that UNDP/MoEF should first attempt to reach a mutually acceptable agreement with TERI on PFU cost and operational modalities, in line with the GEF approved Project Document (ProDoc). Alternatively TERI should be asked to provide its inputs from its explicitly agreed in-kind $145,000 project co-funding. If these approaches are not successful, one of the strong LRCs like the Punjab State Council for Science & Technology (PSCST) should be approached to act as the new project PFU. Alternatively, the new PFU could be contracted out to a suitable consulting firm/organisation, or it could be provided by a suitable contractor working at UNDP India under the direct supervision of the UNDP). Whatever may be the composition of the PFU, the functioning of the PFU needs to dramatically improve for the improved performance of the project. It is also very important that the PFU operates in line with UNDP-GEF guidelines.

Annex A: List of Abbreviations and Acronyms

APR	Annual Project Review
AWPs	Annual Work Plans
BIS	Bureau of Indian Standard
B2B	Business To Business
Capex	capital expenditure
CEO	Chief Executive Officer
CEPT	Center for Environmental Planning and Technology
CPWD	Central Public Works Department
CO_2	Carbon Dioxide
DPRs	Detailed Project Reports
EA	Executing Agency
EE	Energy Efficiency
FCBTK	Fixed Chimney Bulls Trench Kiln
FSP	Full Scale Project (of GEF)
GEF	Global Environmental Facility
GHG	GreenHouse Gas
GOI	Government Of India
HVAC	Heating Ventilation and Air Conditioning
IA	Implementing Agency
IIT	Indian Institute of Technology
IS	Indian Standard
IZF	Institut Fur Ziegelforschung Essen E.V. (Essen, Germany)
LFA	Logical Framework Analysis
LogFrame	Logical Framework
LPG	Liquid Petroleum Gas
LRC	Local Resource Center
MES	Military Engineering Services
M&E	Monitoring and Evaluation
MoEF	Ministry of Environment and Forests (the GEF focal point in India)
MCBTK	Moveable Chimney Bulls Trench Kiln
MTR	Mid Term Review
NGOs	Non Government Organisations
NIIST	National Institute for Interdisciplinary Science and Technology
NPD	National Project Director
PC	Project Coordinator
PSCST	Punjab State Council for Science and Technology
PDF	Project Design Facility (a GEF project development funding mechanism)
PFC	Project Facilitation Cell
PIRs	Project Implementation Reviews
PMU	Project Management Unit
ProDoc	Project Document
PSC	Project Steering Committee

PWDs	Public Works Departments
REBs	Resource Efficient Bricks
TERI	The Energy and Resource Institute
TOR	Terms of Reference
UNDP	UN Development Programme
VSBK	Vertical Shaft Brick Kiln

Annex B: Itinerary and People/Organisations Interviewed for MTR

Mission Schedule of Consultants, Mid Term Review (MTR) of Project "*Energy Efficiency Improvements in the Brick Industry*"

Date	Time	Place/ Meeting with	Relevance to MTR study	Contact
27th Feb 2012 [Monday] [**New Delhi**]	10 to 12noon	Dr Preeti Soni, Dr. S N Srinivas and Ms Chitra Narayanswamy 55 Lodhi Estate, UNDP, New Delhi 110003	Overview comments from EEU head	Ms. Manju Narang: 01146532216/09871342227 Ms. Chitra Narayanswamy: 07760946309
	3 to 4pm	**[Meeting will be conducted in Delhi at** **Shakti** Sustainable Energy **Foundation** Capital Court, 104 B/1, 4th Floor Munirka Phase -III New **Delhi** 110067] Of CEPT University, Centre for Sustainable Environment and Energy, Kasturbhai Lalbhai Campus, Navarangpura, Ahmadabad – 380 009	LRC Western Region	Mr. Rajan Rawal 079 – 2630 2470 ext 183 9825015779 e-mail: rajanrawal@gmail.com
28th Feb 2012 [Tuesday] [**Bengaluru**]	08:00 to 10.40 am	Delhi – Bengaluru (by Air)		
	11.00 am to 5pm	**1.** Sri Venkateshwara Bricks & Tiles Industry **[3.30 to 4.30pm]** Malur Narasapur Road Hungenahalli, Malur Taluk Kolar District **2.** Anjaneya Bricks (P) Ltd **[12.30 to 1.30pm]** No 230, Soukya Road Samethanahallli Hoskote (Taluk) Bangalore-560 067 **3.** Sri Marikamba Hardware Pipe and Bricks **[2 to 3pm]** Masti Road, Malur	Visit to Malur (directly from airport and back to Bengaluru in the evening) - REB manufacturers	1. Mr Venugopal Krishna 91-9448209586 2. Mr Dashrath Reddy 25356666, 25356667, 7945895, 27902611 anjaneya.tiles@yahoo.in 3. Mr Srinivas Murthy 91-9449696341
29th Feb 2012 {Wednesday] [**Bengaluru**	10 to 11.30 am	Wienerberger Brick Industry Pvt Ltd, 88/4 Richmond Road, Bengaluru -560 025,	Meeting with Weinerberger at Bengaluru - REB manufacturer	Mr Kundan Dighe 080-41491682-6 ext 212 Email: marketing@Wienerberger.in
	1:00 - 3:00 pm	TERI, 4th Main, Domlur II stage, Bangalore – 560 071	LRC (South)	Mr Yabbati Nagaraju 080- 2535 6590 e-mail: nagaraju@teri.res.in
	6:30 to 9:10 pm	Return to New Delhi (by Air)		
1st Mar 2012 [Thursday] [**New Delhi**]	9.30 to 12.00 noon	Mr N Vasudevan The Energy and Resources Institute (TERI), Darbari Seth Block, India	Responsible party to implement the project activities	Mr N Vasudevan Mob : 9871974187 Off: 011 2468 2100/ 41504900

		Habitat Centre, Lodhi Road, New Delhi - 110 003		
	2:00 to 4:00 pm	Sai Nath Tiles and Bricks Pvt Ltd Village Mathurapur, Tila Morh, Murad Nagar Pipe Line, Ghaziabad (UP)	REB manufacturer	Mr J K Oberoi 91-9311189389 Mr Sanjay Dadoo
2nd Mar 2012 [Friday] **Vadodara**	10:00 to 11.30 am	Delhi-Vadodara (by Air)		
	12:00 noon to 4:00pm	Jay Jalaram Brick Works Near RTO Office Godhra, Gujarat	REB manufacturer	Mr Tarun Hemrajani 91-9925670707
	8:20 to 9:50	Return to New Delhi		
3rd Mar 2012 [Saturday] [**Varanasi**]	09:35 to 10:50 am	Delhi – Varanasi (by Air)		
	1:00 to 5:00 pm	Prayag Clay Products Pvt Ltd S 4/32 A-1 Orderl Bazar Varanasi	REB manufacturer	Mr O P Badlani 91-9935111095
	5:00 to 7:00 pm	Int Nirmata Parishad, F-2(1), Ananta Colony, Nadesar, Varanasi – 221 002	LRC Eastern Region	Mr. Kamla Kant Pandey 9935540640
4th Mar 2012 [Sunday]		HOLIDAY and travel back to Delhi		
5th Mar 2012 Monday [**Chandigarh**]	07:40 Dep	Delhi-Chandigarh (by Train)		
	11 to 1 pm	Punjab State Council for Science and Technology (PSCST), MGSIPA Complex, Sector- 26, Chandigarh – 160 019	LRC Northern Region	Mr. Pritpal Singh 0172 – 2793300, 2793600 e-mail: prit_singh@yahoo.com
	2 to 5 pm	Bharat bricks Company, Derabassi, Mohali (Punjab)	REB Manufacturer	Mr. Kulbhushan, 9814008476
	6:23 pm Dep from Chandigarh	Return to New Delhi		
6th Mar 2012 Tuesday [**New Delhi**]	Whole day	MTR team prepares its preliminary findings		Dr Sameer Maithel: 9811392256
7th Mar 2012 [Wednesday]	10 to 1pm	Meet with relevant stakeholders – Presentation by MTR team; presentation by sector experts; discussion with relevant stakeholders on way forward [venue to be confirmed] NPD, Mr R.R. Rashmi AND GEF-OFP, Mr Hem Pande/Dr Nayanika Singh Will be participating in the meet	Meeting with relevant project stakeholders on findings of the MTR mission & way forward	Dr Nayanika Singh: 9810254814

Contacts
UNDP: Dr SN Srinivas: 9818844798/ Ms. Chitra Narayanswamy: 07760946309/ Ms. Manju Narang: 01146532216/09871342227
Consultants: Dr Sameer Maithel: 9811392256; Frank Pool: +64 21 457 789
TERI: Sachin Kumar: 41504900/24682100

Annex C: List of Documents Reviewed

(2-2) II 120110 BTOR Brick Varanasi SN Srinivas
(2-3) III Bangalore 28-29 June 2010
(2-4) IV BToR -BLR and Varanasi-Jan-2012
(2-5) V BTOR Chandigarh 10 Mar 2011
(2-6) VI BTOR SN Srinivas Chandigarh 10-11 mar 2011 brick
(9-1) I DPR_100 lakh REBs (North India)
(9-2) II DPR_100 lakh REBs with drier (North India)
(9-3) III DPR_25000 bricks per day (South India)
(9-4) IV DPR_75000 bricks per day (South India)
(9-5) V DPR_ Less than 50 Lakhs bricks (North India)
3 FINAL-QPR-April-June-2010-CC
4 BRICK PO REPORT 3RD QTR 10
5 Final-GEF QPRs-Oct-Dec-2010-CC
5 PO REPORT BRICK 1ST QTR 2011
7 brick-po-q3-2011
2001-02 FSP Documents
IND Brick 20110509 Q1 2011 QPRs for 6 UNDP-GEF CC Projects
IND Brick EE 20050531 PDFA Application
IND Brick EE 20080311 MSP Revised CEO Endorsement India Brick
IND Brick EE 20080403 GEF Clearance & CEO Approval - Incl extra 10% for IA
IND Brick EE 20090405 FACT-SHEET-BRICK-MARCH-2009
IND Brick EE 20090615 AWP to Dec 2009-Brick-signed for $119k
IND Brick EE 20090904 1st PSC Meeting Minutes
IND Brick EE 20091016 TERI Sth REB Exposure visit to Kerala - 10 October 2009
IND Brick EE 20091109 Inception Workshop Minutes
IND Brick EE 20091215? AWP for Calendar 2010-Brick- as signed - for $218k
IND Brick EE 20100121 PO REPORT 4TH QTR 09
IND Brick EE 20100323 2nd PSC Meeting Minutes
IND Brick EE 20100419 PO REPORT 1ST QTR 10
IND Brick EE 20100421 QPR 4th qtr 09
IND Brick EE 20100610 Awareness Workshop Minutes - Varanasi
IND Brick EE 20100705 3rd PSC Meeting Minutes
IND Brick EE 20100707 BTOR for A Arora Visit to Bangalore 28-29 June 2010
IND Brick EE 20100713 PIR to 30 June 2010 Final
IND Brick EE 20100804 PO REPORT 2ND QTR 10
IND Brick EE 20110106 4th PSC Meeting Minutes
IND Brick EE 20110209 AWP-2011- for $212k
IND Brick EE 20110310 BTOR Chandigarh Workshop Feedback - Srinivasan et al
IND Brick EE 20110318 BTOR SN Srinivas to Chandigarh International Workshop
IND Brick EE 20110318 Summary BTOR for SN Srinivas Participation in Chandigarh International Workshop on 10 Mar 2011
IND Brick EE 20110707 Details of TERI Professional Inputs
IND Brick EE 20110712 Direct & Indirect CO2 Reduction Estimates - TERI - Vasu
IND Brick EE 20110715 PIR to 30 June 2011 Final

IND Brick EE 20110724 TERI Manpower utilisation details with costs - for Audit Results Understanding
IND Brick EE 20110727 Brief note on Wienerberger factory visit
IND Brick EE 20110727 UNDP GEF CC QPRs Q2 2011
IND Brick EE 20110729 2nd QPR2- WITH PO COMMENTS
IND Brick EE 20110921 UNDP PO Notes for Brick project PSC on 22 Sept 2011
IND Brick EE 20110922 5th PSC Meeting Minutes
IND Brick EE 20120103 BTOR Bangalore Visit for SN Srinivas & N Singh
IND Brick EE 20120103 Q4 2011 QPR with UNDP PO Comments Added
IND Brick EE 20120110 BTOR Varanasi LRC & Brick Visit - SN Srinivas & N Singh
IND Brick EE 20120130 BTOR w Tentative Conclusions for Bangalore & Varanasi Visits by SN Srinivas & N Singh
IND Brick EE 20120305 LRC North Presentation by PSCST
IND Brick EE 20120308 BTOR Brick discussions with IISc - SN Srinivas
IND Brick EE MTR 20111103 TOR for 10 Nov Deadline Consultancy Proposal
IND Brick EE MTR 20111229 TOR for 11 Jan 2012 Deadline Consultancy Proposal
IND Brick EE MTR 20120224 Stakeholder Meeting Notice- for 7th March
IND Brick EE MTR 20120229 LRC South TERI Bangalore Presentation
IND Brick EE MTR 20120301 TERI presentation on Current Project Status & Plans
India - Black Carbon from Brick Kilns & Its Mitigation - Economist Online - Feb 2012
India - Cleaner Brick Production Roadmap Executive Summary - Greentech et al - Jan 2012
India - Embodied Energy of Common & Alternative Building Materials & Technologies - BVV Reddy & KS Jagadish - Energy & Buildings 35 (2003)
India - REBs in Jay Jalaram Gujarat Profiled in TERI Sameeeksha March 2012
TERI - I Approach paper on Market for REB products
TERI - II Barriers and options for accessing finance by brick kiln entrepreneurs- June 2011 - Shailesh Modi
TERI - III Note on mason training programme - 13 April 2011
TERI - IV Paper on use of Fly ash for clay brick making
TERI - VI project brochure
TERI - VII Report on benefits of using REBs - CEPT
TERI - X Suitability of clay for REB production - April 2011 - NIIST
TERI - X Web based manual for using REBs in construction
VSBK -Saga of Herculean Task of Cleaning up Asian Brick Industry - by Urs Heierli & Sameer Maithel - SDC - April 2008

Annex D: Mid Term Review Initial Feedback Presentation

UNDP-GEF India Energy Efficient Brick Making – Mid- term Evaluation Preliminary Findings

Frank Pool
Clean Energy Consultant, New Zealand
Dr Sameer Maithel
Greentech Knowledge Solutions, India
New Delhi, India - 07 March 2012

•1

India – Current Brick Making Situation

- 200 billion 99.5% hand molded solid clay bricks/year – bricks are low density & strength, 10 million poorly paid laborers working in appalling 18th century working conditions, rising labor costs & labor scarcity
- 100,000 brick kilns in India – only 35,000 are the larger FCBTK kilns
- Limited brick making financial, managerial, technical, institutional capacity
- Some local use of non-clay materials - fly ash, boiler/furnace coal waste
- Loss of productive farmland, high local and global pollution
- Strong growth for next decades with urbanisation & economic growth
- Minimal government modernisation knowledge/focus cf China & Vietnam
- Limited knowledge of practical & specific mechanisation options
- Mechanisation is a prerequisite for labor productivity, improved brick quality, reduced clay use, insulated bricks/blocks, year round production
- Key is clay preparation, extruders, drying sheds/dryers, power supply

•2

The Project's Development

- 2002-2003 $5 million GEF-3 funded India Brick EE project developed by TERI – to improve brick firing EE via improved kiln firing, institutional capacity building, firemen training, demonstrations
- 2004 – 2005 large project replaced by new smaller $700,000 GEF project concept developed by TERI - focusing now on REBs
- April 2008 GEF CEO project approval for $700,000 GEF project
- Sept 2009 Inception Workshop & project started, TERI as PM
- GEF funding purpose was to reduce GHG emissions
- National drivers coal saving, reduced pollution, reduced clay use
- New project focus on REBs (Resource Efficient Bricks) comprising perforated bricks, hollow blocks and fly ash and boiler/furnace waste bricks, new and improved technologies
- Goal to improve EE of five brick making clusters (regions) covering all of India

•3

Overall Key Project Design Features

•Project components: -

1. Enhancing public sector awareness (5% of GEF budget)
2. Facilitating project finance access to brick Kiln entrepreneurs (11%)
3. Developing of knowledge on technology and marketing (16%)
4. Availing efficient technology models in five clusters for demo projects (42%)
5. Enhancing capacity of brick kiln enterprises (7%)

•$1.85 million in-cash private sector co-financing, $145,000 from TERI

•No government co-financing from Center or States

•Four year project duration

•Implementation was to be primarily through five LRCs covering all of India

•4

Project Progress to Date

- 40 workshops/meetings
- 1600 brick entrepreneurs, 200 architects/builders, 150 govt officials
- REB structural stability study underway with IIT Roorkee
- Soil suitability study completed & on website
- Study on accessing finance completed & on website
- 5 standardised brick maker DPR templates prepared to get loans
- Some facilitation of production of REBs at 9 brick plants
- On-site technical guidance to brick plant entrepreneurs by NIISR (India) & IZF (Germany)
- 20 masons and contractors trained.
- Manual on REB construction practices prepared & on website
- Usable, populated and updated project website

•5

Current Project Status

- LRC North in Chandigarh is pro-active, has been working in field since 1997, has strong technical capacity & longer term sustainable interest, has close industry & government links
- LRC East in Varanasi, strong local ownership, project awareness focus, area lacks extruders, has no dedicated staff, post project sustainability?
- LRC South some useful activity, lacks tech staff skills, is most promising region for REBs, lacks strategic focus, no funding beyond project-end, opportunity to piggyback on Weinerberger hollow blocks not yet realised
- LRC West was default choice, research focused – has minimal outreach
- LRC North-East – never started in practice, too late to start it now
- 12 demo approach too ambitious and not really achieved, no longer a viable option as lack of project resources and inadequate time left
- Need to refocus now on wider replication support approach

•6

Preliminary Recommendations for Project Next Phase

1. Replication focus on hollow block entrepreneurs support- to piggyback on Weinerberger's hollow block market already created in South India
2. Partner with Weinerberger in mason training, architect and engineer site visits, hollow block market awareness and training
3. Focus on BIS standards updating process, timeframes, champions
4. Explicitly focus on extruders and dryers as key technical elements for project technical support – especially hands-on tech sourcing & O&M assistance for entrepreneurs and training for LRC technical staff
5. Assist study tour by key technical staff & interested brick entrepreneurs to Bangladesh/Vietnam/China to upskill their extruder knowledge & help them source specific, affordable & maintainable extruders
6. Strengthen & prioritise funding on LRC North & LRC South, need a new explicit clear end-of-project replication real results focus
7. Refocus PMU on: - hands-on strategic leadership & also cost-effective project management staff inputs
8. Government to consider co-funding project for impact & sustainability
9. Start planning for 13th Five-year Plan/National Initiative on EE/REB perforated bricks/hollow blocks using clay and industrial wastes

•8

Overall Project Assessment/Findings

- Project design too ambitious for such a small project and such a huge and unorganised sector – project ambition not scaled back enough from $5 million prior project design without extra government co-funding
- Lack of parent government department ownership, no govt co-funding
- Inadequate focus and no specific funding support for proposed flagship demonstration projects
- Project funding for flagship LRCs only 25% of expenditure to date, no extra technical staff funded for LRCs
- Subcontracts for studies 10% of expenditure to date
- Project management costs appear to be too high for such a small project
- IIT Roorkee work on clay brick properties is critical but real status unclear
- Updated BIS perforated bricks/hollow blocks standards critical to unlock Centre & State government purchases – status, plans, integration unclear
- Project activities are spread too thinly over too many activities and regions

•7

Development History of EE in India Brick Sector

- Some mechanisation in South India from 1870's, but only replicated in clay roof tiles, not in bricks
- Mechanisation attempts in India from early 1970's, limited sustainable success, minimal replication, extruded brick BIS standards developed but are now apparently outdated
- Early 1970's zigzag kiln concept introduced from Germany via Australia – ongoing steady uptake, now accounts for approx. 5% of brick production
- CBRI introduced zigzag kiln in North India, limited impact
- 1996 – 2002 – 30,000 traditional (1858/1873 design) MCBTK converted to FCBTK for pollution control, 15% EE gain as a by-product
- 1996 started VSBK tech transfer from China – limited success in India
- One large modern world best practice plant opened near Bangalore, now successfully mass producing hollow blocks (Weinerberger)

•9

Preliminary Assessment of Results

- Relevance – project is providing general support for REBs & some support for industry mechanisation - both of which are highly relevant to India's energy needs (highly satisfactory)
- Effectiveness – considering positive opportunity of Wienerberger's hollow blocks in the South, & wider interest in mechanisation, project implementation progress is disappointing as potential has not yet been capitalised on (marginally satisfactory)
- Efficiency – resources not focused on priorities & too many resources appear to be devoted to project management for such a small project (unsatisfactory)
- Impact – only 9 of scheduled 12 demonstrations not realised, demo results not fully due to project activities, limited technical training or capacity developed or institutionalised (marginally satisfactory)
- Sustainability – current activities should continue to make an impact post project end. However, current institutional structures are unlikely to continue post project-end with current approach (satisfactory)

•10

Annex E: MEETING NOTES

Meeting Notes

Date: 27 Feb 2012 ; 10:00 -13:00 hrs
Place: UNDP office
Persons met: Dr S N Srinivas, Ms Chitra Narayanswamy
1. Briefing on the project and handing over of the hardcopies of the documents. 2. The mission ends with a stakeholders workshop organised by NPD office (Jt. Secretary, MoEF). The main objective of the meeting is to push the regulatory agenda for REBs. Thus, the presentation by the Consultants should be broader: putting the present project in perspective w.r.t to brick industry/construction sector, findings of the mid-term evaluation, and the way forward for the industry. 3. Some specific expectation from the evaluation a. LFA: Weak LFA; issue of baseline; how do we set right the LFA? b. LRCs: Sustainability of the LRCs c. Auditors observation on the high manpower cost charged by TERI and its impact on the implementation of the project. d. Demonstration units: What is the definition? Can units already producing REBs before the beginning of the project be shown as project units? Can we claim full GHG benefits of such units? e. AWP 2012 not agreed, waiting for inputs from MTR

Date: 27 Feb 2012 ; 15:00 -16:30 hrs
Place: Shakti Foundation office
Persons met: Prof Rajan Rawal, CEPT University
1. CEPT University is the Local Resource Centre (LRC) for Gujarat 2. TERI approached CEPT in early 2010 with a proposal to become LRC for Gujarat • The agreement was done in a hurry and CEPT did not know fully the role of LRCs as proposed in the project document. • CEPT agreed in principle. Coming more from the usage side of bricks it identified 3 main roles for itself • Construction technology i.e. application of REBs • Study the effect on operational energy of buildings due to use of REBs • Capacity building • Additional roles like liaising with the state government agencies for increasing application of REBs; a report on DPR, cluster-level meetings, etc. 3. Interaction with brick industry has been a struggle; the project team is partly aided by the faculty engaged in running the MBA programme on Technology Management. 4. Status of REB manufacturers in Gujarat • Out of 6 identified manufacturers, only 2 have put up the manufacturing facilities for REBs • Out of these two, the unit at Morbi has stopped production of REBs, while the other one at Godhara (Jay Jalarm) is producing perforated bricks. Thus the production of hollow blocks is close to nil. 5. In CEPTs opinion hollow blocks (200 x 200 x 400 mm) have better acceptability and

benefits compared to perforated bricks (230 x 110x 75). The benefits include better insulation, faster construction, better finish, less mortar use, etc

6. The Gujarat State Road and Bridges Department look towards CPWD for directions. So influencing BIS and CPWD is more important. CEPT is trying to help TERI with all required support, but has limited influencing ability itself in Delhi.
7. Research studies
    - Energy simulation (2010) to calculate operational energy savings by use of hollow blocks (Weinerberger made). The tested U value of Weinerberger block is 1.19 W/ m2/ K
    - Comprehensive study (2011) to document all the benefits of REBs (finish, productivity, less mortar, etc).
    - Construction of 2 test beds (small rooms of 9 sq. M) to measure the effect of REBs in terms of thermal comfort and operational energy.
8. Project's approach to showcase work of a prominent architect on use of hollow products has backfired as he has used hollow products more from decorative/ aesthetic point of view rather than as structural material.
9. Overall assessment and suggestions
    - Project may focus on assisting construction of a few mainstream buildings like residences using REBs in Gujarat.
    - The project may look beyond clay and expand the definition of REBs
    - The discussion only with clay brick makers is not yielding desired results
    - Diverse set of LRCs. Except CEPT and PSCST, other LRCs do not have the ability to contribute during the project meetings.
    - PFU functioning requires improvement. The project requires better coordination by PFU to leverage the entire knowledge base and connections within TERI, MoEF and LRCs.

Date: 28 Feb 2012 ; 12:00 -13:30 hrs

Place: Anjanaya Bricks, Hoskote

Persons met: Mr Dasrath Reddy

- Current Production
    - Has been making hollow products for almost a decade.
    - Produces around 2500 blocks/day (capacity of the present extruder in use)
    - Two sizes
        - 200x150x400 mm (8 kg weight) – 9 holes – Rs 28-30/block
        - 200x100x400 mm (5.8 kg weight) – 6 holes – for use in internal walls
    - Plans to use an existing larger capacity extruder which can produce 8000 blocks/day. Suitable cutting table yet to be commissioned.
    - Hoffmann kiln capacity to fire 3000-4000 blocks per day
    - Drying is the main constraint, looking for a suitable dryer. Have been told by one of the European supplier that a dryer would cost around Rs 30 million. Presently dries brick on the ground.
    - To expand the production following upgrades are required
        - Cutting table
        - Material handling mechanisation
        - A dryer
        - New Hoffmann kiln

- Family in business for 150 years. Started production on this site in 1978
- UNDP project interface (main contact person is Mr Satyanarayana Rao)
    - He has participated in interaction with Architects and Engineers on application of hollow blocks and has got support for the design of die for extruder.
- Main expectations from the project
    - Urgently requires technical assistance for drying
    - Assistance to organize a visit to China

Date: 28 Feb 2012 ; 14:30 -16:00 hrs

Place: Sri Marikamba Bricks, Malur

- Current Production
    - Wire-cut solid bricks – 20,000 per day
    - Tiles: 6000/day
    - Table moulded bricks – 10,000/day
    - Stoneware pipes
    - Has 6 Hoffmann kilns, out of which 3 are dedicated to stoneware pipes
    - Large tin roofs for providing shade for brick drying, seems to have expanded very fast in last 5-6 years and is putting in large investments
- At the time of the visit, was not producing any hollow blocks. Seems to have made a few thousand blocks in 2010 or 2011. Showed construction work for extending a roof shading area, which he may use for hollow block production.
- Main expectations from the project
    - Visit to China
    - Facilitating construction of houses to showcase hollow blocks in nearby area

Date: 28 Feb 2012 ; 16:30 -18:00 hrs

Place: Sri Venkateswara Bricks

- Current Production
    - Has 3 Hoffmann kilns producing around 10,000- 12,000 bricks/kiln for 250 days a year.
    - Market for wire-cut bricks has been good for last 1.5 years due to sewer work in Bangalore. Sells solid wire-cut bricks at Rs 7/ brick. This is one of the reasons for less interest in producing perforated/ hollow bricks.
- He has 5 extruders, out of which 1 is a de-airing extruder. He has produced 20,000 blocks, but is currently not producing blocks. Current extruder can make around 2000 blocks/day. Selling price for a 200 x 150 x 400 mm block is Rs 28/ block
- Is extending his Hoffman kiln from 24 to 34 chambers. Said that he is considering to restart hollow block production, but he is not satisfied with the quality of hollow blocks produced by him and really requires a better extruder.
- Main expectations from the project
    - Technical assistance for drying
    - Visit to China : Rs 40 lakh Chinese extruder (including rollers, mixer, extruder and turn-key installation) which can make around 6000 bricks/hr or around 10,000 blocks per day

- As per his estimate, at Malur around 25 brick units have extruders – 15 make tiles and around 10 make wire-cut bricks

Date: 29 Feb 2012 ; 10:00 -11:30 hrs

Place: Weinerberger Office

Persons met: Mr Kundan Dighe

- Current production
  - Most advanced Weinerberger plant in the world with Chamber dryer and a tunnel kiln based on pet coke and LPG
  - Production: 40,000 blocks/ day (200 x 200 x 400 mm)—weight 11 kg – price Rs 49/ block – Assumed U value 1 W/m2/K
  - Also make smaller block of 200 x 150x 400 mm – price Rs 42 / block
  - Current production 440 tons/day - fully booked for next 1 year
  - Have plans to add 50% more capacity in the existing plant by June 2012 and start new 660 tons/ day factory in Tamil Nadu
- Have trained 4500 people (80% masons, 20% plumbers and electricians). Started with training at their plant, but have now shifted to on-site training.
- The current market
  - 40% individual houses in 2/3 tier cities – Belgaum, Bellary, Hubli, Mysore, Madurai. Main reason for buying – thermal comfort
  - 60% to high-rise flats to builders and developers in Bangalore, Chennai, Cochin. Main reason for buying – reduction in weight and lower construction cost
  - Some sales as far as Nagpur and Bhubaneswar
- Current estimation of the market for REBs (2012)
  - Weinerberger – 20 million blocks
  - Rest (8-10 manufacturers in Karnataka and Kerala) -2 – 4 million blocks
- New products
  - Blocks filled with insulation (rock wool for high-end residential market)
- Would like some competition as it may help in expanding the market
- Have helped the UNDP-GEF project in following ways
  - Allowing visits of brick makers to Weinerberger factory
  - Participation in Chandigarh workshop
  - 1 masons training programme
  - Supplied blocks for the research study at CEPT
- Suggestions for the project
  - The project effort are diluted, should focus on regions having better market potential. The efforts may be better focused on South India to create both demand and production of REBs.
  - Ready to extend training support/facility to the project in future also.

Date: 29 Feb 2012 ; 12:30 -14:00 hrs

Place: TERI Bangalore

Persons met: Mr Y Nagaraju (Field Manager,TERI), Mr H S Sathyanarayana Rao (Consultant with LRC, Bangalore), Mr Girish Sethi (Director, TERI)

- Main activities by the Southern region LRC are:
  - Exposure visits for brick-makers (4 numbers)
  - Facilitating participation of brick-makers in conferences (3 numbers)

- Project events
    - Regional workshop on "Promoting Resource Efficient Bricks (REBs) in southern region"
    - Focus group discussion on "use of resource efficient bricks in construction sector"
    - Architects visit to Brick making units in Malur
    - Masonry training programme at Weinerberger
- Facilitation of production of REBs in 4 brick manufacturing units
    - None of the units is in continuous production of hollow blocks, but it is expected that soon they will be able to start continuous production.
    - Facilitation provided in terms of exposure, specific technical assistance e.g. design of die for extruder
- It may be possible to shift 4-8 other manufacturers having extruders to experiment with hollow blocks production by end of 2013
- Around 10-15 brick-makers are interested in visiting China for sourcing of machinery, extruders, drying systems, material handling, etc.

Date: 1st March 2012 ; 09:30 -12:00 hrs

Place: TERI, New Delhi

Persons met: Mr N Vasudevan(Sr. Fellow, TERI), Mr R Johri (Sr, Fellow, TERI), Mr Sachin Kumar (Fellow, TERI)

- The market for REBs is in a nascent stage
- Some of the main barriers in production of REBs are financing, insufficient technology suppliers in the country to cater for large market with different production capacity, resistance/low awareness for use of new building material by the end-users
- REB production in the demonstration units has been around 30 – 40 % as against 75 – 85 % as envisaged in project document. Gestation period for adoption of technology for REBs is high. Investments by entrepreneur therefore project has limited control on production of REBs
- Outcome 1: Report on Structural Stability of REBs by IIT, Roorkee expected by March 2012. This would be one of the key steps.
- Outcome 2: 5 DPRs prepared covering different production capacities. This has led to a better understanding of financial institutions/ banks on REBs and Karnataka State Financial Corporation and Corporation Bank have approved DPRs.
- Outcome 3: Report on the study using simulation modeling to showcase the material and monetary savings with REB use has been prepared. 4 B2B meetings organized between Technology Suppliers and brick kiln entrepreneurs which consisted of 2 Indian manufacturers, 9 European manufacturers and 1 Chinese manufacturer. Two manuals on better construction practices using REBs: (1) Web- based and (2) booklet. Exposure visit of architects / builders on REB production site. REB stall put up in 3 exhibitions including India International Trade Fair
- Outcome 4: Facilitated production of REBs in 9 units. The main support provided included: strengthened their confidence in REBs, supported marketing efforts, testing of their products, technical inputs by sectoral experts
- Outcome 5: Brick kiln entrepreneurs exposed to REB production through five exposure visits to REB producing sites. 33 Brick kiln entrepreneurs, 18 masons

and 2 contractors trained on REB use in construction at Wienerberger Mason Training Facility, Bangalore. 16 cluster meetings and 11 exposure visits for brick kiln entrepreneurs

- Project focus in the remaining duration: Market strategies for REBs; Providing support to REB production units to enhance their REB production; Focused interactions with lead banks at regional level; Facilitate inclusion of REBs in the bill of materials of government departments.
- LFA: As per TERI, the LFA was prepared by UNDP, they had limited/no role in its preparation. After 2-years of implementation TERI has proposed a revised LFA, but they are still awaiting response from UNDP/ MoEF

Date: 1st March 2012 ; 14:00 -17:00 hrs

Place: Sai Nath Tiles and Bricks Pvt Ltd, Village Mathurapur, Tila Morh, Murad Nagar Pipe Line, Ghaziabad (UP)

Persons met: Mr J K Oberoi

- The owner of the plant is a builder. Started work on the project in 2009. The plant was put-up for self use as have an order in Noida which specified use of 3 holes extruded bricks
- Sourced the machinery from China through a brick maker from Rajasthan
- The total project cost is around Rs 20 million, out of which the cost of the machinery (extruder, clay preparation, drying sheds) is Rs. 1.2 crore, while the cost of the High Draught Kilns is Rs 2.5 – 3.5 million
- Presently making around 40,000 bricks/day (40% hand – moulded and 60% Extruded). Has no immediate plan to manufacture hollow blocks.
- Has received some tips on drying of bricks from one of the technical experts from the project.
- The main role of the project should be to get perforated bricks/ hollow blocks included in the Government rate contract.
- The unit is located in one of the largest brick making cluster of several hundred brick kilns. Several brick makers have visited the industry during last 3 years, but none of them has adopted the technology.

Date: 2nd March 2012 ; 14:00 -17:00 hrs

Place: Jay Jalaram Bricks, Godhara

Persons met: Mr Tarun Hemrajani

- One of the largest brick manufacturers in Western India
- Daily production capacity: 200,000 hand moulded bricks; up to 40,000 extruded bricks.
- Through extruder they are making solid and perforated bricks. May plan hollow block production in future.
- Through initiatives of Mr Anand Damle (of De Boer Damle), he visited Algeria and Europe around 2009 and was able to see a large number of clay products and machinery.
- Through his own efforts has sourced some fresh and some refurbished machinery from Europe. They have recently also imported and installed a chamber dryer
- The contact with the UNDP-GEF project has been limited. The main event for him was the visit to the Weinerberger plant in August 2011.
- The factory has made a total of around 6 million perforated bricks so far in 2010

and 2011. A large part of these are sold for housing in small towns and rural areas because of their perceived better thermal performance.
- Not much interaction with the local LRC (CEPT). But he feels that CEPT can potentially play an important role in influencing alumni (Architects) about REBs

Date: 3rd March 2012 ; 12:00 -16:00 hrs
Place: Prayag Bricks, Varanasi
Persons met: Mr O P Badlani

- One of the largest brick manufacturers in Eastern UP (Uttar Pradesh) and the only manufacturer of extruded bricks in eastern UP.
- Annual production capacity is around 15 -20 million bricks/ year. Out of which a small percentage (around 5%) are perforated bricks and hollow blocks.
- Has been producing REBs since 2005-06 using a small Indian made extruder
- Through initiatives of Mr Anand Damle, he has visited Vietnam, Algeria and Europe and was able to see a large number of clay products and machinery.
- He has recently invested in a modern soft-mud moulding machine supplied by De Boer Damle.
- All his 3 kilns are natural draft zig-zag kilns and are more efficient compared to traditional BTKs.
- He operates a biomass gasifier plant to operate DG (Diesel Generator) set in dual-fuel mode to produce electricity for the operation of the extruder.
- He has got some support from the project in market development through participation in exhibitions and seminars.

Date: 3rd March 2012 ; 16:00 -17:30 hrs
Place: Int Nirmata Parishad (INP), Varanasi
Persons met: Mr K K Pandey (President), Mr O P Badlani (Vice President)

- Int Nirmata Parishad is the association of brick makers of Varanasi district. The total number of members is around 80.
- INP is one of the progressive brick owners associations in the country which has done pioneering work in the brick industry under the leadership of Mr K K Pandey.
- INPs relationship with TERI goes back to the year 2000, when it started collaborating with TERI under the Swiss supported VSBK project.
- INP is the LRC for the Eastern region. It is a local Association; it does not have any permanent staff. Its role so far has mainly been to organize a few awareness programmes for brick makers, architects and government officials.
- The region has only one REB producing unit (Prayag Bricks) and the possibility of any other manufacturer investing in an extruder to produce REBs in the remaining project duration in low.
- The financial support from TERI/ PFU is primarily for organizing events, absence of funds for hiring full/part-time staff (preferably a technical person) is a barrier in INP playing a bigger role in the project.

Date: 5th March 2012 ; 11:00 -14:30 hrs
Place: Punjab State Council for Science and Technology, Chandigarh
Persons met: Mr S K Jain, Mr Pritpal Singh, Dr N Jerath

- PSCST is a Government of Punjab agency which is in existence since 1983. The consultancy wing of the PSCST has a long experience of working with small and medium enterprises in finding environmental pollution control and energy efficiency solutions. PSCST has been working with brick sector since the mid-1990s and has provided technology for the retrofit of around 2500 moving chimney BTKs.
- It is the LRC for the north region - Punjab, Haryana, Himachal, J & K (Jammu and Kashmir), north Rajasthan.
- There are a few brick manufacturers located around Chandigarh who have been operating extruders for almost 2 decades or so.
- Due to shortage of labour a number of brick manufacturers are looking for cheap machinery for brick making. Small and cheap soft mud moulding machines imported from Pakistan or manufactured in India have been purchased by many brick makers, but these machines have not performed very well.
- PSCST had organized an International seminar on brick industry in March 2011 with part-support from UNDP/GEF project in which several European manufacturers had participated and seminar was attended by around 500 brick makers. However, there are no takers of European machines as the general feeling amongst brick makers is that these machines are 5-10 times too costly for use in India.
- Due to the cost factor, there is a significant level of interest in extruders from China. The total cost of the extruder and clay processing machinery is around Rs 15-20 million, and according to PSCST estimates around 10 brick makers would have commissioned Chinese extruders by mid 2013. However, it is not certain that how many of these with extruders will opt for REB production.
- PSCST has prepared an Excel spreadsheet to help brick manufacturers in carrying out financial analysis for extruder plants.
- PSCST has also played a major role in sensitizing state government officials from Punjab, Haryana and Chandigarh on REBs. They are hopeful that the experimental work being done at IIT Roorkee and subsequent acceptance by CPWD would help them in convincing state PWDs to use REBs on a pilot basis. But they are aware that this is a long process and can even take a few years.
- They feel that the budget allocated to them under the UNDP-GEF project to conduct activities as LRC is less than what is required to cover their costs. They see a long-term role for the organization in the sector and that is one of the main reasons for them working very actively on the project despite limited financial support.
- They would like that capacity building of LRCs should be an important agenda of the UNDP-GEF project. Until and unless LRCs are technically capable, it would not be possible for them to support brick makers. They would like that under the UNDP-GEF project an exposure trip to China and Bangladesh should be organized for selected staff of LRCs.

Date: 5th March 2012 ; 13:30 -15:00 hrs

Place: Bharat Bricks, Dera Bassi

Persons met: Mr Kulbhushan

- Extruder installed in 2001-02 (sourced from within the country). Capacity – 2000 bricks / hr or around - 15000 brick /day (one shift working).
- For several years made only solid extruded bricks, and only later started making perforated bricks.
- The main issues in extruded bricks manufacturing are: maintaining uniform quality, drying and marketing, as the product acceptability is still low. They are in the process of extending drying shed so as to increase the production of the extruded bricks. In recent

years, instead of focusing on Delhi/ NCR market, they are trying to develop market in the nearby areas. A majority of their sales of extruded bricks is to institutions or private residences (opting for facing brick work)

- During 2011, they have manufactured around 2.5 million extruded bricks in which 95% of the production was for 3 hole extruded bricks.
- There are 3 more brick-manufacturing units having extruders in the nearby areas and the total production of extruded bricks is around 10 million bricks/ year in the region (around Chandigarh).
- They have received support from the project in market development activities, some of the tips provided by Mr E Rimple (the expert from Germany who visited as a resource person from the UNDP-GEF project) has been helpful in the preparation of clay and improvements in drying.
- They are using a High draft kiln for firing of bricks. The specific fuel consumption is around 11 tons of fuel/ 100 000 bricks

Annex F: Financial Planning Co-Financing

Co financing (Type/Source)	**IA Own Financing (million USD)**		**Government**		**Other* (million USD)**		**Total (million USD)**		**Total Disbursement (million USD)**	
	Planned	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
- Grants	0	0	0	0	0	0	0	0	0	0
- Loans/ Concessional (compared to market rate)	0	0	0	0	0	0	0	0	0	0
- Credits	0	0	0	0	0	0	0	0	0	0
- Equity investments	0	0	0	0	18,54,000	2,58,000	18,54,000	2,58,000	18,54,000	2,58,000
- In-Kind support	0	0	0	0	1,45,000	NA	1,45,000	NA	1,45,000	NA
- Other (*)	0	0	0	0	0	0	0	0	0	0
Totals	**0**	**0**	**0**	**0**	**1999000**	**258000**	**1999000**	**258000**	**1999000**	**258000**

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Notes:

1) As per information provided by the PFU, a total investment of US$ 1.29 million has been made by 10 brick factories. No further details about, factory wise investment has been provided to the MTR team. During the visits to the kilns, MTR team has noted that 8 kilns had made investments in extruders prior to the starting of the project. The MTR team has taken a causality factor of 20% to calculate the equity investment that can be attributed to the project efforts.
2) TERI as the Executing Agency was supposed to make an in kind contribution of US$ 145,000; No details are available about this contribution

Annex G: Evaluation Terms of Reference

INDIVIDUAL CONSULTANT PROCUREMENT NOTICE

Date: 3 November 2011

Country: INDIA
Description of the assignment: International Consultant for MID TERM REVIEW
Project name: Project 3465 – Energy Efficiency Improvements in Indian Brick Industry
Period of assignment/services (if applicable): 30 working days
Proposal should be submitted at the following address: Procurement Division, United Nations Development Programme, 55 Lodi Estate, New Delhi-110003 or by email to ic.in@undp.org no later than 10th **November 2011**.

Any request for clarification must be sent in writing, or by standard electronic communication to the address or e-mail indicated above. UNDP, India will respond in writing or by standard electronic mail and will send written copies of the response, including an explanation of the query without identifying the source of inquiry, to all consultants.

1. BACKGROUND

UNDP is one of the GEF agencies operational in India and supports the Government of India in its vision to achieve faster, and more inclusive growth. Guided by the Millennium Development Goals and the vision of the Eleventh Five Year Plan, UNDP promotes social, economic and political inclusion for the most disadvantaged. The UNDP Energy and Environment (E&E) Unit works towards the goal of low-carbon, climate resilient development in India. The E&E unit supports the Indian Government to meet national commitments under the Convention on Biological Diversity, the Convention to Combat Desertification and the UN Framework Convention for Climate Change. The unit builds national capacity for conservation and sustainable use of natural resources, for expanding access to clean energy, for energy efficiency and management of polluting chemicals. Working closely with the UNDP, the **Ministry of Environment and Forests** (MoEF) is the Operational Focal Point for GEF with respect to the Government of India. Within the MoEF, the GEF Cell in the International Cooperation (IC) division is responsible for handling the GEF projects. The Joint Secretary (IC), is the GEF Operational Focal Point for India.

Cross-cutting themes of specific interest are capacity development, inclusion, technical support and South-South cooperation. In the thematic area of 'Energy and Environment', UNDP works in close alignment with the National Action Plan for Climate Change on energy efficiency and renewable energy. On these sub-themes, UNDP works with various stakeholders including national and state governments, local governments, community institutions, NGOs, technical

support agencies etc. On energy efficiency, the context of this assignment, UNDP works on specific sectors/technologies with major energy consuming industries and on major uses such as electricity and transportation.
One of the projects in this area, namely, "Energy Efficiency Improvements in Indian Brick Industry" has completed half of its term and is due for mid-term evaluation. The project was conceptualized against the backdrop of the construction sector in India contributes significantly (as much as 10%) to the country's GDP and registers an annual growth of 9%. In effect, it leads to generation of considerable demand for bricks in the country, as a consequence of which, India happens to be one of the largest producers of burnt clay bricks in the world, second only to China. The total annual brick production in India exceeds 140 billion consuming about 24 million tonnes of coal, in addition to a very large quantity of biomass fuels. The quantum of carbon dioxide emissions, as a result of this brick making activity touches 41.6 million tones, which is almost 4.5% of the total GHG emissions from India. Further, brick-making also contributes to depletion of good quality top-soil: estimates point towards utilization of almost 350 million tones of top soil every year.

Several clusters of brick kilns exist in the vicinity of major towns and cities of India. Clearly, there is considerable scope to improve resource efficiencies and promote production of resource efficient bricks in the country. The goal of the project is to reduce energy consumption and restrict GHG emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for production and use of resource efficient bricks in India.

All projects supported under GEF are required undergo a mid-term review and final evaluation. GEF's policy with respect to mid-term and final reviews has been updated in 2010. All relevant details pertaining to the policy are explained in the policy document, which is available at the following URL:http://www.thegef.org/gef/node/4184

This notification pertains to conduction of a mid-term review to assess the relevance, performance and extent of success of the project. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It will also identify/document lessons learnt and provide recommendations that might improve design and implementation of other UNDP/GEF projects. *As per established conventions,* ***the review team will comprise of an international and a local consultant.***

2. SCOPE OF WORK, RESPONSIBILITIES AND DESCRIPTION OF THE PROPOSED ANALYTICAL WORK

The international consultant will be the team leader and coordinate the consultancy to ensure quality of the report and timely submission. The local consultant will provide supportive roles both in terms of professional back up, translation etc.

Report on the progress against Objective, each Outcome, Output, Activity (including sub-activities) and Impact Indicators listed in the project document. How far the project has reached on the overall objective and outcome; the timelines and how these will be completed within the project duration, i.e. 14 June 2013. The following points must be covered in the review specifically;

- Effectiveness of the current project activities in enabling the selected brick producing clusters to be more energy efficient

- Extent of public awareness achieved on resource efficient bricks, their advantages and benefits
- Extent of success achieved in the project to leverage finance for resource efficient brick production
- Extent of knowledge dissemination achieved by the project on the technology for resource efficient brick production and their marketing
- Assessment of the availability of demonstration / model units using resource efficient brick production technology in the 5 selected clusters
- Provide an assessment of the enhanced capacity, if any, of the brick producers to appreciate the advantages and profitability of investing in new technology for resource efficient brick production.
- Validate and complete appropriate sections in tracking tool for mid-term review of climate change mitigation projects.
- Effectiveness of the management structure and arrangements

Management arrangements:
Throughout the period of the review, the review team will liaise closely with the UNDP Country Director/Assistant Country Director/Programme Analyst, the concerned agencies of the Government, any members of the international team of experts under the project and the counterpart staff assigned to the project. The team can raise or discuss any issue or topic it deems necessary to fulfill its task, the team, however, is not authorized to make any commitments to any part on behalf of UNDP/GEF or the Government.

3. REQUIREMENTS FOR EXPERIENCE AND QUALIFICATIONS [International Consultant]

I. Years of experience:

1. Professional background in energy efficiency, specifically in the brick or construction sector with a minimum of 10 years of relevant experience in monitoring and evaluating donor driven projects (preferably GEF, World Bank, or UN);

II. Competencies:

1. Highly knowledgeable of participatory monitoring, review and evaluation processes, and experience in review and evaluation of technical assistance projects with major donor agencies;

2. Familiar with energy efficiency policies / conditions in India and abroad through management and / or implementation or through consultancies in review and evaluation of donor funded projects. Understanding of CO_2 emission reduction calculations (including IPCC, GEF procedure), especially from the energy audit and implementation of its recommendations, that contribute to global benefits;

3. Familiar with GEF rules, regulations and project reviews and evaluations;

4. Demonstrated ability to assess complex situations, succinctly, distil critical issues, and draw forward-looking conclusions and recommendations;

5. Ability and experience to lead multi disciplinary and national teams, and deliver quality reports within the given time.

6. Writing and communication will be in English, and he/she must have excellent communication skills in English. The consultant must bring his/her own computer/ laptop and related equipment.

4. DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS.

Interested individual consultants must submit the following documents/information to demonstrate their qualifications:

1. Proposal:

(i) Explain why individual consultant (IC) is most suitable for the work

(ii) Provide a brief methodology on how they will approach and conduct the work (if applicable)

2. Financial proposal

(i) Professional rate per day, total days and the total professional cost

(ii) Travel costs [include per-diem]: 1. Travel to Delhi (one no.), 2. Travel for field visits in India (5 visits envisaged to be undertaken, Ludhiana, Ghaziabad/Gurgaon, Varanasi, Pune and Bengaluru

3. Personal CV including past experience in similar projects and at least 3 references (with their full contact details, including e-mail, phone numbers)

5. FINANCIAL PROPOSAL

Lump sum contracts

The financial proposal shall specify a total lump sum amount, and payment terms around specific and measurable (qualitative and quantitative) deliverables (i.e. whether payments fall in installments or upon completion of the entire contract). Payments are based upon output, i.e. upon delivery of the services specified in the TOR. In order to assist the requesting unit in the comparison of financial proposals, the financial proposal will include a breakdown of this lump sum amount (including travel, per diems, and number of anticipated working days).

Travel

All envisaged travel costs must be included in the financial proposal. This includes all travel to join duty station/repatriation travel. In general, UNDP should not accept travel costs exceeding those of an economy class ticket. Should the IC wish to travel on a higher class he/she should do so using their own resources.

In the case of unforeseeable travel, payment of travel costs including tickets, lodging and terminal expenses should be agreed upon, between the respective business unit and IC, prior to travel and will be reimbursed.

6. EVALUATION

IC will be evaluated based on the following methodologies:

1. Cumulative analysis

When using this weighted scoring method, the award of the contract should be made to the IC whose offer has been evaluated and determined as:

a) responsive/compliant/acceptable, and

b) Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.

** Technical Criteria weight; [70%]*

** Financial Criteria weight; [30%]*

Only candidates obtaining a minimum of 70% would be considered for the Financial Evaluation

Criteria	***Weight***	***Max. Point***
Technical		
• *Qualification of the Consultant*	*20*	*20*
• *Relevant work Experience*	*25*	*25*
• *Proposed Work Plan for undertaking the task*	*20*	*20*
• *Time Line for completion of the Task*	*05*	*05*
Financial	*30*	*30*

TERMS OF REFERENCE (TOR) FOR INTERNATIONAL CONSULTANT

Post Title	**: International Consultant** to conduct Mid Term Review (MTR) as per the UNDP-GEF guidelines for the project "**Project 3465 – Energy Efficiency Improvements in Indian Brick Industry"**
Organization	: GEF-UNDP-MoEF Project **"Project 3465 – Energy Efficiency Improvements in Indian Brick Industry**
Supervisor	: Head/Programme Analyst of Energy and Environment Unit, UNDP, New Delhi
Duration	: Maximum of 30 working days (over a period of 60 days)
Duty Station	: Home based consultancy, travel to New Delhi and travel to field sites, as part of the assignment.

UNDP strives to have a workforce which reflects diversity and gender balance, and applies an equal opportunities approach. UNDP does not solicit or screen for information in respect of HIV or AIDS status. All selection is on merit.

1. Background

UNDP is one of the GEF agencies operational in India and supports the Government of India in its vision to achieve faster, and more inclusive growth. Guided by the Millennium Development Goals and the vision of the Eleventh Five Year Plan, UNDP promotes social, economic and political inclusion for the most disadvantaged. The UNDP Energy and Environment (E&E) Unit works towards the goal of low-carbon, climate resilient development in India. The E&E unit supports the Indian Government to meet national commitments under the Convention on Biological Diversity, the Convention to Combat Desertification and the UN Framework Convention for Climate Change. The unit builds national capacity for conservation and sustainable use of natural resources, for expanding access to clean energy, for energy efficiency and management of polluting chemicals. Working closely with the UNDP, the **Ministry of Environment and Forests** (MoEF) is the Operational Focal Point for GEF with respect to the Government of India. Within the MoEF, the GEF Cell in the International Cooperation (IC) division is responsible for handling the GEF projects. The Joint Secretary (IC), is the GEF Operational Focal Point for India.

Cross-cutting themes of specific interest are capacity development, inclusion, technical support and South-South cooperation. In the thematic area of 'Energy and Environment', UNDP works in close alignment with the National Action Plan for Climate Change on energy efficiency and renewable energy. On these sub-themes, UNDP works with various stakeholders including national and state governments, local governments, community institutions, NGOs, technical support agencies etc. On energy efficiency, the context of this assignment, UNDP works on specific sectors/technologies with major energy consuming industries and on major uses such as electricity and transportation.

One of the projects in this area, namely, "Energy Efficiency Improvements in Indian Brick Industry" has completed half of its term and is due for mid-term evaluation. The project was conceptualized against the backdrop of the construction sector in India contributes significantly (as much as 10%) to the country's GDP and registers an annual growth of 9%. In effect, it leads to generation of considerable demand for bricks in the country, as a consequence of which, India happens to be one of the largest producers of burnt clay bricks in the world, second only to China. The total annual brick production in India exceeds 140 billion consuming about 24

million tonnes of coal, in addition to a very large quantity of biomass fuels. The quantum of carbon dioxide emissions, as a result of this brick making activity touches 41.6 million tonnes, which is almost 4.5% of the total GHG emissions from India. Further, brick-making also contributes to depletion of good quality top-soil: estimates point towards utilization of almost 350 million tonnes of top soil every year.

Several clusters of brick kilns exist in the vicinity of major towns and cities of India. Clearly, there is considerable scope to improve resource efficiencies and promote production of resource efficient bricks in the country. The goal of the project is to reduce energy consumption and restrict GHG emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for production and use of resource efficient bricks in India.
All projects supported under GEF are required undergo a mid-term review and final evaluation. GEF's policy with respect to mid-term and final reviews has been updated in 2010. All relevant details pertaining to the policy are explained in the policy document, which is available at the following URL: http://www.thegef.org/gef/node/4184

This notification pertains to conduction of a mid-term review to assess the relevance, performance and extent of success of the project. It looks at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. It will also identify/document lessons learnt and provide recommendations that might improve design and implementation of other UNDP/GEF projects. *As per established conventions,* ***the review team will comprise of an international and a local consultant.***

2. Functions and key results expected:

The international consultant will be the team leader and coordinate the consultancy to ensure quality of the report and timely submission. She/he will work with the local consultant who will provide supportive roles both in terms of professional back up, translation etc. The overall scope of the assignment includes:

i. Report on the progress against Objective, each Outcome, Output, Activity (including sub-activities) and Impact Indicators listed in the project document. How far the project has reached on the overall objective and outcome; the timelines and how these will be completed within the project duration, i.e. 14 June 2013. Also the following points must be covered in the review specifically;

   a. Extent of public awareness achieved on resource efficient bricks, their advantages and benefits
   b. Extent of success achieved in the project to leverage finance for resource efficient brick production
   c. Extent of knowledge dissemination achieved by the project on the technology for resource efficient brick production and their marketing
   d. Assessment of the availability of demonstration / model units using resource efficient brick production technology in the 5 selected clusters
   e. Provide an assessment of the enhanced capacity, if any, of the brick producers to appreciate the advantages and profitability of investing in new technology for resource efficient brick production.

f. Validate and complete appropriate sections in tracking tool for mid-term review of climate change mitigation projects.
g. Effectiveness of the management structure and arrangements

ii. A commentary is required on the "Expected Situation at the end of the Project" as envisioned at the mid-term review and recommendations, if any required, for accelerating the pace of work.
iii. Policy impact of the project, if any, on the vision of MoEF as demonstrated by their policy decisions (albeit already taken or envisaged in the foreseeable future) towards improvement of energy efficiency of the brick industry.
iv. Enabling conditions created, if any, by the project, in terms of linkages brought about with other partners/Ministries and their consequent effects/impacts on the overall outcomes.
v. The capacity building initiatives undertaken under the project: appropriateness of the approach adopted and effectiveness of the trainings with avenues for improving the effectiveness.
vi. Comments on how the GEF's overall objective of greenhouse gas emission reduction will be met with – (1) during the life of the project; and (2) for the replication potential.
vii. Appropriateness of the institutional arrangements: whether the commitment to the project was adequate and whether the management structure was adequately effective. Please identify weaknesses, if any and suggest alternative solutions.
viii. Sustainability of the achievements of the project on conclusion? If not sustainable, what measures should be taken to ensure sustainability?
ix. Effectiveness and economy of utilization of resources (including human and financial) towards producing the outputs and adjustments made to the project strategies and scope;
x. Extent of co-funding leveraged (GoI subsidies, and others) and its impact on the activities. A "Financial Planning Co-financing" format is enclosed in Annex 1 for reporting;
xi. Comment on information dissemination activities undertaken for the development and benefit of the sector.
xii. Comments on the awareness programmes, trainings undertaken and the quality of awareness material, like quarterly newsletter, project website and the brochure/ other documents, if generated any.
xiii. Adequacy of methodology adopted for generation and validation of the energy efficiency data under the project with scope, if any, for improvement.
xiv. Effectiveness of current monitoring and overseeing systems such as Project Steering Committee and suggestion on improvements if any.

Annex 1 contains guidance on the GEF Project review criteria and explanation of terminology provided in the GEF Guidelines to Evaluations.

3. Cross Cutting Issues:

Considering that UNDP is concerned about poverty reduction, local governance and promotion of gender equity, the team may look at these cross-cutting issues and comment if the project had any linkages and any achievement on these objectives.
At its discretion, the team is free to include any other additional comments that are felt worth reporting.

4. Products Expected from the Review:

The total duration allocated for the review and the finalization of report is 30 working days, including a five to seven days visit to the field. At the end of 15 days, the team leader will submit and present, for comments, his/her draft report to a meeting consisted of project stakeholders including UNDP, MoEF, Implementing/Partnering Agencies, and/or other members of the Project Executive Committee/Project Steering Committee. The draft report and the final report will also be shared with UNDP's Regional Coordinating Unit, GEF M&E office, in addition to UNDP for comments. After incorporating the comments, the team leader will submit the final report to UNDP, New Delhi (including an electronic copy). The length of the main report should not exceed 50 pages, in total. While the duration of the contract will be for 30 work days, considering time redundancies encountered during various stages such as incorporating comments, reviewing the draft report/its finalization and formal submission, it is expected that in no case should the total period taken for submitting the final report exceed 60 calendar days.
If there are discrepancies between the impressions and findings of the review team and the aforesaid parties, these should be explained in a separate sheet to be attached to the final report.

The Review Report Outline should be structured along the following lines:

1. Executive Summary
2. Introduction
3. The project and its development context
4. Findings and Conclusions
   - 4.1 Project formulation
   - 4.2 Implementation
   - 4.3 Results
5. Completed tracking tool
6. Recommendations
7. Lessons learned
8. Annexes

5. Methodology Or Review Approach:

The project review approach will combine methods such as documentation review (desk study); interviews; and field visits. All relevant project documentation will be made available by the project management team, facilitated by UNDP (see Annex 2 for list of documents). After studying the documentation the team will conduct interviews with all relevant partners including the beneficiaries. Validation of preliminary findings/reports with stakeholders will happen through circulation of initial reports for comments or other types of feedback mechanisms.
The consultants should provide details in respect of:

- Documents reviewed and brief summary of them in an annexure;
- Interviews and brief summary wherever relevant;
- Field visits and brief summary in annexure or where relevant;
- Questionnaires, if any;
- Participatory techniques and other approaches for gathering and analysis of data; and
- Participation of stakeholders and/or partners.

6. Implementation Arrangements:

Management arrangements:
Throughout the period of the project review, the review team will liaise closely with the UNDP Country Director/ACD/Programme Analyst, the concerned agencies of the Government, any members of the international team of experts under the project and the counterpart staff assigned

to the project. The team can raise or discuss any issue or topic it deems necessary to fulfill its task, the team, however, is not authorized to make any commitments to any part on behalf of UNDP/GEF or the Government.

Time-frame: As already described.
The team may include 10 to 12 days of site visits, the details of which can be worked out with the mission in due course. This visit will also include meetings with various stakeholders including the officials of the Ministry, Implementing Agency, Project Facilitation Cell (PFC), Local Resource Centre (LRC), and any other stakeholder related to the project, including brick manufacturers end-users, and financial institutions.
After the initial briefing by UNDP Country Director/ACD/Programme Analyst, the evaluation team will meet with the GEF Focal Point at the Ministry of Environment & Forests, Project Facilitation Cell at The Energy and Resources Institute and other officials as required.

I. Years of experience:

1. Professional background in energy efficiency, specifically in the brick or construction sector with a minimum of 10 years of relevant experience in monitoring and evaluating donor driven projects (preferably GEF, World Bank, or UN);

II. Competencies:

1. Highly knowledgeable of participatory monitoring, review and evaluation processes, and experience in review and evaluation of technical assistance projects with major donor agencies;

2. Familiar with energy efficiency policies / conditions in India and abroad through management and / or implementation or through consultancies in review and evaluation of donor funded projects. Understanding of CO_2 emission reduction calculations (including IPCC, GEF procedure), especially from the energy audit and implementation of its recommendations, that contribute to global benefits;

3. Familiar with GEF rules, regulations, project reviews and evaluations;

4. Demonstrated ability to assess complex situations, succinctly, distil critical issues, and draw forward-looking conclusions and recommendations;

5. Ability and experience to lead multi disciplinary and national teams, and deliver quality reports within the given time.

6. Writing and communication will be in English, and he/she must have excellent communication skills in English. The consultant must bring his/her own computer/ laptop and related equipment.

ANNEX 1 - Guidance on the GEF Project review criteria and explanation of terminology provided in the GEF Guidelines to Evaluations

This Annex providing more detailed guidance on the GEF Project review criteria and explanation of terminology provided in the GEF Guidelines to Evaluations is an integral part of the attached TOR.

I Project Review Criteria

Please note that some of the categories in the findings and conclusions need to be rated in conformity with the GEF guidelines for final evaluations.

1. Executive summary

- Brief description of project
- Context and purpose of the review/evaluation
- Main conclusions, ratings, recommendations and lessons learned

2. Introduction

- Purpose of the review/evaluation
- Key issues addressed
- Methodology of the review/evaluation
- Structure of the review/evaluation

3. The project(s) and its development context

- Project start and its duration
- Problems that the project seek to address
- Immediate and development objectives of the project
- Main stakeholders
- Results expected

4. Findings and Conclusions

In addition to a descriptive assessment, all **criteria marked with (R) should be rated** using the following divisions: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory

4.1.Project Formulation

- Conceptualization/Design (R). This should assess the approach used in design and an appreciation of the appropriateness of problem conceptualization and whether the selected intervention strategy addressed the root causes and principal threats in the project area. It should also include an assessment of the logical framework and whether the different project components and activities proposed to achieve the objective were appropriate, viable and responded to contextual institutional, legal and regulatory settings of the project. It should also assess the indicators defined for guiding implementation and measurement of achievement and whether lessons from other relevant projects (e.g., same focal area) were incorporated into project design.

- Country-ownership/Driveness. Assess the extent to which the project idea/conceptualization had its origin within national, sectoral and development plans and focuses on national environment and development interests.

- Stakeholder participation (R). Assess information dissemination, consultation, and "stakeholder" participation in design stages.

- Replication approach. Determine the ways in which lessons and experiences coming out of the project were/are to be replicated or scaled up in the design and implementation of other projects (this also related to actual practices undertaken during implementation).

- Other aspects. To assess in the review of Project formulation approaches would be UNDP comparative advantage as IA for this project; the consideration of linkages between projects and other interventions within the sector and the definition of clear and appropriate management arrangements at the design stage.

4.2. Project Implementation

- Implementation Approach (R). This should include assessments of the following aspects:

  (i) The use of the logical framework as a management tool during implementation and any changes made to this as a response to changing conditions and/or feedback from monitoring and evaluation (M&E) activities if required.

  (ii) Other elements that indicate adaptive management such as comprehensive and realistic work plans routinely developed that reflect adaptive management and/or; changes in management arrangements to enhance implementation.

  (iii) The project's use/establishment of electronic information technologies to support implementation, participation and monitoring, as well as other project activities.

  (iv) The general operational relationships between the institutions involved and others and how these relationships have contributed to effective implementation and achievement of project objectives.

  (v) Technical capacities associated with the project and their role in project development, management and achievements.

- Monitoring, review and evaluation (R). Including an assessment as to whether there has been adequate periodic oversight of activities during implementation to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan; whether formal reviews/evaluations have been held and whether action has been taken on the results of this monitoring oversight and review/evaluation reports where applicable.

- Stakeholder participation (R). This should include assessments of the mechanisms for information dissemination in project implementation and the extent of stakeholder participation in management, emphasizing the following:

  (i) The production and dissemination of information generated by the project.
  (ii) Local resource users and NGOs participation in project implementation and decision making and an analysis of the strengths and weaknesses of the approach adopted by the project in this arena.

(iii) The establishment of partnerships and collaborative relationships developed by the project with local, national and international entities and the effects they have had on project implementation.

(iv) Involvement of governmental institutions in project implementation, the extent of governmental support of the project.

- Financial Planning: Including an assessment of:

  (i) The actual project cost by objectives, outputs, activities
  (ii) The cost-effectiveness of achievements
  (iii) Financial management (including disbursement issues)
  (iv) Co-financing [22]

- Sustainability. Extent to which the benefits of the project will continue, within or outside the project domain, after it has come to an end. Relevant factors include for example: development of a sustainability strategy, establishment of financial, environmental and economic instruments and mechanisms, mainstreaming project objectives into the economy or community production activities.

- Execution and implementation modalities. This should consider the effectiveness of the UNDP counterpart and Project Co-ordination Unit participation in selection, recruitment, assignment of experts, consultants and national counterpart staff members and in the definition of tasks and responsibilities; quantity, quality and timeliness of inputs for the project with respect to execution responsibilities, enactment of necessary legislation and budgetary provisions and extent to which these may have affected implementation and sustainability of the Project; quality and timeliness of inputs by parties responsible for providing inputs to the project, and the extent to which this may have affected the smooth implementation of the project.

4.3. Results

- Attainment of Outcomes/ Achievement of objectives (R*):* Including a description *and rating* of the extent to which the project's objectives (environmental and developmental) were achieved using Highly Satisfactory, Satisfactory, Marginally Satisfactory, and Unsatisfactory ratings. If the project did not establish a baseline (initial conditions), the reviewers/evaluators should seek to determine it through the use of special methodologies so that achievements, results and impacts can be properly established.

- This section should also include reviews of the following:
- Sustainability*:* Including an appreciation of the extent to which benefits continue, within or outside the project domain after GEF assistance/external assistance in this phase has come to an end.
- Contribution to upgrading skills of the national staff.
- The positive and negative results, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short-to-medium term outcomes, and longer-term impact, including global environmental benefits, replication effects and other, local effects.

[22] Please see guidelines at the end of Annex 1 "Financial Planning Co-financing" of these TORs for reporting of co-financing

5. Recommendations

- Corrective actions for the design, implementation, monitoring and review/evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives

6. Lessons learned

This should highlight the best and worst practices in addressing issues relating to relevance, performance and success.

7. Review/Evaluation report Annexes

- Review/Evaluation TORs
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Questionnaire used and summary of results
- Comments by stakeholders (only in case of discrepancies with evaluation findings and conclusions)

II Explanation of Terminology Provided in the GEF Guidelines to Evaluations

Implementation Approach includes an analysis of the project's logical framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management.

Some elements of an effective implementation approach may include:

- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Feedback from M&E activities used for adaptive management

Country Ownership/Driveness is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements where applicable. Project Concept has its origin within the national sectoral and development plans.

Some elements of effective country ownership/driveness may include:

- Project Concept has its origin within the national sectoral and development plans
- Outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans
- Relevant country representatives (e.g., governmental official, civil society, etc.) are actively involved in project identification, planning and/or implementation
- The recipient government has maintained financial commitment to the project
- The government has approved policies and/or modified regulatory frameworks in line with the project's objectives

For projects whose main focus and actors are in the private-sector rather than public-sector (e.g., IFC projects), elements of effective country ownership/driveness that demonstrate the interest and commitment of the local private sector to the project may include:

- The number of companies that participated in the project by: receiving technical assistance, applying for financing, attending dissemination events, adopting environmental standards promoted by the project, etc.
- Amount contributed by participating companies to achieve the environmental benefits promoted by the project, including: equity invested, guarantees provided, co-funding of project activities, in-kind contributions, etc.
- Project's collaboration with industry associations

Stakeholder Participation/Public Involvement consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF-financed project. The term also applies to those potentially adversely affected by a project.

Examples of effective public involvement include:

Information dissemination

- Implementation of appropriate outreach/public awareness campaigns

Consultation and stakeholder participation

- Consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design, implementation, and review/evaluation of project activities

Stakeholder participation

- Project institutional networks well placed within the overall national or community organizational structures, for example, by building on the local decision making structures, incorporating local knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure
- Building partnerships among different project stakeholders
- Fulfillment of commitments to local stakeholders and stakeholders considered to be adequately involved

Sustainability measures the extent to which benefits continue, within or outside the project domain, from a particular project or program after GEF assistance/external assistance has come to an end. Relevant factors to improve the sustainability of project outcomes include:

- Development and implementation of a sustainability strategy
- Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives)
- Development of suitable organizational arrangements by public and/or private sector
- Development of policy and regulatory frameworks that further the project objectives
- Incorporation of environmental and ecological factors affecting future flow of benefits
- Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.)
- Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes)
- Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities

- Achieving stakeholders consensus regarding courses of action on project activities

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc)
- Expansion of demonstration projects
- Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions
- Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions

Financial Planning includes actual project cost by activity, financial management (including disbursement issues), and co-financing.

Effective financial plans include:

- Identification of potential sources of co-financing as well as leveraged and associated financing[23].
- Strong financial controls, including reporting, and planning that allow the project management to make informed decisions regarding the budget at any time, allows for a proper and timely flow of funds, and for the payment of satisfactory project deliverables
- Due diligence in the management of funds and financial audits

Co financing includes: Grants, Loans/Concessional (compared to market rate), Credits, Equity investments, In-kind support, Other contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries. Please refer to GEF Council documents on co-financing for definitions, such as GEF/C.20/6.

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Cost-effectiveness assesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. It also examines the project's compliance with the application of the incremental cost concept. Cost-effective factors include:

- Compliance with the incremental cost criteria (e.g. GEF funds are used to finance a component of a project that would not have taken place without GEF funding) and securing co-funding and associated funding

[23] Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6. The following page presents a table to be used for reporting co-financing.

- The project completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, and as cost-effective as initially planned
- The project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts)

Monitoring, Review & Evaluation. Monitoring is the periodic oversight of a process, or the implementation of an activity, which seeks to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan, so that timely action can be taken to correct the deficiencies detected. Evaluation is a process by which program inputs, activities and results are analyzed and judged explicitly against benchmarks or baseline conditions using performance indicators. This will allow project managers and planners to make decisions based on the evidence of information on the project implementation stage, performance indicators, level of funding still available, etc, building on the project's logical framework.

Monitoring, Review and Evaluation includes activities to measure the project's achievements such as identification of performance indicators, measurement procedures, and determination of baseline conditions. Projects are required to implement plans for monitoring and evaluation with adequate funding and appropriate staff and include activities such as description of data sources and methods for data collection, collection of baseline data, and stakeholder participation. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that are sustainable after project completion.

Financial Planning Co-financing

Co financing (Type/Source)	IA own Financing (million USD)		Government (million USD)		Other* (million USD)		Total (million USD)		Total Disbursement (million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
– Grants										
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
– Other (*)										
Totals										

- Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources -

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

ANNEX 2 - List of Documents to be reviewed by the reviewers/evaluators
INTERNAL:

1. Project Document;
2. Project Implementation Review Report for the period 15 June 2009 to 30 June 2011;
3. Minutes of National Steering Committee/Project Steering Committee meetings;
4. Back-to-Office Reports of UNDP staff and PFC staff (if any);
5. GEF M&E Policy 2010
6. Terminology in the GEF Guidelines to Terminal Evaluation and the Project Review Criteria – part II, Annex 1 of this TOR.
7. Study reports/Conference proceedings/government guidelines, etc.
8. Any other documents the evaluators feel necessary for conducting the evaluation.

EXTERNAL:

1. Familiarization with policy guidelines, subsidies and developments relating to Brick sector in India and abroad;
2. GEF/World Bank guidelines on GHG emission reduction calculations;
3. Any other documents essential for the successful conduct of the above evaluation.

****

Tracking Tool for Climate Change Mitigation Projects
(For CEO Endorsement)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **during the project's supervised implementation period**, totaled over the respective lifetime of the investments.
Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.
Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Target at CEO Endorsement	Notes
Project Title	Energy Efficiency Improvements in Indian Brick Industry	
GEF ID	2844	
Agency Project ID	3465	
Country	India	
Region	EAP	
GEF Agency	UNDP	
Date of Council/CEO Approval	April 1, 2008	Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)	696,448	
Date of submission of the tracking tool	July 31, 2012	Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cofinancing expected (US$)	1,999,000	

Objective 1: Transfer of Innovative Technologies		
Please specify the type of enabling environment created for technology transfer through this project		
National innovation and technology transfer policy		Yes = 1, No = 0
Innovation and technology centre and network		Yes = 1, No = 0
Applied R&D support		Yes = 1, No = 0
South-South technology cooperation		Yes = 1, No = 0
North-South technology cooperation		Yes = 1, No = 0
Intellectual property rights (IPR)		Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building		Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed		
Please specify three key technologies for demonstration or deployment		
Area of technology 1	Energy_Efficiency	
Type of technology 1		specify type of technology
Area of technology 2		
Type of technology 2		specify type of technology
Area of technology 3		
Type of technology 3		specify type of technology
Status of technology demonstration/deployment	2	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting		Yes = 1, No = 0
Appliances (white goods)		Yes = 1, No = 0
Equipment		Yes = 1, No = 0
Cook stoves		Yes = 1, No = 0
Existing building		Yes = 1, No = 0
New building		Yes = 1, No = 0
Industrial processes	1	Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0
Other (please specify)	1	
Policy and regulatory framework	0	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	2	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	5	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved	1,734,313,896	MJ (Million Joule, IEA unit converter: http://www.iea.org/stats/unit.asp) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments
Lifetime direct GHG emissions avoided	47,128	tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided	187,840	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)	-	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	-	tonnes CO2eq (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production		Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m² = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emission avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct carbon sequestration		tonnes CO2eq (see Special Notes above)
Lifetime indirect carbon sequestration		tonnes CO2eq (see Special Notes above)

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0

Tracking Tool for Climate Change Mitigation Projects
(For Mid-term Evaluation)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **until the mid-term evaluation**, totaled over the respective lifetime of the investments.
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Manual for Transportation Projects

For LULUCF projects, the definition of "lifetime direct" applies. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Results at Mid-term Evaluation	Notes
Project Title	Energy Efficiency Improvements in Indian Brick Industry	
GEF ID	2844	
Agency Project ID	3465	
Country	India	
Region	EAP	
GEF Agency	UNDP	
Date of Council/CEO Approval	April 1, 2008	Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)	696,448	
Date of submission of the tracking tool	July 31, 2012	Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cumulative cofinancing realized (US$)		
Cumulative additional resources mobilized (US$)	-	additional resources means beyond the cofinancing committed at CEO endorsement

Objective 1: Transfer of Innovative Technologies		
Please specify the type of enabling environment created for technology transfer through this project		
National innovation and technology transfer policy		Yes = 1, No = 0
Innovation and technology centre and network		Yes = 1, No = 0
Applied R&D support		Yes = 1, No = 0
South-South technology cooperation		Yes = 1, No = 0
North-South technology cooperation		Yes = 1, No = 0
Intellectual property rights (IPR)		Yes = 1, No = 0
Information dissemination	1	Yes = 1, No = 0
Institutional and technical capacity building		Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed		
Please specify three key technologies for demonstration or deployment		
Area of technology 1	Energy_Efficiency	
Type of technology 1		specify type of technology
Area of technology 2		
Type of technology 2		specify type of technology
Area of technology 3		
Type of technology 3		specify type of technology
Status of technology demonstration/deployment	2	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting		Yes = 1, No = 0
Appliances (white goods)		Yes = 1, No = 0
Equipment		Yes = 1, No = 0
Cook stoves		Yes = 1, No = 0
Existing building		Yes = 1, No = 0
New building		Yes = 1, No = 0
Industrial processes	1	Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0
Other (please specify)		
Policy and regulatory framework	0	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	1	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	2	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved	135,808,275	MJ (Million Joule, IEA unit converter: http://www.iea.org/stats/unit.asp) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments.
Lifetime direct GHG emissions avoided	14,880	tonnes CO2eq (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production		Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m² = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)

Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO2eq
Lifetime direct carbon sequestration		tonnes CO2eq

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0

Tracking Tool for Climate Change Mitigation Projects
(For Terminal Evaluation)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **during the project's supervised implementation period**, totaled over the respective lifetime of the investments.
Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.
Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Results at Terminal Evaluation	Notes
Project Title		
GEF ID		
Agency Project ID		
Country		
Region		
GEF Agency		
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)		
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?		Yes = 1, No = 0
Is the project linked to carbon finance?		Yes = 1, No = 0
Cumulative cofinancing realized (US$)		
Cumulative additional resources mobilized (US$)		additional resources means beyond the cofinancing committed at CEO endorsement

Objective 1: Transfer of Innovative Technologies		
Please specify the type of enabling environment created for technology transfer through this project		
National innovation and technology transfer policy		Yes = 1, No = 0
Innovation and technology centre and network		Yes = 1, No = 0
Applied R&D support		Yes = 1, No = 0
South-South technology cooperation		Yes = 1, No = 0
North-South technology cooperation		Yes = 1, No = 0
Intellectual property rights (IPR)		Yes = 1, No = 0
Information dissemination		Yes = 1, No = 0
Institutional and technical capacity building		Yes = 1, No = 0
Other (please specify)		
Number of innovative technologies demonstrated or deployed		
Please specify three key technologies for demonstration or deployment		
Area of technology 1		
Type of technology 1		specify type of technology
Area of technology 2		
Type of technology 2		specify type of technology
Area of technology 3		
Type of technology 3		specify type of technology
Status of technology demonstration/deployment		0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting		Yes = 1, No = 0
Appliances (white goods)		Yes = 1, No = 0
Equipment		Yes = 1, No = 0
Cook stoves		Yes = 1, No = 0
Existing building		Yes = 1, No = 0
New building		Yes = 1, No = 0
Industrial processes		Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances		Yes = 1, No = 0
Other (please specify)		
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved		MJ (Million Joule, IEA unit converter: http://www.iea.org/stats/unit.asp) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production		Yes = 1, No = 0
On-grid electricity production		Yes = 1, No = 0
Off-grid electricity production		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro		MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m² = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro		MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit		Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)		Yes = 1, No = 0
Logistics management		Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)		Yes = 1, No = 0
Non-motorized transport (NMT)		Yes = 1, No = 0
Travel demand management		Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)		Yes = 1, No = 0
Sustainable urban initiatives		Yes = 1, No = 0
Policy and regulatory framework		0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)		0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building		0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)		km
Length of non-motorized transport (NMT)		km
Number of lower GHG emission vehicles		
Number of people benefiting from the improved transport and urban systems		
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)		tonnes CO2eq (see Special Notes above)

Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry		ha
Conservation and enhancement of carbon in nonforest lands, including peat land		ha
Avoided deforestation and forest degradation		ha
Afforestation/reforestation		ha
Good management practices developed and adopted		0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established		0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided		tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emission avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct carbon sequestration		tonnes CO2eq (see Special Notes above)
Lifetime indirect carbon sequestration		tonnes CO2eq (see Special Notes above)

Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication		
Technology Needs Assessment		
Nationally Appropriate Mitigation Actions		
Other		
Does the project include Measurement, Reporting and Verification (MRV) activities?		Yes = 1, No = 0

Note to File on inclusion of TERI comments to the Mid Term Review conducted in 2012 for BRICK project.

December 20, 2012

Note to File:

Inclusion of the comments/response by TERI (as local responsible party) to the Mid Term Review report given by the Evaluation team for the project

Project title:"**PIMS 3465 – Energy Efficiency Improvements in Indian Brick Industry** (**India Brick** EE) **Project"**

1. The Mid Term Review (MTR) for the UNDP/GEF project **"PIMS 3465 – Energy Efficiency Improvements in Indian Brick Industry"** was conducted in March 2012 by the team of Mr Frank Pool (International Consultant) and Dr Sameer Maithel (National Consultant) – referred as mid-term review (MTR) team. The team conducted a mission visit from 27th Feb to 7th March 2012 meeting with relevant stakeholders of the Brick Industry impacted by the project, UNDP, MoEF (Implementing Partner) and TERI (Responsible Partner).
2. A first draft FINAL report of the MTR was submitted by the team as of 25th July 2012. In review, TERI submitted a 123 page document giving their comments and responses to what was stated in the report [See **ANNEXURE 1-TERIComments-25July2012**]. They were not in favor of several of the review findings made on the project implementation and identified limited outcomes.
3. A revised version of the draft FINAL report was then submitted by the team in response to the feedback given by UNDP and incorporating what they felt was valid of the comments given by TERI. In reviewing the revised version of evaluation report, TERI provided another set of comments and responses submitting a 174 page document [See **ANNEXURE 2-TERIcomments-31August2012**].
4. Based on the second round of comments from TERI, MTR team submitted the FINAL report of the MTR as of 10th Oct 2012. In response to the report being sent to the project partners and TERI by Dr SN Srinivas (PO), Mr Vasudevan of TERI, National Program Manager, wrote back is as quoted below:

"Dear Mr. Srinivas,

This has reference to your email dated 18 November 2012 regarding the final MTR report of the project 'GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE)' prepared by the consultants after additional iterations.
It may kindly be noted that TERI had provided detailed response to the two earlier draft versions of the MTR report to UNDP (Attached as Annexure 1 and Annexure 2 respectively). TERI has carefully gone through this version of the report also and we note that majority of our comments have not been addressed. In a few cases, our comments have been acknowledged by the MTR reviewers, yet no change in the draft report has been incorporated based on those acknowledged comments. During our earlier interactions with UNDP on this subject, we were informed that TERI's responses /comments will be included as Dissenting Note, if these are not addressed.
We would like to once again mention that TERI does not accept many of the points of this MTR report and has submitted well reasoned explanations.
Hence, we would appreciate your follow -up of this matter.
I am forwarding the annexures in two separate mails.

With regards

Vasudevan N

5. UNDP was of the opinion that while it was the prerogative of the evaluators whether to incorporate or not a comment or opinion voiced by the partners, the entire set of opinions given by TERI could be given as an annexure to the MTR report. An email suggesting the same was sent to Mr Frank Pool as written from UNDP:

"Dear Frank & Sameer,

Kindly note the response of TERI to the final report of the MTR sent to them on the BRICK project. Srinivasan Iyer & SN Srinivas are of the view that in order to accommodate the opinions of the partners (including the ones expressed by the responsible party), the TERI responses to each of the 2 draft versions of the report must be attached as annexure to the final report with a short note from the evaluators.

We are open to your suggestions on any other way of incorporating it while I send you both sets of the TERI responses sent for each of the draft MTR reports given. Please respond to us on this matter at the earliest.

Regards,
Chitra

6. The MTR team led by Mr Frank Pool while noted and said that those comments made by TERI, considered valid were incorporated, other comments of disagreement could not be accepted. He was of the opinion that TERI must view the report in the light of the recommendations made and take the project forward towards a constructive finish with the designed outcomes to be met. His mail in response to that of UNDP is as quoted:

"Dear UNDP India colleagues and Sameer,

Thank you for referring this issue to us.

I must say that I am increasingly disappointed in TERI's continued argumentation but still non-engagement in the seven MTR key issues relevant to TERI;s role, of:
1. using above ProDoc specified and not explicitly agreed 2-3 times higher charge out rates for the PMU operation by TERI staff 2. non tendering out and/or non-transparency of technical support provision, and again the use of above ProDoc specified and not explicitly agreed technical support charge out rates 3. not implementing the project in way that makes it clear that they really have understood and/or internalized the absolute pre-requisite of power supplies and mechanization to the production of REBs 4. the need to look to China in the first instance as a source of robust and affordable brick mechanisation equipment, and not to Europe 5. the need to fully piggyback on the amazing REB market opened up by Wienerberger in South India 6. the need for tangible actions to update the two BIS standards that are holding back the uptake of REBs in the public sector or in projects with public sector support in India

So we have tried very hard, and put in a huge effort well beyond our contracted inputs, to accommodate TERI's extraordinarily long responses to our drafts, but we cannot accommodate what they do not

acknowledge. And they have not acknowledged these above points.

So if TERI want their annexes added to the report that is their choice. I don't think that this will really help their case much. Their is a saying that "if you are in a hole, the first thing to do is stop digging further" which would seem to apply to TERIs ongoing argumentation. If we could add a short note, then that would be most appreciated. But perhaps someone should call TERI and informally point out that respectfully, this proposed course of action will not help their cause, it will only publicly expose them as an arrogant implementing agent that considers itself above being bound by what is specified in ProDocs (that they developed even), and as an organisation that is more interested in keeping digging the hole that it is in rather than addressing the core issues identified and justified by independent external reviewers. So they want to be right more than they want to find a mutually acceptable way forward for UNDP as the custodian of GEF funds for the benefit of India.

Regards
Frank

7. In view of the above disagreement by the team, the MTR report is therefore being recorded as a set of documents consisting of
    - The Main report with the TT sheet for CO_2 calculations
    - The 'Note to File' as stated
    - Annexure 1 of TERI comments to draft of 25th July 2012
    - Annexure 2 of TERI comments to draft of 31st August 2012

S.N. Srinivas	Feb 11, 2013
SN Srinivas Program Analyst [Energy for Development]	Srinivasan Iyer Assistant Country Director and Head EEU

Comments on MTR report

TERI wishes to place on record the following comments related to the Draft Final Report Mid Term Review (MTR) dated 25 July 2012 of the GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project. These comments may be taken into consideration while finalizing the MTR report.

General comments

(1) TERI has received the MTR report from UNDP on 29 July 2012 nearly five months after the review was held. The reasons for the inordinate delay are not known. However, we were completely taken by surprise by the transformation in stance of the reviewers between March 2012 and now. It is apparent from the present shape of the MTR report that there is a significant shift in the viewpoint of the reviewers between 7 March 2012 (when the interim results were presented at the stakeholder meeting held at MoEF) and 25 July 2012. It is pertinent to point out that while the tone of the presentation and discussions on 7 March 2012 was very positive; the reviewers have completely changed their views to produce a report which is completely negative and derogatory. Annex B of the report on people/organization interviewed for MTR mentions that the reviewers had conducted meetings only between 27 February 2012 and 7 March 2012. We are at a loss to understand as to what interactions were held in the past five months of this excruciating wait which has led to a sea change in the views of the reviewers. We feel that the reviewers/UNDP should have kept the PMU in the loop in case there were any meetings/ communications that happened between them in the period March 2012 till July 2012, so that PMU's comments could also have been taken on board while writing the report. If nothing else, keeping PMU in the loop in the internal meetings/communications would have reduced further delay in finalizing the report and bringing in greater transparency to the review process, which in its present form clearly indicates bias against TERI.

(2) TERI further submits that the MTR team has either not gone through in detail all the project documents, notes and correspondence related to the project or have not been given the complete details or intentionally chosen to ignore important facts about what has transpired in the project. Hence, the conclusions drawn by the reviewers are often subjective and not substantiated with documentary evidence. Strangely, in the kick-off meeting between the reviewers and UNDP, no member of PMU was invited. TERI feels that the entire process followed by the reviewers is partial and one-sided and broadly meant to reflect the viewpoints of UNDP, who engaged them.

(3) TERI has put in a lot of efforts since the start of this project (and in fact for many years before the start of the project in terms of creating the right atmosphere and awareness on this

subject) but these efforts have largely been ignored by the reviewers. In fact, one of the reviewers happens to be an ex-employee of TERI and was spearheading TERI's interventions in the brick sector for a number of years. He was also a key member of the TERI team responsible for the pre-project activities including preparation of FSP/MSP. Therefore, the decision of UNDP to engage a reviewer with such background itself is questionable.

(4) TERI would like to state that the report in parts does not appear to be an objective and independent view of the reviewers. At a few places, it appears that they have got unduly influenced by others who have been seeking repeated clarifications from TERI and objecting to various aspects of the project during the past 15 months.

(5) TERI team, working on this project, has a long experience on energy efficiency aspects in MSME sector including the brick sector. Credentials of TERI in terms of its knowledge and competence in the MSME sector have been well recognized by both national and international organizations. The important activities undertaken in MSME sector by TERI include work undertaken for BEE, SIDBI, UNIDO, SDC, JICA, AfD etc. The Program Officer at UNDP also is an ex-employee of TERI and is aware of TERI's credentials. Putting question marks on TERI team at this stage is extremely uncalled for. At a few places in the report, there is also an indication of trust being betrayed by TERI. We feel that such kind of unsubstantiated allegations should be avoided in a technical report like this. We would expect UNDP to intervene and get the negative references to TERI removed from the draft report.

(6) TERI would also like to put on record that all the Face Forms and QPRs were duly approved by MoEF/UNDP and only then payments were released to TERI. In fact, before the first Face Form was prepared, two senior TERI team members (of the level of Senior Fellow) had a meeting with the concerned official at UNDP and it was clearly informed that the head "Local consultants" is meant to be for TERI team working on the project and can use TERI's manpower rates. This aspect, it appears was not informed to reviewers and they have accordingly got an impression that TERI has betrayed the trust that was bestowed on it. In fact, TERI would like to state that the trust that TERI had has been betrayed.

(7) Since the start date of the project got delayed (as also mentioned in MTR report i.e. 6 months later than the schedule) and keeping in mind the seasonal nature of brick making process in India, the implementation of certain activities got delayed and this had resulted in rescheduling of the project activities. This was clearly brought to the notice of PSC members. Further, TERI has never received any feedback from UNDP that the project is lacking in its physical progress, except in the last meeting when UNDP officials requested TERI to focus more on marketing aspects.

(8) The MTR report is heavily loaded on financial aspects rather than focusing on technical aspects of the project. There appears to be a mismatch between the analysis and recommendations of the report. On the issue of staff-rates, TERI had provided detailed replies to the UNDP/UNDP auditors in the past. All the queries were replied with required annexures and basis of calculation of rates. However, despite our best efforts and repeated reminders to the concerned UNDP officers for the last 15 months, this issue remained unresolved. Hence, bringing this issue now by reviewers and putting the blame on TERI is uncalled for. In fact, we

feel that the issue of rates by the MTR reviewers is beyond the direct scope of this review. However, it is for UNDP to have a final view on this aspect.

(9) TERI also strongly objects to the language that has been used at a number of places in the report while referring to TERI. We also object to the wrong interpretation of facts at many places in the report. Use of words like 'nonsense', 'sloppy' is not warranted in a formal document like this and needs to be dropped. This does not reflect a considered and balanced use of words in the MTR report. Some of these have been mentioned under the head Specific Comments.

(10) There is a lot of repetition in the report. For example, the same issue related to financial planning and TERI's in-house expertise is mentioned at umpteen numbers of places without bringing any new perspective into the report. The reviewers clearly have got carried away with the usage of words like 'financial' and 'cost(s)'as is evident from the fact that each of these words have been used over 50 times in the report.

(11) The MTR report has made many sweeping allegations about TERI. This is totally wrong and TERI takes strong objection to these allegations. While specifics of these allegations have been replied under specific comments, we would like to point out that such allegations, if at all, needs to be directed at the PMU rather than TERI.

Specific comments

1. Executive Summary

(i) Page 4 Para 3

MTR Report: The financial planning of the project has been highly unsatisfactory. The PFC (the de facto PMU) has been run by TERI with minimal effective financial oversight. TERI billed the time of its staff's project inputs at rates that were very much higher than those specified in the project document, TERI did not even attempt to contract out tasks to lower cost external consultants, and no one noticed anything was wrong for nearly two years. TERI's arguments that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously stated in the ProDoc is simply not credible when the same TERI staff that were involved in the project's design and funding approval were involved in its implementation.

TERI's comments: This observation by the reviewers is wrong and denied. All the planned expenditures as per Prodoc for each year were duly mentioned in the AWP of the respective years and in no case the expenditure had exceeded the approved budget for the respective year. Moreover, TERI has been regularly submitting the financial progress in Face Forms on quarterly basis. It is wrong to say that TERI did not attempt to contract external consultants. The PMU has engaged external consultants/ institutes for undertaking specific project activities on regular basis. Hence it is false to allege that 'no one noticed that anything was wrong for two years'. The other experts from TERI were involved based on the project needs and requirements as consultants. Details of all activities undertaken and professional time spent by these consultants have already been provided to MoEF/ UNDP on 01/07/2011.

It is well-known that TERI has in-house experts available in different fields. These experts were involved in the project as consultants based on the needs and requirements. This was done in good faith based on mutual consultation between TERI and UNDP at the start of the project. TERI would like to place on record an interaction between TERI and UNDP during 2009. In this meeting, UNDP had clarified that it could engage its in-house experts in the project and that there are no budgetary norms/constraints for hiring of such experts/consultants under the project.

(ii) Page 4 Para 4

MTR Report: However, relying on an NGO/private consulting company (TERI) to look after the wider interests of India without close and constant supervision was intrinsically risky, and this risk was not recognised in the ProDoc. This enabled TERI to use its own staff to provide project consulting inputs

without proper TOR or tendering processes, and at staff rates that were several times higher than those that were clearly specified in the ProDoc.

TERI's comments: It is wrong and baseless to make such sweeping generalizations about NGOs/private consulting companies and wider interest of India. Such statements show the entire NGO/private consulting company sector in poor light and are detrimental to the developmental sector. TERI strongly objects to this statement. The sentence must be expunged from the text forthwith. It is submitted that TERI has a long and successful track record of successfully implementing projects with government, bilateral agencies and multilaterals organizations. All the funds received under the various projects are spent as per guidelines of the donors. The clarification regards involvement of TERI's own staff for the implementation of various project activities have been provided under point (i). This is not repeated here for sake of brevity. It is additionally submitted that the start of the project was delayed by about six months. Adopting a formal tendering process by the PMU would have further delayed the project activities.

(iii) Page 4 Para 6

MTR Report: So it appears that TERI never really understood or acted on the new project prerequisite that EE/REB clay fired bricks/blocks need extruders and extruders need a reliable electricity supply.

TERI's comments: The statement that TERI never really understood or acted on the new project prerequisite is wrong and denied. The PMU and all project consultants are fully aware of the need for adoption of mechanization for brick moulding process specifically for production of REBs and that extruders need reliable electricity supply. By making such allegations the reviewers are trying to pontificate a well-known fact known even to a layman in brick industry.

It is submitted that the project had organized eight exposure visits to the sites using mechanization for moulding bricks and upto 10 interactions with different technology suppliers (European, Indian and Chinese) till 2011.

(iv) Page 4 Para 6

MTR Report: So TERI implemented the project with a lot of awareness raising work, which would have been applicable in the earlier 2001-2002 project focusing on brick kiln firing, but got the "cart before the horse" in many regions of India in terms of their needing extruders and other mechanisation available and usable first before there would be any real point is raising awareness of REBs if they could not be provided locally, given that bricks are generally low value local products.

TERI's comments: This point is not clear and as to which cart and which horse the reviewers are referring to. It is reiterated by TERI that it is equally important to stimulate the demand for REBs by raising awareness as it is important to make REBs available by supply side measures like mechanization/semi-mechanization for REB production. The project has focused on several activities aimed at promoting adoption of mechanization/ semi-mechanization for production of REBs. Hence idioms like 'cart before the horse' are not relevant in the present context and should be dropped.

(v) Page 5 Para 3

MTR Report: UNDP's project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off. TERI should never have been allowed to spend project funds for nearly two years on its own staff without any proper contracting procedures being in place, nor should it have been able to charge around three times the rates for project coordination and administration input to those clearly specified in the ProDoc. UNDP and MoEF did move quickly and decisively once the routine financial audit uncovered what TERI had been doing, but by then the money had been spent and it was too late.

TERI's comments: The allegations leveled on TERI are wrong and denied. Even on comments related to lack of project oversight by UNDP, the reviewers have not missed an opportunity to put the blame on TERI. This clearly shows the bias of the reviewers against TERI.

(vi) Page 5 Para 4

MTR Report: The excessive project charge out rates and the frankly sloppy contract management by TERI constitute a misuse of project funds using ones position of trust for the financial advantage of one's own organisation (TERI).

TERI's comments: TERI strongly objects to the language used and the tone of the statement. The allegations are not correct and denied. The project funds have been utilized for professional charges and other expenses incurred by the project. The project has been regularly submitting financial statements (Face Forms) to UNDP/MoEF. UNDP has also engaged external auditors to conduct audit of the project in February 2011 and March 2012. In both the audit reports such sweeping and derogatory acquisitions like 'misuse of project funds using ones position of trust' have not been made. Such statements must be immediately expunged from the report.

Page 5 Para 4

MTR Report: UNDP has tried hard to renegotiate a more realistic PFC/PMU arrangement with TERI, but it does not seem that TERI has ever really engaged with the issue that they had misused their position of trust in the project, or even admitted that they had signed up to a particular specific ProDoc and therefore their PFC/PMU operations and staffing rates were bound by the ProDoc, including the PC (project coordinator) and assistant's rates that were clearly specified in the ProDoc.

TERI's comments: These comments of the reviewers are biased and incorrect. These are denied by TERI. The reviewers have not taken on board the views of the PMU and have apparently been wrongly influenced by UNDP in making such baseless observations.

It is wrong to state that UNDP tried hard to negotiate a more realistic arrangement with TERI. During all the meetings with UNDP, the PMU had always tried to arrive at a mutually agreeable solution. However, the issues could not get resolved due to inflexible attitude shown by the concerned UNDP official dealing with this project. This position was maintained by UNDP even after NPD had suggested during the 5th PSC meeting that UNDP and TERI should resolve the issues mutually. Subsequently, in the interest of the project TERI had proactively undertaken a number of consultations with UNDP to arrive at a mutually agreeable arrangement. The PMU has spent considerable time and effort in preparing and submitting all the relevant documents related to professional involvement, activities undertaken and professional cost charged to UNDP/ MoEF. It is further submitted that at the request of UNDP, a note was submitted by TERI to NPD with copy to UNDP on 23rd November 2011 seeking approval of the staffing rates (Annexure 38.1), but no response has been received till date. Meanwhile in a recent twist to the whole issue, UNDP conveyed to PMU that since there is no signed agreement with TERI, UNDP is not in a position to resolve the issues directly with TERI and that only NPD can take a decision.

Note:

TERI's comments on the "MTR recommendations" are provided under the head "Analysis and recommendations" of Specific Comments (Point [39] to [58]).

8. Introduction

(1) Page 7 Para 4

MTR Report: It should be noted that to date no India-specific or comprehensive pre-project baseline EE Brick information has been identified for perusal during the MTR.

TERI's comments: The comment on baseline is not relevant in the overall context of the project. Brick making is geographically dispersed and done in the informal sector. There is no organization in the country that keeps records of production and energy data related to brick sector. Also, the baseline preparation in itself is a massive task entailing huge manpower and resources. Under the project there were no specific activity related to compilation of a baseline for the brick sector.

It may be noted that one of the reviewers is an ex-employee of TERI and was previously spearheading the brick project. Both the FSP and MSP were prepared under his guidance. To recall, it is reiterated that a baseline study was undertaken in 2000-01 for preparation of FSP ProDoc. The baseline was based on field data and extensive interactions with industry associations at state/ cluster levels. This baseline was used during the preparation of MSP in 2005-06. The MSP was approved by GEF in 2008 and project activities were initiated in October 2009. The reviewers in Page 10 para 4 have stated that "a new formal project baseline and project alternative development phase was apparently not included, presumably due to a lack of specific funding to undertake such work".

After the start of the project, the PMU has discussed with UNDP that the project should consider the energy consumption in the year 2009 for the 12 brick kilns where the project plans to intervene to be the baseline. Hence there is no need for putting efforts to determine an all-India baseline in this case which would require a considerable percentage of project budget.

(2) Page 7 Para 5

MTR Report: However, while a LogFrame and baseline and incremental analysis was included in the ProDoc, it is now clear that they were very generic, and in particular that the absolutely key role of clay mixing and extruding mechanisation was not identified for the actual realization of EE bricks in demonstration sites and in any subsequent replication plants in India.

TERI's comments: The LogFrame, baseline and incremental analysis are approved documents by GEF. It is well known that production of clay fired resource efficient bricks cannot be produced manually. The key role of clay mixing and mechanization is recognized in the MSP. These facts have also been considered in the LogFrame. Perhaps these are not explicitly visible since only Outcomes are detailed in the LogFrame and not Outputs and Activities. From the very beginning, the project is promoting

adoption of mechanization by brick kiln entrepreneurs. Even the project profiles provided in the ProDoc highlight this feature.

Additionally, attention is drawn to TERI's comments provided on a similar reference to mechanization in Page 4 Para 6 point (iii) of the specific comments on Executive Summary)

3. The Project and its development context

(3) Page 9 Para 2

MTR Report: The intermediate technology of soft molding machinery (as used in India and elsewhere, and also as somewhat promoted in the India Brick EE project) can also only really produce solid bricks.

TERI's comments: It is clarified that the project is not promoting the soft molding machinery which cannot be used for REB production. It only promotes mechanization for production of REBs. This may please be corrected.

(4) Page 11 Para 1

MTR Report: What was clearly not fully appreciated in the new 2005-2008 India Brick EE project formulation process is that one cannot make REBs without mechanisation, including in particular extruders, and that one cannot mechanise or operate extruders without a reliable electricity supply. In addition, it was clearly not fully appreciated (and is even now not generally recognised by project stakeholders) that to produce REBs one really requires the addition of controlled drying of the newly molded extruded green bricks, at a minimum in drying sheds, and that once production reaches a certain level then mechanically ventilated drying chambers start to need to be used.

TERI's comments: The comments related to use of mechanization for REB production is being stated for the third time in this report by the reviewers (already stated in Page 4 Para 6 and Page 7 Para 5). Any way as reiterated in comments to these para earlier also their observations are not correct. The India Brick EE project is well aware of the fact that the resource efficient bricks (hollow/ perforated bricks/ blocks) cannot be produced manually and the basic minimum requirement is adoption of semi-mechanisation/ mechanization in the brick kiln units. This has already been explained in Point (iii) of the specific comments on Executive Summary.

It is totally wrong and baseless to allege that the project has not fully appreciated that controlled drying for production of REBs. The project is fully aware that drying is one of the most important aspects related to mechanized moulding and REB production. Hence these have been duly

incorporated in the project profile reports of various clusters. This fact has been also recognized in the Prodoc (refer Annexure 4 of Prodoc)

It is also wrong to state that need for controlled drying has not been recognized by the project stakeholders. The project has had detailed interactions with brick kiln entrepreneurs on drying. All the brick kiln entrepreneurs with which the project is associated have basic drying sheds for drying of extruded bricks. The project is well aware that after certain level of mechanization, mechanically ventilated drying chambers are required. At present, no customized solutions are available for addressing this need by brick kilns in different regions of the country. Therefore, the project has been facilitating knowledge exchange of progressive brick kiln entrepreneurs with Indian, European and Chinese technology suppliers who can be approached for developing customized drying solutions once the production of mechanically moulded bricks reaches a certain minimum level.

These comments are wrong and not based on facts. They anyway serve no other purpose in the report other preaching some technical jargons to the lay read of the document. These comments need to be removed.

(5) Page 11 Para 2

MTR Report: Along with these early mechanisation attempts there was also the development of extruded brick BIS standards, but unfortunately the minimum perforation level was set at 35% for bricks, and it has transpired that this level of perforation was too ambitious. This is now an inadvertent barrier to the uptake of perforated bricks, as with the 35% minimum perforation level set in BIS standards, and government related brick purchase contracts are unable to use bricks with lower levels of perforations. Requests to amend the relevant BIS standard to include levels of acceptable brick perforations of lower than 35% have been made, but no clear process or timeline is apparent in this necessary relevant BIS standard updating processes.

TERI's comments: The BIS Standards stipulates a minimum perforation percentage as 30% and not 35% as mentioned in MTR report. At present the level of perforations in the bricks being produced in the country is around 10%. Even this level of perforation is presently not acceptable in the market. Therefore, the project has regularly interacted with BIS on this aspect.Even during the interactions with BIS, it has been suggested by BIS that they would be requiring a report preferably by a government institution recommending the suitability of perforated bricks in masonry construction. This is part of the study presently being undertaken by IIT-Roorkee.

On the issue of timelines, BIS has its own procedures and the same was clarified during the stakeholder consultation on 7 March 2012 by the BIS representative. Till 2011, the project was trying its best to expedite the process. To this effect, one of the project team members has also been included in one of the Committees of BIS that deals with this subject.

(6) Page 11 Para 3

MTR Report: Unfortunately the India Brick project has not yet supported such obvious extruder familiarization and import assistance initiatives.

TERI's comments: TERI strongly rejects this statement. It seems that the reviewers have ignored TERI's inputs on this subject.

The project is promoting adoption of mechanization for REB production and all the project efforts till date with brick kiln entrepreneurs are towards achieving this. As a matter of fact, the project has organized 8 number of exposure visits to the sites using mechanization for moulding bricks and 10 number of dedicated interactions with different technology suppliers (European, Indian and Chinese) till 2011. The project has even facilitated the interaction of progressive brick kiln entrepreneurs with state industry department in Bangalore region for providing assistance to brick kiln entrepreneurs to visit China. The facilitation process for brick kiln entrepreneurs for the exposure visit to China has also been included as an activity in the proposed AWP 2012 submitted in December 2011.

(7) Page 12 Bullet Point 1

MTR Report: TERI is a large independent NGO/private consulting firm and was the developer of the GEF project.

TERI's comments: It may please be noted that it is not a "private consulting firm". TERI is registered under Societies Registration Act 1860 (Punjab Amendment) Act, 1957 as applicable in Delhi (Registration No S-7159 dated 18 June 1974). This may be suitably corrected in the report.

(8) Page 12 Footnote 7

MTR Report: Note that there was no mention in the India Brick EE ProDoc of the PFC consisting of more than two contract local consultants working on a part time basis, there was no mention of TERI providing either the two local consultants or the bulk of technical expertise without contracting this out as per normal practice, the rates for the PC (project coordinator) and the assistant were clearly specified in the ProDoc and comprised normal national rates for such roles, and the cost for these two roles were clearly stated to total $75,000 for the whole four scheduled years of the project's implementation.

TERI's comments: It is correct that the ProDoc does not explicitly mention under which head TERI can charge its manpower. It is precisely for this reason that the TERI team sought a meeting with the Program Officer handling this project at UNDP before preparing the first Face Form (July to

September 2009)[1], A meeting was held at UNDP office which was attended by two senior officials from TERI and Program Officer handling this project from UNDP . During the meeting, TERI asked where we could charge our manpower as there is no mention of TERI under different budget heads. It was clarified by UNDP that TERI can charge its manpower as consultant under the head 'Local consultant' at TERI's manpower rates. It was further mentioned by UNDP that the amount under different budget heads in the same outcome can be readjusted. The issue of TERI rates was also discussed in the meeting held on 2 December 2009 in response to the first Face Form that was submitted by TERI. During the discussions in this meeting also, it was communicated by TERI that it used the existing manpower costs of TERI. As is clear from the above, the issue of rates and use of TERI in-house expertise was discussed during this initial period with UNDP officials. TERI regularly prepared and submitted the Face forms subsequently claiming for the work undertaken by TERI team under different outcomes, including PMU. All these quarterly Face Forms[2] were duly approved by the competent authorities and TERI regularly received the payments.

TERI would also like to submit that a detailed response clarifying the basis for arriving at the TERI rates was provided to UNDP auditors on 28 April 2011 (see Annexure 8.2).

4. Findings and conclusions

(9) Page 14 Para 2

MTR Report:

- *Coneptualisation/design – marginally satisfactory*
- *The core TERI team involved in the preparation of the two proposals was the same during the formulation of the two ProDocs, and the TERI team relied heavily on the baseline information collected in 2001 for the FSP. No new baseline study was undertaken for the 2007 MSP proposal.*

TERI's comments: The core team at TERI that was involved in the preparation of FSP and MSP at that time was in fact led by the National Consultant of the present MTR team. Although TERI agrees with the view in the MTR that conceptual design of the MSP is weak, it is surprising that this is being raised by the same person who had conceptualized it initially. However, as per the knowledge of

[1] The first Face Form (July to September 2009) was not accepted by UNDP as it was informed that the project expenses can only be incurred after receipt of funds from UNDP in the project bank account. Hence, the October to December 2009 period was considered as the first accounting period (1st Face Form) (See correspondence at Annexure 8.1)

[2] It may be noted that there is no provision available in the Face Form to show the details of manpower charges and professional time spent.

other members of TERI who were part of the team, it was a general understanding between TERI team and UNDP team that TERI would use the same baseline with modified objective for preparation of the MSP. The reason was that FSP was not approved and it was conveyed to TERI that MSP can be prepared and the process of approval of MSP was simple and would take less time (which ultimately was not the case). Accordingly, the MSP was prepared and submitted during 2006 and had undergone number of iterations before being finally sanctioned in April 2008. At no point of time during these iterations, TERI was suggested to prepare a new baseline.

(10) Page 14 Para 8

MTR Report: One of the weakest links of the project document is its LFA (Logical Framework Analysis) section.

TERI's comments: The original LFA submitted for approval of UNDP during June 2006 had undergone a number of changes before the final version in existing form. It may please be noted that the existing version was finalized by UNDP without taking inputs from TERI. In the interest of the project, TERI continued with that LFA and carried out activities to achieve the targets. However, considering the ground realities, TERI requested for modification of the existing LFA mid-way through the project. In concurrence from UNDP, the project revised the LFA and after a number of interactions with UNDP, it was submitted to UNDP/ MoEF on 12 December 2011 along with AWP for the year 2012. There is no approval so far on the revised LFA.

(11) Page 15 Para 1

MTR Report: Outcome 4 assumes that all the 12 demonstration units would be established and would start production early in Year 1 of the project. This assumption of being able to establish all demonstration units almost immediately in the beginning of the first year of the project's implementation is clearly totally unrealistic.

TERI's comments: While preparing the MSP, the project team was closely involved with progressive brick kiln entrepreneurs who had shown keen interest in adoption of mechanization and production of REBs. However, there was considerable delay in the formal approval process (about 3 years) and the project team could not engage with most of these brick kiln entrepreneurs for such a long period. When the MSP was finally approved, some of the earlier contacts had gone ahead with their own business plans and the project team had to start afresh and all the ground works undertaken earlier had lost its importance. It may also be noted that the communications regarding approval of MSP were received around mid 2009 and the brick making season in India generally ends around this period.

(12) Page 15 Para 2

MTR Report: The project document overestimates CO_2 savings. The calculations are based on a simple assumption of 30% reduction in weight of bricks uniformly across all different types of resource-efficient bricks, without giving any technical specifications of the resource efficient bricks or reference to studies to support the claim. Further, for estimating CO_2 savings for Year 1, it is assumed that all 12 demonstration units would produce around 80% of their production in Year 1, which would only be possible only if all the demonstration units were commissioned in the first quarter of Year 1. This is clearly nonsense.

TERI's comments: Although TERI agrees to the initial text, we strongly object to the use of unprofessional words like "nonsense" in a technical review report.

(13) Page 16 Para 1

MTR Report: i) There is no evidence available that suggests that any meaningful discussion on the project's logical framework happened during the project's inception meeting. As indicated earlier, the targets for several outcomes are unrealistic and were formulated without proper baselines. The minutes of the five PSC meetings do not refer to any discussion on the logical framework or any attempt by the responsible party to address the issue of problems with an inadequate logical framework or to suggest modifications to the original logical framework. The responsible party in the later half of 2011 submitted a revised logical framework, however it is yet to be discussed in the PSC.

TERI's comments: The inception meeting was attended by all the important stakeholders of the project. During the inaugural session, TERI made the background presentation in which the objective, scope of the project, expected outcomes and all the challenges envisaged during the implementation of the project were discussed in detailed[3]. Please refer to the presentation of TERI during the inaugural session (Annexure 13.1). Respecting the approved LFA, the project put in the best efforts to achieve the desired outputs. However, considering the ground realities, once it was felt by the project that there is a need to revise the LFA, the project took initiatives as has been elaborated in detail under Point (10). It may please be noted that "modifications to the original logical framework" is not a straight forward process. The LFA goes through a formal process of approval till GEF.

Further in this regard, TERI would like to remind the reviewers that the process of developing a GEF project in brick sector started in April 2001 with the submission of Project Concept Note by TERI.

[3] It may please be noted that TERI was given the LFA (as part of the ProDoc) at the start of the project. The final LFA as existing in the ProDoc was prepared by UNDP international experts.

After more than eight years (with many modifications/changes in between), the project formally started in October 2009 (Please see table 1). The reviewers should appreciate that it would not have been appropriate for TERI to point out the deficiencies in the LFA in the inception meeting or immediately thereafter when everyone was waiting for the project to start. Putting hurdles at that stage would have meant further delays in the start of the project. It is highly disappointing to note that TERI's positive view is now being interpreted as a shortcoming in the review report.

Table 1: Project milestones

Month/Year	**Milestones**
April 2001	Submission of Project Concept Note by TERI
February 2002	Submission of Project Document by TERI
March 2005	Endorsement by MoEF for preparation of PDF-A document
June/August 2006	Submission/Re-submission of Project Document by TERI
September 2006	Project endorsement by MoEF
Aug/Sept/Dec 2007	Re-submissions of Project Document by TERI
March 2008	GEF agency approval
October 2009	Formal start of project (Date of receipt of first installment by TERI)
November 2009	Project inception workshop

(14) Page 16 Para 2

MTR Report: The planning of work lacks a suitable strategic focus. None of the PSC minutes suggests that detailed discussions took place on annual work plans.

TERI's comments: TERI strongly rejects this statement. It may be noted that the AWPs were presented in Project Steering Committee meetings for seeking approval. The details are presented in table 2.

Table 2. Details of discussion on AWP in PSC meetings

S No	AWP	PSC meeting	Date	One of the agenda/discussion points	Reference
1	2009	1st PSC	04.09.2009	AWP was approved before the 1st PSC. PMU presented the proposed activities in the PSC meeting.	Presentation by PMU (Annexure 14.1)
2	2010	2nd PSC	23.03.2010	Approval of AWP-2010	Presentation by PMU (Annexure 14.2)
3	2011	4th PSC	06.01.2011	Approval of AWP-2011	Presentation by PMU (Annexure 14.3)

It may be noted that Minutes normally do not reflect on the detailed discussions that happen in the meetings. They in general reflect the key points and decisions. However, UNDP may like to comment on this point further as the minutes in this project have always been prepared by UNDP.

(15) Page 16 Para 2

MTR Report: The selection of LRCs in the West and Northeast regions of India seems to have been done without proper assessment.

TERI's comments: For the Western region, CEPT University, Ahmedabad was identified as the LRC. It is a well established institute working in the field of architecture /building materials. The strengths of CEPT in relation to this project include undertaking studies related to resource efficiency and simulation studies. From the beginning, the project intended to utilize these strengths of CEPT to contribute towards achieving the project outputs. Hence CEPT was identified as LRC for western region.

The North East region was added to the project by MoEF during 1st PSC meeting (reference Point (2) of the minutes of the 1st PSC meeting attached as Annexure 15.1). Accordingly the PMU made efforts through available contacts to select a suitable LRC for the region at the earliest. PSCST that had already been identified as LRC for northern region recommended that Tripura State Council for Science and Technology (TSCST) is an active organization in north-east region and have undertaken some activities in brick sector. Accordingly PMU contacted TSCST who showed interest and expressed their willingness to work as LRC for north-east region under the project. TERI interacted with TSCST and found that they had in fact undertaken some activities in the past in brick sector and moreover they were willing to actively work in the brick sector. It may further be noted that there are hardly any organizations working in North east region in the brick sector.

Considering the above, it is not appropriate to say that selection of LRC s in North east and Western region has been done without proper assessment.

(16) Page 16 Para 2

MTR Report: The annual contracts with LRCs are not sufficiently detailed and there are no MOUs/agreements between the PFC and LRCs covering the entire duration of the project. Finally, no proper arrangement for interaction between the PFC and the LRCs seems to be in place.

TERI's comments: TERI disagrees with this statement. In fact, the annual contract with all LRCs clearly mentions about the activities to be undertaken during the year, related budget, timelines and desired outputs. Since the AWPs are approved on yearly basis, accordingly the agreements were

signed with respective LRCs on annual basis. However, all the LRCs were aware of the fact that it is a 4-year project and the contract will be signed for each year.

It may be noted that PMU remained in contact with the LRCs on a continuous basis through telephone and emails. Regular project meetings were also organized with LRCs to discuss about the project progress. Their inputs were also taken in preparing AWPs and QPRs. It is surprising that statements like "No proper arrangement for interaction between the PFC and LRCs seems to be in place" are being made without proper assessment and justification.

(17) Page 16 Para 3

MTR Report: (iii) The project has a well presented operational website, and most of the technical reports have been uploaded on the website. However, the quality of many of the reports is not a of a very high standard.

TERI's comments: We would like to state that during the presentation by MTR team on 7 March 2012 at MoEF, the project website was very much appreciated. However, in the evaluation report, this observation seems to have been mellowed down by the reviwers. The reasons for this are not clear.The reviewers should note that the website was created in 2010. All the materials and reports were being uploaded regularly till 2011. Before uploading in the project website, all the reports were duly shared with UNDP/MoEF through QPRs. We never received any feedback on the contents and quality of material uploaded in website. The only feedback received from UNDP was in the month of April 2012 (It may please be noted that this was after the MTR mission).

(18) Page 16 Para 4

MTR Report: The involvement of LRCs in the planning of their project activities is low. No proper arrangement for interaction between the PFC and the LRCs seems to be in place.

TERI's comments: TERI does not accept this statement. The LRCs were duly involved in project planning and implementation of approved activities. Regarding interaction with LRCs, please refer to our response under Point (16).

(19) Page 16 Para 5

MTR Report: The monitoring and oversight both by both PMC and PSC has clearly been weak. There have been significant deviations from the ProDoc, which are evident in the assessment of the work under each component presented later in this report.

TERI's comments: The activities were planned in accordance with ProDoc. However, during the implementation of the activities, the need was felt to undertake additional activities which were not envisaged in ProDoc. These additional activities were important for the project and the approval for such activities were duly taken in PSC meetings. For example, structural stability study, Work in North-East region, Revision of BIS code, study on soil suitability for REB production, are some of the activities which were not mentioned in the ProDoc but were undertaken by the project in good spirit. It was mentioned in ProDoc that a total of 12 demonstration units will be operational by end of Year-1. However, in the 1st PSC itself it was mentioned that during the year the project will focus in two clusters only namely Bangalore and Punjab and was duly approved by the PSC. Kindly refer to Point (2) of the minutes of the 1st PSC meeting (Annexure 15.1). Further it was clearly reported in QPR (Oct-Dec 2010) that the project provided support to 7 brick kiln units for production of REBs. The same was duly brought to the notice of the steering committee members during 4th PSC meeting held on 6th Jan 2011 (Refer presentation made by PMU attached as Annexure 14.3). Hence, mentioning that oversight by PMU and PSC was weak is not justified.

(20) Page 16 Para 5

MTR Report: The annual work plans and financial allocations have not been sufficiently discussed in the PSC meetings. The contracts with technical experts and LRCs have not been sufficiently detailed.

TERI's comments: TERI does not agree to this statement. Our response to this statement is already given in Point (14) and Point (16).

Hence, we feel that interpreting monitoring, review and evaluation as "unsatisfactory" is unjustified. It is reiterated that the AWPs were discussed and approved after presentations in PSC. A simple statement like "annual work plans …… have not been sufficiently discussed in PSC meetings" is incorrect. Reviewers may like to see the presentations that were made in PSC meetings.

(21) Page 16 Para 6

MTR Report: However, the project has not significantly involved the LRCs and brick manufacturers in planning and decision-making.

TERI's comments: TERI does not accept this statement. LRCs were closely involved in project planning and decision making. This is also reported in Point No. 16. The brick kiln entrepreneurs participated in various project meetings like project inception meeting, cluster meetings and regional meetings. Apart from these meetings, the one to one interactions with progressive brick kiln entrepreneurs were used to obtain their feedback and plan the project activities.

(22) Page 16 Para 6

MTR Report: The project has been able to engage specific technical experts like NIIST, IZF and CEPT but has not been able to build strategic partnerships.

TERI's comments: TERI is not agreeable to this statement. The project already has strong partnership with the mentioned institutes. These partnerships were built to carry out the project related studies. CEPT is already working as LRC in the project.

(23) Page 16 Para 6

MTR Report: The project has engaged with Wienerberger since 2009, but due to a lack of strategic focus has not been able to derive the full benefit of this relationship.

TERI's comments: Wienerberger is an European company, who has set up a technical advanced and modern brick kiln unit near Bangaluru for the production of hollow blocks. Wienerberger has in-house technical expertise as well a professional marketing team. It is only due to the efforts of the project team that a large European company like Wienerberger that does not need any support from the project of this nature agreed to closely involve in various activities of this project. The experts of Wienerberger have participated in various forums like meetings/ workshops/ conference, etc on their own expenses to promote production and use of clay fired REBs. On the request of the project, they have allowed exposure visits in their unit by progressive brick kiln entrepreneurs and have also shared their training facilities and trainers for undertaking masons training program. Hence, TERI feels that the project has benefited from the engagement with Wienerberger effectively and therefore, TERI refutes this statement. In fact, we feel that engagement with Wienerberger has been one of the major achievements upfront in the project. This aspect has been overlooked by the reviewers.

(24) Page 16 Para 7

MTR Report: The financial planning of the project has been highly unsatisfactory. The PFC (the de facto PMU) has been run by TERI with minimal effective financial oversight. TERI billed the time of its staff's project inputs at rates that were very much higher than those specified in the project document, TERI did not even attempt to contract out tasks to lower cost external consultants, and no one noticed anything was wrong for nearly two years. TERI's arguments that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously

stated in the ProDoc is simply not credible when the same TERI staff that were involved in the project's design and funding approval were involved in its implementation.

TERI's comments: TERI does not agree to the statement that the PMU has been run by TERI with minimal effective financial oversight. All the planned expenditures for each year were duly mentioned in the AWP of the respective years and in no case the expenditure had exceeded the approved budget for the respective year. Moreover, TERI has submitted the financial progress in Face Forms on quarterly basis. The statement "TERI's arguments that it was unaware ….." is incorrect. TERI never mentioned it in this fashion to the reviewers. This point regarding rates and involvement of TERI staff has already been explained in Point (8).

Regarding involvement of external consultants, it has been also explained in point no 9. Further, it may be noted that the PMU has engaged external consultants/ institutes for undertaking specific project activities on regular basis as per project needs (e.g. NISST, IZF, IIT-R etc). If all the external consultants were to be hired externally, UNDP should have clearly informed TERI in this regard. Rather, UNDP had informed TERI can use its own resources under the head "Local consultants". Hence, in the light of the above facts, this observation needs to be re-looked objectively.

(25) Page 17 Para 2

MTR Report: The project has developed a number of activities that will likely produce useful ongoing results beyond the project's end. However, the lack of apparent urgency or defined timeframes for key outputs such as the revision of BIS standards or the completion of the brick material and structural studies by IIT Roorkee is a concern. TERI seems unconcerned about these issues around project sustainability.

TERI's comments: TERI does not agree to this statement. It may be noted that the study by IIT Roorkee and the revision of BIS Standards were not envisaged in the Prodoc. These activities were initiated by the project considering their importance in achieving project outputs and the project sustainability. For the records, we would like to mention that the project had tried very hard to engage CBRI, Roorkee for undertaking the structural stability study as suggested by the Additional Director General of CPWD during the Focused Group Discussions at New Delhi on 9th November 2010. The project had requested CBRI, Roorkee a number of times to undertake this study and even organized a meeting with the senior officials of CBRI in December 2010 in this regard. The NPD also took keen interest in this activity and requested CBRI, Roorkee to undertake this study. Subsequently, on TERI's request, a reminder in the form of a DO letter was also sent by the NPD to CBRI, Roorkee. The NPD had even facilitated the sending of a letter by Secretary, MoEF to Secretary, DST in this regard. This issue was discussed in the PSC and it was suggested that TERI could contact other reputed institutes like IITs. Accordingly, the project took initiatives, identified IIT, Roorkee and

initiated the discussions with them. On approval by the NPD, the project engaged IIT, Roorkee for undertaking this study. This entire process took 11 months.

Further, the initiatives with the BIS were also undertaken by the project on its own and the project has been successful in becoming the member of the relevant committee of BIS. Since there is no approved action plan in place for the year 2012, TERI could not pursue with BIS on this aspect.

Therefore, the statement that "TERI seems unconcerned about these issues around project sustainability" is highly objectionable and TERI strongly refutes it. This clearly shows that reviewers were not fully aware of the efforts made by TERI and MoEF Hence, the paragraph may be reworded.

(26) Page 17 Para 3

MTR Report: The lack of real national government project ownership, plus a lack of suitable budget oversight by UNDP until mid 2011, meant that for nearly two years no one noticed that TERI was employing its own senior staff to work on the project with no set TOR or defined deliverables or quality checks, and at what were effectively full international consultancy rates, rather than utilising its own lower cost more junior staff - or even more cost effectively contracting individual staff consultants or external consultants at Indian national rates as was clearly envisaged in the ProDoc's clearly stated national consultancy rates.

TERI's comments: These observations are being repeated a number of times. The issue regarding the involvement of TERI professionals and manpower charges has already been explained in detail under Point (8).

(27) Page 18 Para 1

MTR Report: No evidence was provided to the MTR team which shows that the usage of RE bricks has increased in public buildings during the project's implementation to date.

TERI's comments: It may be noted that the data regarding the use of REBs in public buildings was not collected owing to the difficulties in getting information from government departments. Considering this, the project had already submitted the revised LFA for approval.

(28) Page 18 Para 4

MTR Report: However, the proposal and the contract between TERI and IIT Roorkee is sketchy in terms of technical details regarding the tests to be conducted.

TERI's comments: TERI does not agree to this statement. The agreement signed between IIT-Roorkee and TERI has clearly defined deliverables that would help in meeting the needs of the project for carrying forward the initiative with CPWD and BIS. It was not felt necessary to spell out micro level details of tests in the TOR since IIT, Roorkee is a world renowned institute in field of civil/structural engineering. The tests to be conducted were identified by IIT-Roorkee only as they know this field better than all the concerned stakeholders. Further, the ToR was signed after approval from NPD. During the interaction with PMU, the MTR team never asked for any details of the tests, which by that time were known to TERI. Therefore, this statement needs to be removed.

(29) Page 18 Para 5

MTR Report: The BIS standard for burnt clay perforated bricks (IS 2222: 1991) specifies that the area of perforations shall be between 30-45% of the total area of the corresponding face of the brick for it to be considered as a perforated brick. As most of the perforated bricks being produced in India have lower levels of perforations (10-15%), TERI has apparently been pursuing with BIS an amendment to the specifications.

TERI's comments: TERI has taken concrete steps in pursuing with BIS on modification of existing codes. The MTR team has acknowledged this and mentioned in the same para that a letter has been written by TERI to BIS. Therefore, the word "apparently" needs to be dropped from this line.

(30) Page 21 Para 4

MTR Report: The 5 model DPRs prepared by the project require revision and several improvements:

- *The DPR does not provide the specification of the product i.e. REBs (size, perforation, physical characteristics) that would be manufactured.*
- *There is no description of the relevant manufacturing process*
- *The assumptions on arriving at the cost of production are not stated*
- *None of the DPRs seems applicable for the production of hollow blocks*

TERI's comments: It may be noted that DPRs are prepared as "*model DPRs"* that can be used by interested brick kiln entrepreneurs for preparing their unit-specific DPR. The specifications for REBs

(size, perforation, physical characteristics) are already notified by BIS. The flow chart for manufacturing process is provided in the DPR. The cost of production has been taken as per the discussions with brick kiln entrepreneurs and machinery suppliers.

It is to inform the reviewers that that the approach used here for DPR preparation is that of a model DPR rather than a unit specific DPR for a particular product. Therefore, the nature of model DPR is intentionally kept general so that a large number of interested brick kiln entrepreneurs can use these DPRs as base to prepare their unit specific DPR. This approach has been used extensively by the Govt of india also in their SME programs. Hence, reviewers are requested to re-look at this observation.

(31) Page 21 para 5

MTR Report : However, the support appears based on PSCST brand-equity rather than on a critical appreciation of REB project

TERI's comments: TERI does not agree with this statement. It may be noted that no FI will give any letter of support without duly getting into details of a project. In this case, Corporation Bank is one of the leading commercial banks in the country. It will never give letter just on the basis of brand equity of an organization. Hence , we feel that this statement needs to be dropped.

(32) Page 21 Para 5

MTR Report: It appears that the two letters of approval from the financial institutions have had little practical significance or utility.

TERI's comments: The project team including LRCs have contacted the lead banks in their respective regions and found that the banks/ financial institutions seem to be reluctant to engage with brick sector. It is true that the leading brick kiln entrepreneurs can avail financial assistance based on their credit worthiness. However, this is not true for rest of brick kiln fraternity. The letters of approval from the financial institutions indicates their approval of the REB projects in general and shows their interests and willingness to work in the brick sector that was generally being ignored by the financial institutions. These letters help in motivation of brick kiln entrepreneurs and building their confidence level in approaching financial institutions for availing loans for technology upgradation. This is more appropriate for the group of brick kiln entrepreneurs who are next in line to the progressive brick kiln entrepreneurs.

(33) Page 22 Para 6

MTR Report: The PFC and the LRCs do not seem to have a comprehensive understanding of the current and the future market potential for REBs.

TERI's comments: TERI does not agree with this specific statement. However, TERI acknowledges the need to lay more emphasis on marketing. In fact, the market potential for REBs is one of the important aspects of the project and this was also discussed during the 5th PSC meeting of the project. A draft TOR to engage market consultant was prepared and was submitted to UNDP for their approval. An activity to this effect has also been included in the draft AWP 2012.

5. Lessons learned

(34) Page 27 Para 1

MTR Report: However, relying on an NGO/private consulting company (TERI) to look after the wider interests of India without close and constant supervision was intrinsically risky, and this risk was not recognised in the ProDoc. This enabled TERI to use its own staff to provide project consulting inputs without proper TOR or tendering processes, and at staff rates that were several times higher than those that were clearly specified in the ProDoc.

TERI's comments: TERI strongly objects to these wordings. TERI has been successfully implementing a number of projects in the field involving a variety of donor agencies e.g. government, bilaterals and multilaterals and foundations. TERI has strong and long-term partnerships with these organizations.

Regarding the statement on involvement of TERI's professionals and the related manpower charges, explanations have been provided in Point (8).

(35) Page 27 Para 3

MTR Report: So it appears that TERI never really understood or acted on the new project prerequisite that EE/REB clay fired bricks/blocks need extruders and extruders need a reliable electricity supply.

TERI's comments: The doubts on TERI's capabilities are unwarranted. TERI is fully aware of the need for adoption of mechanization for brick moulding process specifically for production of REBs. As reported under Point (6), the project had undertaken a number of initiatives to expose the brick kiln entrepreneurs to mechanization (use of extruders). Further, the project also understands the status of electricity supply in brick kilns and therefore, even in the cluster profile reports of Prodoc, the

provision for DG set has been duly covered. TERI also objects to the tone and language used in this para (TERI never really understood……).

TERI recognizes the importance of extruders but at the same time one cannot ignore the relevance of awareness generation, which is a well-recognized barrier in the Indian MSME sector in general, and brick sector in particular. Hence, using a phrase like "cart before the horse" is not justified. In this regard, TERI would also like to mention that all the activities undertaken by the project including awareness generation were as per the duly approved AWPs.

(36) Page 28 Para 3

MTR Report: UNDP's project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off. TERI should never have been allowed to spend project funds for nearly two years on its own staff without any proper contracting procedures being in place, nor should it have been able to charge around three times the rates for project coordination and administration input to those clearly specified in the ProDoc. UNDP and MoEF did move quickly and decisively once the routine financial audit uncovered what TERI had been doing, but by then the money had been spent and it was too late.

TERI's comments: TERI does not agree to this statement. Statement that UNDP during the initial two years had a hands-off approach is clearly incorrect. As mentioned in Point (8), UNDP team was fully involved in various meetings wherein the issue of rates and involvement of TERI professionals were discussed. In fact, TERI used its own staff at prevalent rates only on the advice of UNDP.

(37) Page 28 Para 4

MTR Report: The excessive project charge out rates and the frankly sloppy contract management by TERI constitute a misuse of project funds using ones position of trust for the financial advantage of one's own organisation (TERI).

TERI's comments: TERI strongly objects to these wordings (e.g. use of derogatory words like "sloppy"). We would like to place in record that TERI has never ever intended to utilize the project funds for its own advantage and never misused the position of trust for its own financial advantage. All the activities under the project and related financial management have been undertaken with good intention and faith. The issue regarding the involvement of TERI professionals and manpower charges has already been explained in detail under Point (8).

(38) Page 28 Para 4

MTR Report: UNDP (and MoEF) took strong and decisive action to stop further excessive expenditure by TERI once it was clear what had gone on. UNDP has tried hard to renegotiate a more realistic PFC/PMU arrangement with TERI, but it does not seem that TERI has ever really engaged with the issue that they had misused their position of trust in the project, or even admitted that they had signed up to a particular specific ProDoc and therefore their PFC/PMU operations and staffing rates were bound by the ProDoc, including the PC (project coordinator) and assistant's rates that were clearly specified in the ProDoc.

TERI's comments: TERI does not accept the above. During all the meetings with UNDP, TERI had always tried to arrive at a mutually agreeable solution. As an example, TERI agreed to provionally use ProDoc rates for its professional involvement in all Face Forms submitted since Q3 of 2011. This was at the specific request of UNDP team that till the decision on TERI professional rates is pending, TERI should use ProDoc rates for future Face Forms. Similarly, TERI even proposed a lumpsum amount towards the balance period of the project in its communication dated 23 November 2011 to NPD with cc to UNDP (Annexure 38.1). This clearly shows that TERI has always tried to find an amicable solution. However, no significant initiative has been taken by UNDP to sort this impasse and in this process precious time of nearly 15 months has been lost. We would like to state for the benefit of the reviewers that UNDP has conveyed that they do not have any signed agreement with TERI; so they cannot negotiate with TERI and that they can only discuss the same with MoEF. This is in spite of the fact that the NPD had clearly suggested during the 5th PSC meeting that UNDP discusses the issue with TERI directly (See S No 9 of Annexure 38.2). TERI and UNDP did have a a number of meetings on the subject and TERI submitted all the relevant details like professional involvement, activities undertaken and professional cost charged to UNDP/ MoEF. However, till date this issue remains unresolved leading to this situation where the ultimate loser is the brick fraternity.

6. Analysis and recommendations

(39) Page 29 Para 3

MTR Report: Wienerberger have undertaken considerable awareness raising and training, they have around five in-house masons and two applications engineers focusing on providing training, and they have trained around 4,500 masons in the proper placing and mortaring of hollow blocks (noting that this is around ten times the applications focused technical training delivered by the India Brick EE project to date). So Wienerberger have single handedly built a major and expanding market for fired clay hollow blocks in South India.

TERI's comments: As mentioned in the MTR, Wienerberger is an European company with 227 plants worldwide with the Bangaluru plant being the most advanced using a tunnel kiln, chamber dryer and is fired by petcoke and LPG. According to market estimates, the Bangaluru plant has been built with an approximate investment of about Rs 200 crores. Moreover, the annual marketing budget of Wienerberger is Rs 2 to 3 crores, in comparison to the total project cost of Rs 3.13 crore for a period of 4 years covering all the regions of the country. Therefore, it may not be appropriate to compare the project achievements with Wienerberger. In fact, the reviewers need to acknowledge the efforts made by TERI to bring Wienerberger on board in this project.

(40) Page 30 Para 3

MTR Report: Apparently TERI has written a letter to BIS (Bureau of Indian Standards) on 25th November 2011 to this effect, however there was no evidence of any TERI follow-up with BIS or of any clear TERI-led process to get a revised IS: 2222-1991 standards development process actually underway in reality under the set BIS formal standards updating process.

TERI's comments: TERI does not agree to this statement and our response is elaborated under Point (29).

(41) Page 30 Para 4

MTR Report: As detailed under Outcome 1 Section 4.2, IIT Roorkee has been engaged to undertake structural stability tests and IIT Roorkee was provided the required bricks for testing in December 2011. However, the proposal and the contract between TERI and IIT Roorkee are sketchy in terms of technical details regarding the tests to be conducted. The study report was expected to be available by March/April 2012 but no draft reports or update on progress of work at IIT Roorkee were available at the time of the MTR review.

TERI's comments: The response to this statement has already been elaborated in Point (28). The project has been regularly interacting with IIT-Roorkee, who have submitted the draft report in June 2012. The report was duly shared with UNDP, MoEF and LRCs and the feedback was also provided to IIT-Roorkee for revision of the report.

(42) Page 30 Para 5

MTR Report: The issue under the "Specification for burnt clay hollow bricks for walls and partitions" (IS: 3952-1988) is apparently that it does include the larger sized hollow block sizes produced by Wienerberger in its specifications. During the stakeholders meeting held on 7th March 2012 with the MTR team, the representative of Wienerberger informed the meeting that they have been pursuing modifications to IS 3952 -1988 for the last 2 years. However, it was not clear that TERI understood the separate but allied nature of the need for changes to IS: 3952-1988 alongside the TERI-led changes sought in IS: 2222-1991. It also did not appear that TERI saw any need for themselves to actively support the changes to IS: 3952-1988.

TERI's comments: It may be noted that the TERI was fully aware of Wienerberger's initiatives and have discussed the same many times during different one to one meetings with BIS officials. As mentioned earlier, TERI interacted with BIS and became a member of the CED-30 committee of the BIS that deals with this subject. The BIS sought the comments from TERI on the proposed third revision of IS: 3952 on 10 Aug2011. This revision of IS: 3952 basically covers hollow blocks manufactured by Wienerberger. TERI discussed the same with Wienerberger and provided its feedback to BIS on 04 Novermber2011. Therefore, this statement is un-warranted in the MTR.

(43) Page 31 Para 3

MTR Report: As the ProDoc project target of 20% increase in use of REBs in public buildings is now clearly unrealistic, it should be replaced by a more realistic targets, namely: -

a) *Specifications for use of REBs (clay fired perforated bricks and hollow blocks) included in the Common Schedule of rates of CPWD and 2 state PWDs.*
b) *REBs are used in at least 1 CPWD and 1 state PWD building project as walling material on an experimental basis.*
c) *BIS formally initiates the process for review/modifications of IS:2222: 1991 and IS 3952 -1988 and the process of getting public comments on the draft modifications suggested by the technical committee is fully completed*

TERI's comments: The PMU has already submitted the revised LFA for approval. Some of these recommendations that are practically doable have already been included in the revised LFA. Kindly refer to Point (10).

(44) Page 31 Para 4

MTR Report: The TERI team developing the MSP (Medium Scale Project) proposal in 2007 relied heavily on the baseline information collected in 2001 for the FSP (full scale project) that was ultimately unsuccessful in obtaining GEF funding. No new baseline study was undertaken for the 2007 MSP proposal.

TERI's comments: TERI does not agree to this statement. Our response to this statement has already been provided in Point (1).

(45) Page 31 Para 4

MTR Report: During the project's implementation to date there is no evidence that the TERI PFC/PMU has either understood the critical importance of machine production for REBs, or applied this knowledge in a practical way in the project's operations if they indeed do understand it.

TERI's comments: TERI does not agree with this. A response to this statement is provided in Points (4) and (6).

(46) Page 31 Para 4

MTR Report: For example LRC East is being supported by the India Brick EE project and is doing its best to support REB growth in its area with the meager funding provided by the India Brick EE project, but there is no apparent understanding by TERI that there is apparently only one extruder in operation in LRC East's area, 80-90% of brick entrepreneurs in the LRC East area do not own the land on which their brick making plant is located so they are not able to provide the brick plants land as security for any loans for mechanisation, and the local power supply is so unreliable that the mechanizing brick plants first have to provide their own power supply, e.g. from rice husk derived gasifiers.

TERI's comments: TERI is fully aware of the ground situation in east Uttar Pradesh. It is totally incorrect to state that TERI is not aware about the limited use of extruders in that region. As a matter of fact, TERI is actively involved in that area since year 2000 and has extensively travelled in that region as a part of other TERI projects in the brick sector (one of the reviewers is fully aware of this fact, hence it is surprising that such a statement is included in the report). Furthermore, the issue related to land as security is common across the country and is not a specific issue related to east Uttar Pradesh. The banks or financial institutions provide loans based on credit worthiness of the entrepreneurs. However, there are number of brick kiln producers in eastern region who can

adopt mechanization and produce REBs. The project is specifically targeting these entrepreneurs. The project team and the entrepreneurs are fully aware that for adoption of mechanization/ semi-mechanization, alternate power supply in the form of DG set is pre-requisite. This has already been explained in Point (35).

Moreover, only one brick kiln entrepreneur throughout the country is using gasifier to meet power requirements of his mechanized brick kiln unit. This is not a feasible option as operating a gasifier unit on a continuous basis is itself a separate project and requires considerable attention. Therefore this example is not appropriate.

(47) Page 32 Para 1

MTR Report: However, there are many manufacturers in China making extruders of varying quality and technical support capacity if their extruders are to be imported into India. Indian brick entrepreneurs are interested in investigating the potential to import suitable extruders from China, but the Indian brick entrepreneurs are not quite sure how and where to start in identifying the most suitable extruders. Unfortunately the India Brick project has not yet supported such obvious extruder familiarization and import assistance initiatives.

TERI's comments: TERI's response to this has already been provided under Point (6).

(48) Page 32 Para 4

MTR Report: Excessive and unfortunately also ultimately unproductive project efforts were expended in engaging agencies in the West and Northeast of India to meet this ProDoc target of five LRCs.

TERI's comments: The project design envisaged interventions in five regions. It may please be noted that North-East region was not originally envisaged in the Prodoc. It was only at the request of the steering committee that North-East was added as one of the areas for project interventions. Simiarly, it was suggested by UNDP to include Gujarat as a focus region for intervention instead of other more developed regions in Western India (Minutes of the 1st PSC meeting attached as Annexure 15.1).

(49) Page 32 Para 4

MTR Report: While the operating energy use of buildings using higher insulation value of bricks is clearly important, this is less of a priority at this point than getting such EE Bricks actual made and in the marketplace and being used in new buildings.

TERI's comments: TERI does not agree to this view. We feel that to motivate the brick kiln entrepreneurs to adopt mechanization/ semi-mechanization for production of REBs, it is important to build their confidence on the product i.e. resource efficient qualities of clay fired perforated/ hollow bricks not only during their production but also during their use in building construction. The better insulating property of REBs as compared to solid bricks is in fact a USP for their marketing. Unless brick kiln entrepreneurs are convinced about the products, they will not use mechanization for this purpose and will produce solid bricks only, and this will defeat the very purpose of the project.

(50) Page 32 Para 5

MTR Report: However, the LRC East region generally lacks extruders, and it also has a generally unreliable electricity supply as well. So brick mechanisation in the LRC East region actually needs to start with brick plant level gasifiers to power modified generators.

TERI's comments: We feel that the specific recommendation of using gasifier to provide power supply to extruders is not appropriate in context of this project. Electricity can be provided by any of the sources that are potentially available at/near the brick sites. Providing electricity is a separate subject in itself and cannot be covered /referred to in the brick project. TERI feels that the issue of availability of electricity is clearly beyond the scope of this project.

(51) Page 33 Para 1

MTR Report: However, the LRC South is based at the local TERI office, and although the local staff seem to be doing a good job of supporting the project, there is a wider issue of TERI's ongoing role in the project, given their charging the project for their staff costs at a rate well in excess of that specified in the ProDoc, and their past lack of contracting out project activities and doing the majoring of such activities with their (expensive) own staff. If TERI continues to provide the LRC South role, it will require much closer supervision in future by the PMU and UNDP.

TERI's comments: TERI strongly objects the tone and language of this paragraph as well. This is obviously again written with some some pre-conceived notions . All the activities undertaken under this project have been duly reported to UNDP/MoEF through QPRs, other notes specifically requested by UNDP/ MoEF and presentations in PSC meetings. TERI has provided proof including salary slips of all TERI professionals (including LRC Bangalore) who are involved in this project to UNDP, MoEF and the auditors. We would also like to place on record that involvement of TERI-Southern regional centre as an LRC for the southern region was duly brought to the notice of the steering committee members during the presentation of PMU in 2nd PSC meeting (Anneuxre 14.2).

(52) Page 33 para 4

MTR Report: A more natural Indian government lead agency for the project would seem to be the Ministry of Industry (as regards the brick making industry) or ideally the Ministry of Construction as the agency most interested in the performance and insulation value of the bricks as used in buildings.

TERI's comments: There is no "Ministry of Construction" in India. The relevant Ministry dealing with brick sector is Ministry of Micro Small and Medium Enterprises. The Ministry of industry and Commerce largely deals with the large organized sector industries like cement, pulp and paper etc.

(53) Page 34 Para 2

MTR Report: For the first nearly two years of the India EE Brick projects implementation: TERI billed considerable amounts of the time of its many staff's project inputs at full commercial rates; TERI billed an excessive amount of its senior staff to the project; and TERI did not even attempted to contract out project activity tasks to lower cost external consultants. TERI's arguments are simply not credible that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously stated in the ProDoc, when the same TERI staff that were involved in the India Brick EE project's design and funding approval were involved in its implementation. The lack of real national government project ownership, plus a lack of suitable budget oversight by UNDP for the first two years of project implementation, enabled TERI to effectively use the project as its own private staff funding mechanism and utilise most of the project budget for its own staff, rather than run the project on behalf of GEF as a PFC/PMU should properly do.

TERI's comments: TERI strongly objects the wordings of this paragraph also.

The explanation regarding the use of its own professionals for various activities has already been given in Point (9).

(54) Page 34 Para 3

MTR Report: In a number of significant cases, TERI also did not suggest or undertake suitable adaptive management actions, for example when it should have been clear that extruders and a reliable electricity supply for such extruders were a necessary prerequisite for brick mechanisation which in turn is a necessary prerequisite for producing perforated bricks, and when in should have been clear that the successful emergence of Wienerberger in South India was a great opportunity for the project to build on the success of a major willing new project partner.

TERI's comments: TERI do not agree to this view. As reported earlier, the project is well aware of the need of extruders and reliable electricity supply and the same as been reported under Point (37). Also the association of the project with Wienerberger is duly explained in Point (26).

(55) Page 34 Para 3

MTR Report: The PFC (the de facto PMU) was run by TERI with minimal effective financial or operational oversight by MoEF and UNDP.

TERI's comments: TERI strongly objects to the allegation that the project is run with minimal effective financial and operational planning. As reported earlier, the financial and physical progress of the project were duly reported to UNDP/ MoEF on quarterly basis (through QPRs and Faceforms) as well as through presentations made in PSC meetings.

(56) Page 34 Para 4

MTR Report: UNDP logically feels let down by TERI, and logically expects TERI to now at best manage the project to its end funded from the excessive costs that TERI has charged to date.

TERI's comments: TERI does not agree with this statement. In fact TERI feels let down by UNDP since all the activities were duly approved and discussed in various forums. The genesis of this impasse is clearly the non-acceptance of TERI rates by UNDP /UNDP auditors. The reasons for using these rates has been explained many times earlier, including in the note dated 23 Nov 2011. It is simply difficult to understand why UNDP is unwilling to accept these rates under this project when many other bilateral/multilateral organisations including GEF supported World Bank project has approved similar rates. Under these circumstances blaming TERI is uncalled for.

(57) Page 34 Para 4

MTR Report: TERI seems to take the view that its actions were authorised by the PSC, so that its offer to charge the project its staff inputs at a reduced rate are a suitable way forward in the circumstances. Both sides are clearly expecting the other side to somehow solve the impasse, which is just not happening.

There is a clear need for the India Brick EE project to have a PFC/PMU that focuses on hands-on strategic leadership and also on minimal and cost-effective project management staff inputs. Given the excessive rates and excessive amounts of senior TERI staff time charged to the project until the financial audit, the lack of willingness by TERI to refund these excessive costs charged to the project

under its position of trust as the PFC, and the clarity around allowable PFC/PMU staff charge out rates in the ProDoc, it is recommended that unless TERI is prepared to manage the project to this end with suitable minimal project management only staff inputs charged at the appropriate rates as set out in the ProDoc, then UNDP and MoEF should check the feasibility of moving the role of PFC/PMU to a new more affordable and responsible PFC/PMU.

TERI's comments: It is clear from the MTR report also that there are two diverging views and the last 15 months have not resulted in any solution. In the interest of the brick sector fraternity, which has given tremendous support to TERI and has shown keen interest in this project, TERI is willing to forego any further involvement in this project. UNDP may like to appoint other agencies/contractors to manage the project as they deem fit. However, TERI expects that all the pending payments as per previous contracts/face forms be settled at the earliest.

(58) Page 35 Para 3

MTR Report: The simplest and most direct option would be that UNDP approach PSCST to act as the new project PMU. Alternatively, the new PFC/PMU could be contracted out to a suitable consulting firm/organisation, or it could be provided by a suitable contractor working at UNDP India under the direct supervision of the UNDP Programme Officer (Energy and Climate Change).

TERI's comments: This recommendation is acceptable to TERI.

Annexure 8.1

RE: Face Form

N Vasudevan to: S N Srinivas 12/03/2009 03:19 PM

Cc: Anil Arora, "nayanika.singh@nic.in", Rakesh Johri, Sachin Kumar

Dear Srinivas,

The fund for the project was received in TERI's bank account (opened for the proejct) on 8th October 2009. Therefore the start date for the project is 9th October 2009. In view of the above, the Face Form for the Quarter ending in December 2009 will be submitted on due date.

With regards

N Vasudevan

S N Srinivas <SN.Srinivas@undp.org>

S N Srinivas
<SN.Srinivas@undp.org>
12/03/2009 02:50 PM

To N Vasudevan <nvasu@teri.res.in>

cc Rakesh Johri <rjohri@teri.res.in>, Sachin Kumar <sachink@teri.res.in>, "nayanika.singh@nic.in" <nayanika.singh@nic.in>, Anil Arora <Anil.Arora@undp.org>

Subject RE: Face Form

Dear Vasu
We have discussed this over phone. Can you revise the FACE with expenses made on this project as per project start as discussed.

Srinivas

From: N Vasudevan [mailto:nvasu@teri.res.in]
Sent: Thursday, December 03, 2009 2:10 PM
To: S N Srinivas; nayanika.singh@nic.in; Anil Arora
Cc: Rakesh Johri; Sachin Kumar
Subject: Face Form

I am awaiting your feedback.

With best regards

N Vasudevan

Dear all,

Our accounts is preparing the Face Form for the Quarter ending in Sep.2009. You are aware that the project was

sanctioned on 15 June 2009. and TERI initiated the project activities from Jul 2009 onwards despite money received on 08 Oct 2009. The expenditure incurred during July, Aug and Sep 2009 was done from TERI's account.. The professional time spent for the period July to September 2009 has been accounted and being shown in the Face Form (ending Sep 2009). Hope it is ok.

With best regards

N Vasudevan

Annexure 8.2

TERI's manpower costs not only represent the salaries paid to staff but also other costs such as social cost, welfare benefits and all other indirect costs, which are not charged separately. All indirect costs are included in the manpower rates as a consolidated figure. Therefore, apparently the man-power costs looks high which is not the case. The basis of the calculation was explained to the Auditors and the necessary documents were also shared with them. The basis of calculation of manpower costs are provided below

Basis of calculation of manpower costs charged to UNDP-GEF Project

TERI's manpower costs are fully loaded costs which comprise (1) direct salaries paid to TERI professional staff as per pay slips every month, (2) social benefits (fringe benefits) which include long-term benefits such as provident fund, superannuation, gratuity, leave travel concession, medical allowances, staff welfare expenses and other facilities provided by the organization, and (3) institutional overheads costs include salaries of administrative, secretarial and support staff, office maintenance, insurance, water/electricity, depreciation on capital items and other indirect costs.

Given below is the break up of professional costs charged by TERI to the UNDP-GEF project for the quarter – October – December 2010.

Amount: Rupees

Name	Direct salary paid to staff	Social Charges 82.47%	Sub-total	Institutional Overheads 81.70%	Total manpower costs
Mr N Vasudevan	162417	133946	296363	242129	538492
Mr Girish Sethi	191623	158031	349654	285668	635322
Mr Prosanto Pal	179266	147841	327107	267246	594353
Mr Ananda Mohan Ghosh	120657	99506	220163	179873	400036
Mr Rakesh Johri	137103	113069	250172	204390	454562
Mr Yabbati Nagaraju	61901	51050	112951	92281	205232
Mr Sachin Kumar	111082	91609	202691	165599	368290
Mr Arupendra Nath Mullick	54421.5	44881	99303	81130	180433
Mr R K Joshi	39454	32538	71992	58817	130809

Direct salary paid to staff

The direct salary means the monthly salary paid to TERI staff each month. Salary slips of the monthly salary paid to each staff are attached as proof (Attachment 1).

Social charges : 82.47% on base salary

Social charges (fringe benefits) include various long-term benefits such as provident fund, superannuation benefits, gratuity, performance gratuity, medical allowances etc. These benefits offered to staff are not included in the direct salaries.

The percentage of social benefits is arrived at based on the total costs of social benefits on the total gross salaries paid to research professionals in TERI. This percentage is verified and certified by an external auditor. A copy of the audit certificate is enclosed as Attachment 2.

Institutional overhead charges : 81.70%

Institutional overheads costs include salaries of administrative, secretarial and support staff, office maintenance, insurance, water/electricity, depreciation on capital items and other indirect costs. The percentage of institutional overheads is arrived out by calculating annual costs of institutional overhead costs on gross salaries + social benefits. This percentage is also duly audited by external auditor. Copy of the audit certificate is enclosed as Attachment 2.

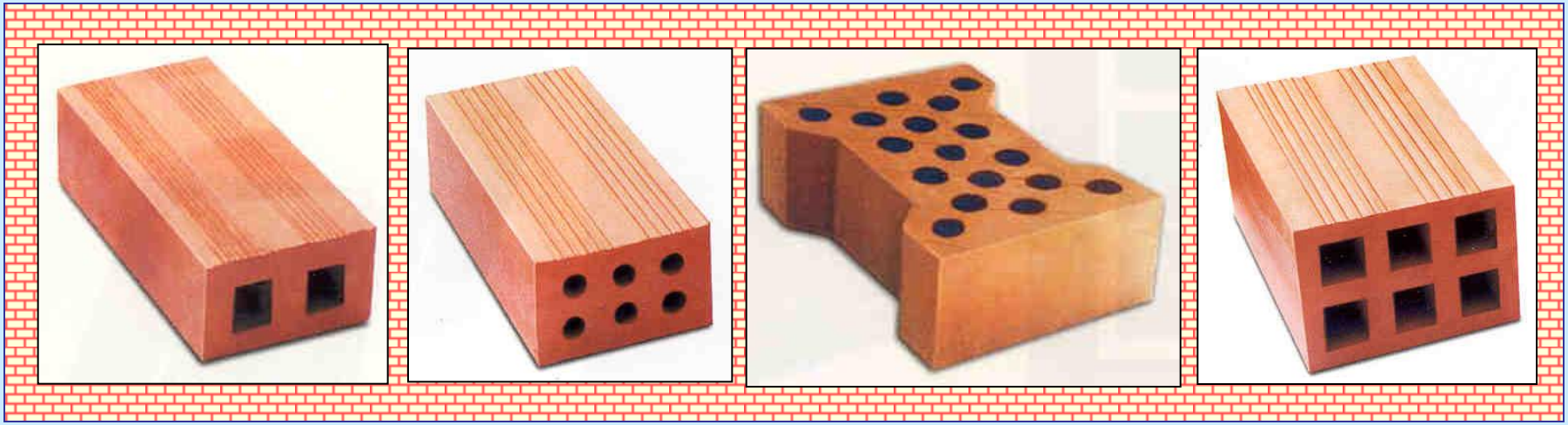
Conclusion

TERI's manpower costs are worked out on the above explained basis. Such rates are charged to various projects undertaken by TERI for various organizations including UN organizations.

Annexure 13.1

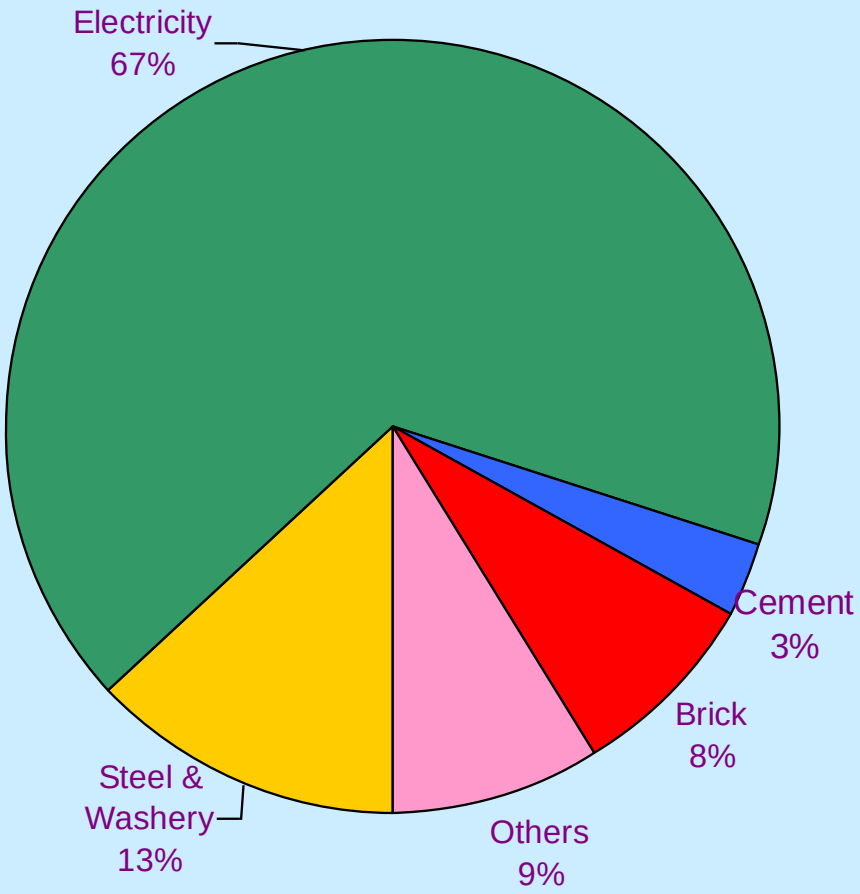
Project inception workshop
Energy Efficiency Improvements in Indian Brick Industry

20 November 2009
TERI, New Delhi



Indian brick industry – A glance

- Brick production : 140 billion/year
  Annual turnover: > Rs 10,000 crore
- No of units: > 1 lakh
- Technologies – Bull's trench kilns and Clamps
- Employment: 80 to 100 lakh people directly linked
- Environment
  - Coal : 24 million tons (8%)
  - Biomass : 5-10 million tons
  - *CO_2 generation – 42 million tons*
  - *Top Soil: 350 million tonnes*



Drivers for Change

- Increasing energy prices and depleting soil availability
- Environmental concerns and regulations
- Shortage / difficulty in sourcing workers
- Market driven
  - Demand for quality products
  - New and alternate building products

Limitations and barriers

- Limited information on resource efficient technologies
- Non-availability of resource efficient model brick kiln units at cluster levels
- Lack of trained manpower
- Limited access to finance
- Unexplored market for alternate building products
- Old specifications and codes for building materials and
- Non-availability of institutional mechanism

Project summary

- Project objective:

  To make India's major brick producing clusters more energy efficient.
- Energy efficiency improvements in Indian brick industry
- Executing Agency – UNDP; Implementing Agency – MoEF, Responsible Partner - TERI
- Project focusing major brick producing clusters in different regions – South, North, West, East, North-East

Why REBs are important – Few advantages

- Energy savings upto 20%
- Reduced top soil consumption of about 30%
- Improved crushing strength (> 200 kg/cm^2)
- Reduced water absorption (< 10%)
- Better finished good quality products
- Reduction in construction costs (5-7%)
- Reduced cooling/ heating load requirements (~5% in energy bills)

Scope of the project

- **Promote** technology upgradation
- **Increase supply** of resource efficient brick (REB) products
- **Capacity building**
  - Environmental issues (Air and Top soil)
  - Energy efficiency
  - Access to finance
  - Technical training
- **Create market** demands

Role of TERI and its Partners

TERI along with regional level LRCs to create enabling conditions for Production and Market for REBs

- Facilitate demonstration units for perforated brick, hollow blocks and fly ash bricks through Local Resource Centres (LRCs)
- Capacity building of stakeholders
- Develop linkage with banks and financial institutions

…contd.

- Facilitate market creation
  - Establish facts such as strengths and properties of various products
  - Create awareness among architects, builders, other end-users and government departments for uptake of REBs
  - Close interaction with BIS, CPWD and MES for inclusion of REBs in their material specifications (Building Codes)
  - Prepare and disseminate promotional material e.g. brochure and website.

Expected project outcomes

- Improvements in energy efficiency and environment
- Availability of resource-efficient brick products across different regions and demand created
- Technology packages available for REB production
- Increased access to finance for technology upgradation projects
- Enhanced knowledge and skills among entrepreneurs and workers

Thank You

Your inputs is required on!

- Your knowledge on REBs and interest to switch over
- Level of investment
  - Interest to take bank loan or own investments
- How do you want to utilize the services of the project
  - Technical services
  - Capacity building

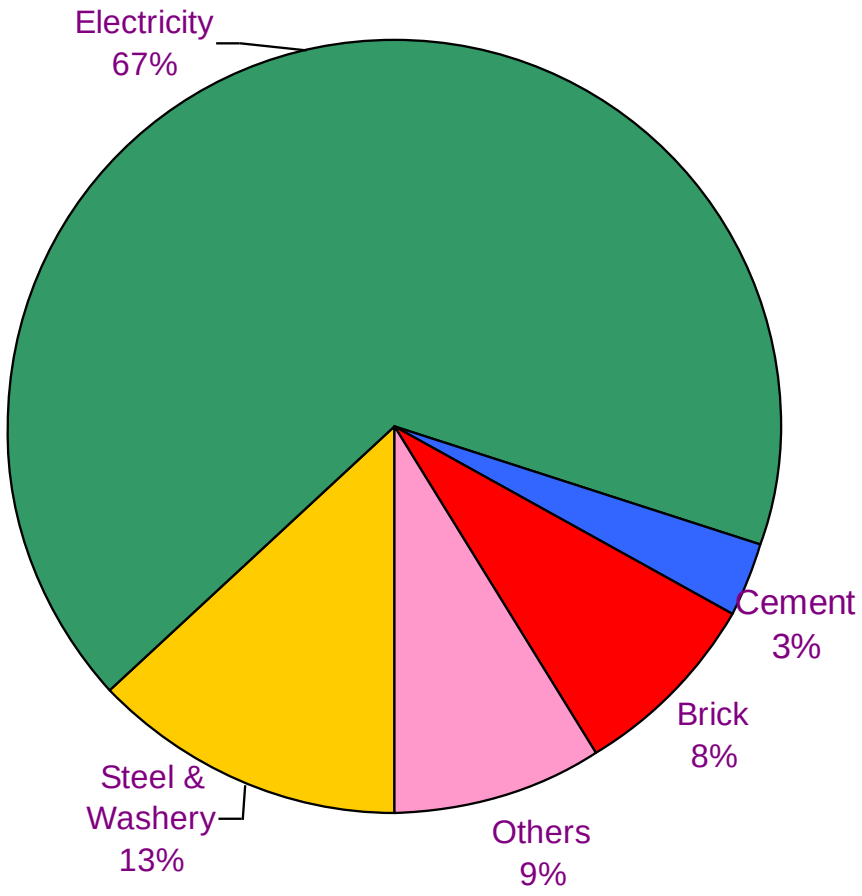
Annexure 14.1

Energy Efficiency Improvements in Indian Brick Industry

TERI, New Delhi

About Indian brick industry

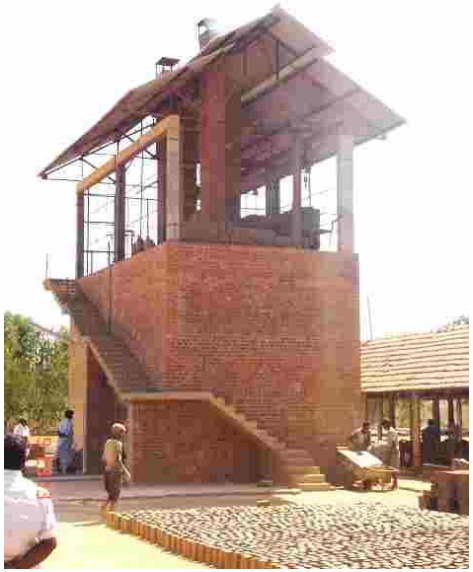
- Brick production : 140 billion per year (Year 2002 study under the GEF project)
- Annual turnover: > Rs 10,000 crore
- No of units: > 1 lakh
- Employment: 80 to 100 lakh people directly linked
- Environment
  - Coal : 24 million tons (8%)
  - Biomass : 5-10 million tons
  - CO_2 generation – 42 million tons
  - Top Soil: 350 million tonnes



Existing technologies in India

BTK

Clamp



VSBK

Existing technologies ...contd.

Features	Type of brick kiln		
	BTK	**Clamp**	**VSBK**
Suitable for	Large brick maker	Small brick maker	Small brick maker
Number of kilns in India	40,000	60,000	100 (during 2005)
Total brick production (billion bricks)	90	50	0.05
Production capacity of brick kilns	30,000 to 50,000 brick/day	2000 to 100000 brick per cycle	4000 brick per shaft
Brick quality	Medium to High	Low	Medium
Kiln construction period (days)	90	–	30–45
Kiln stabilisation period (days)	15–30	4–10	3–4
Working conditions	Harsh	–	Good

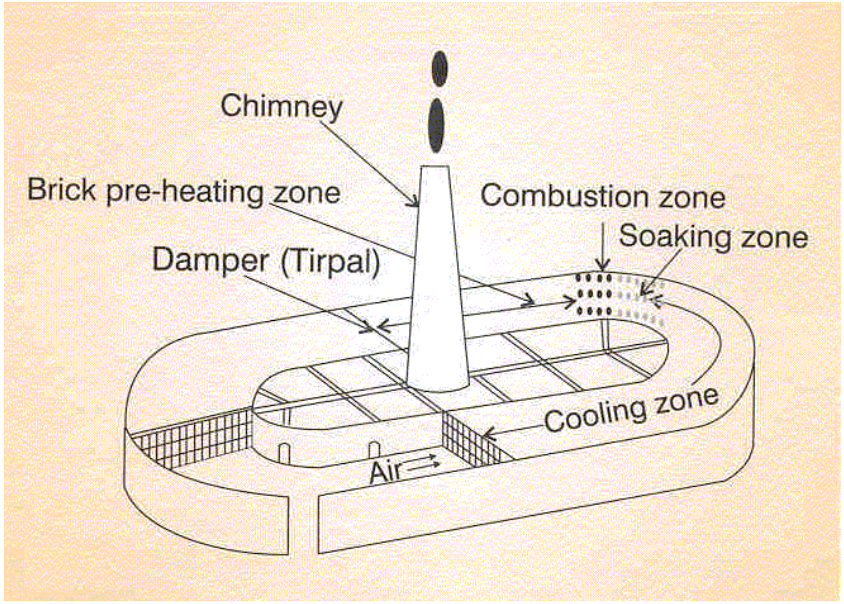
Existing technologies ...contd.

Moulding

- Manual process for green brick making
- Quality of green bricks dependant on skill of moulders
- Open sun drying to dry the green bricks

Firing

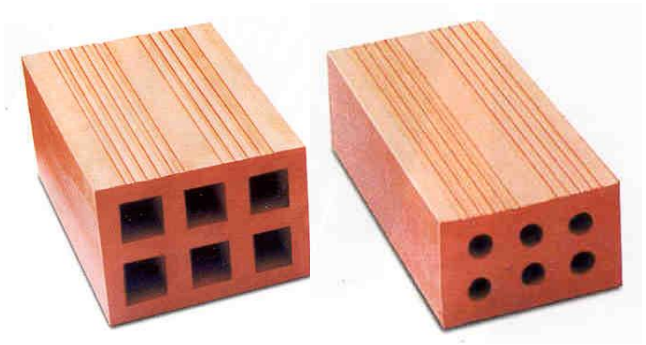
- In BTKs (Bull's trench kilns)



Proposed technology under GEF

- Focusing mainly on large capacity brick kilns i.e. BTKs (Bull's trench kilns)
- Shift from solid bricks to perforated bricks
- Use of semi-mechanized system in place of hand moulding

- Ability to produce a variety of clay brick products, leading to value addition
- Uniform and high quality of green bricks



- Improved energy savings during firing (~ 20%) and saving in top soil (~ 30%)
- Savings in construction costs and cooling/ heating loads

Comparison with existing CDM projects

Present CDM projects

- Focus:
  - Clay based brick firing through VSBK (small scale brick production)
  - Non-clay based fly ash brick production technologies (cold processing)

MSP project

- Focus:
  - Large capacity brick kilns – BTKs (Bull's trench kilns)
  - Clay based bricks i.e. improved moulding technologies
- At present no units involved in REB production
- Support required from GEF to enhance supply and demands by market
- Project activities:
  - Increased supply of REBs & capacity building
  - Create market demands
  - Access to finance for adoption of improved moulding practices

Agenda point-1 : Proposed project activities/ sites

- AWP 2009 already approved by MOEF and UNDP in June 2009
- Focus during the year:
  - Creating awareness among all important stakeholders
  - Establishing LRCs in two regions of project intervention
    - South – Bangaluru
    - North - Punjab
  - Technology identification
  - Initiate interactions in other regions for promoting project activities and establishing LRCs

Stakeholder meeting, Bangaluru (10 Aug 2009)

Intervening clusters and LRCs

Region	Clusters approved	Clusters revised	LRC
North	1. Punjab (Jalandhar) 2. NCR	1. Punjab (Jalandhar)	PSCST, Chandigarh
West	3. Pune	2. Pune	To be identified
South	4. Bangalore	3. Bangalore	TERI-Southern Regional Centre, Bangaluru & Indian Ceramic Society
East Uttar Pradesh/ East	5. Varanasi	4. Varanasi OR Kolkata (?)	Int Nirmata Parishad, Varanasi
North East	-	5. Agartala	To be identified

Agenda point-2 : Monitoring system

- Indicators for various activities prepared in the approved LFA
- Quarterly progress report to be submitted to UNDP/ MoEF
- Presentation on project progress to PSC

Agenda point-3 & 4 : Composition of PMU and Fund flow arrangement

- Composition of PMU
  - Mr N Vasudevan - Project Manager
  - Mr Rakesh Johri – Technical Expert
  - Mr Sachin Kumar – Technical Expert
  - Each LRC will have a "Coordinator" who will report to Project Manager

- Composition of PSC
  - National Project Director - Mr R R Rashmi, Joint Secretary, Climate Change, MoEF
  - Representative from MoEF Climate Change, MoEF
  - Representative from UNDP
  - Representative from TERI – Mr Girish Sethi, Director, Industrial Energy Efficiency Division, TERI

- Fund flow arrangements
  - To be released on an annual basis upon approval of the AWP

Agenda point-5 Inception workshop

- Proposed date : First half of October 2009
- Venue: TERI, New Delhi
- Participants – Ministries, Government organizations, Enterpreneurs, industry associations, machinery suppliers, builders & architects, technical experts.
- Agenda
  - Introductory session
  - Background presentation
  - Technical session with the stakeholders on technology identification, interaction with government departments (e.g. CPWD and MES) for taking up the issue to include REBs in their procurement.

Thank you

Monitoring system - Indicators

Activity	Indicator
Activity 1: Enhancing Public Sector Awareness on Resource efficient products.	Usage of resource-efficient bricks by new public department building contracts increased by 20% by end of project.
Activity 2: Facilitating project finance access to brick kiln entrepreneurs.	Loans from local banks/ financial institutions for technology upgradation tripled by end of project.
Activity 3: Developing of knowledge on technology and marketing	Resource-efficient bricks sold in the market and used for construction.
Activity 4: Availability of efficient technology models in 5 clusters for demonstration projects.	12 EE brick kilns units established in 5 clusters by end of project
Activity 5: Enhancing capacity of brick kiln enterprises	At least 5 brick kiln entrepreneurs in each cluster invest in technology upgradation by end of project

Participants

- MoEF, CPCB, UNDP, SDC
- Government organizations
  - MES (CE Delhi zone), CPWD, DJB, Ministry of MSME, MSME-DI (Chennai), HUDCO, BEE, SDC
- Entrepreneurs
  - Sanjay Dadoo, O P Badlani, Anjaya Reddy, Venugopal, Jindal, Manish Agarwal, Periyasamy
- Industry associations
  - AIBTMF, INP Varanasi, Karnataka brick industry association
- Machinery suppliers
  - Vijay Prakash Industries, Neputne, and Maa Kaali
- Financial institutions/ Banks
  - SIDBI, Corporation Bank
- Builders & architects
- Experts
  - K G K Warrier (RRL), Anil Kumar (BTCON), Mech Bricks (George Mathew), Satyanarayana Rao, Pritpal Singh, R N Jindal (MoEF)
- Detailed mailing list

Detailed list of Participants

1. UNDP
2. CPCB
3. MoEF
4. Brick industry
   AIBTMF – R P S Chandel
   INP – K K Pandey, Badlani
   Bangalore – Shanmugam, Sashi Mohan
   Other associations
   Punjab - ???
   Entrepreneurs, who have already provided consent for the project
5. MSME Development Institutes, DICs, HUDCO (State level, Delhi) – For LRCs
6. Partners
   i) PSCST
   ii) Anil
7. Tech. Provider
   i) Nepture
   ii) Vijayan
   iii) George
   iv) Delhi based
8. State Pollution Control Board (target states)
9. Experts - Warrier
10. Builders and Architects, their associations
11. Mili
12. Banks – SIDBI, Lead banks of the concerned states
13. PWD, DDA, MES

Draft agenda for the inception workshop

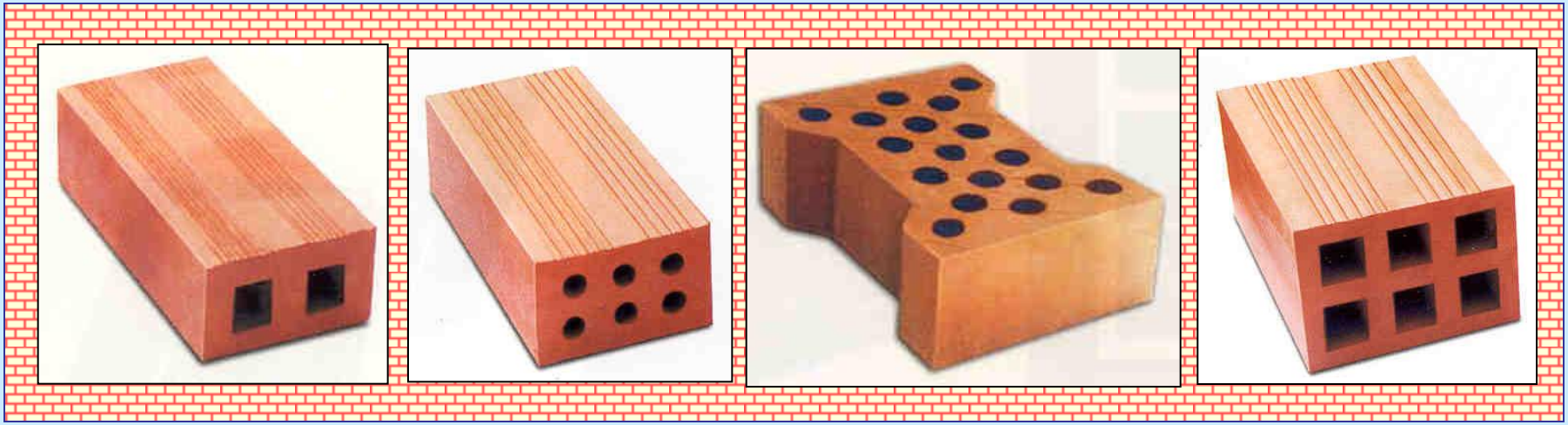
9:00 – 9.30	Registration	TERI
9:30 – 9:35	Welcome address	Mr Girish Sethi, Director, Industrial Energy Efficiency, TERI
9:35 – 9:55	Project presentation	Mr N Vasudevan, Fellow, TERI
9:55 – 10:00	Remarks	Ms Preeti Soni, Head, Energy and Environment Unit, UNDP
10:00 – 10:10	Inaugural address	Mr R R Rashmi, Joint Secretary, Climate Change and National Project Director, MoEF
10:10 – 10:30	Tea Break	
10:30 – 1: 00	Technical session	Views and inputs from entrepreneurs, industry associations, technology providers and financing institutions
1:00 – 2:00	Lunch	
2:00 – 4:00	Technical session	To be continued
4:00 – 4:30	Tea Break	
4:30 – 4:50	Summary of the workshop	Mr Rakesh Johri
4:50 – 5:30	Discussions with Participants Concluding remarks	Mr R R Rashmi & Ms Preeti Soni
5:30 – 5:35	Vote of thanks	Mr Sachin Kumar

Annexure 14.2

Energy efficiency improvements in Indian brick industry

Project steering committee meeting

23 March 2010



Agenda

- Physical and financial progress of the project in year 2009
- Annual Work Plan 2010
- Approvals and feedback from the Chair

Activities highlights (2009)

- Project inception workshop held on Nov 20, 2009
- Participation by various stakeholders
  - Government organizations (CPWD, MES), technology providers, technical experts, regulatory bodies, architects, and builders.

- REBs to play an important role in construction sector
- 2 LRCs finalized – Northern and Southern regions
  - PSCST (Chandigarh)
  - TERI- Southern Regional Centre (Bangalore)

Activities completed during 2009

Output-1 : Enhancing awareness on REBs

	Activity planned	Status
1.1	National level meeting for stakeholders	Completed along with inception workshop
1.2	2 cluster level meetings	One cluster meeting held

Activities completed during 2009

Output-2 : Facilitating access to finance by brick kiln entrepreneurs

	Activity planned	Status
2.1	Identification of interested national and regional financial institutions	Initial identification done- SIDBI, Corporation Bank
2.2	Template framework for DPRs	To be taken up in 2010

Activities completed ….contd.

Output-3 : Developing knowledge on technology and marketing

	Activity planned	Status
3.1	Undertaking research on available technology providers and markets	Evaluation of technology providers completed for Southern region
3.2	Results shared with stakeholders	Workshop and one to one meetings conducted

Identification of REB technology providers

Indian	Multinational
• Neptune Industries, Gujarat • De-Boer Damle Ltd, Mahrashtra • Fortune Engineers, Gujarat • Vijaya Prakash Industries, Kerala • Lakshmi and Company, Tamil Nadu	• Bedeshi, Italy • Baoshang, China • Handle/Rieter-werke, Germany • Verdes, Spain • Walter Cravin, Germany

Activities completed ….contd.

Output-4 : Availability of efficient technology models in 5 clusters

	Activity planned	Status
4.1	Preparation of database of potential brick kiln enterprises	Database prepared for Southern region. Follow up in progress
4.2	Identification and short-list of technologies	Suitable technology short-listed keeping in view the local conditions

Activities completed ….contd.

Output-5 : Enhancing capacities of brick kiln enterprises

	Activity planned	Status
5.1	Establishing LRCs in two regions	North – PSCST South – TERI (SRC) with resource person from Indian Ceramic Society
5.2	Developing training module	Included in AWP 2010
5.3	Organizing exposure visit	Exposure visit organized for 15 entrepreneurs

Exposure visit

Activities completed ….contd.

Output-6 : Monitoring, Learning and evaluation

	Activity planned	Status
6.1	Organizing project inception workshop	Organized on 20th Nov 2009
6.2	Developing promotional material	Included in AWP 2010
6.3	Developing project website	Included in AWP 2010

Output-7 : Setting up the Project Management Unit

	Activity planned	Status
7.1	Formation of PMU	PMU Formed.

Summary of expenses (2009)

Total budget : Rs 56,93,023

(USD 117,020)

Total expenditure : Rs 24,04,430

Balance amount : Rs 32,88,593

Annual Work Plan 2010

Activities completed/ initiated in 1st Quarter 2010

- LRCs identified for following regions & interaction in progress
  - North East – Tripura Council for Science & Technology
  - West – Central Glass and Ceramics Research Institute
  - East – Int Nirmata Parishad (INP), Varanasi
- Regional seminar on brick technologies organized by PSCST (LRC-North)
- One to one interaction with brick kiln entrepreneurs held in Punjab and Southern regions
- Meeting held with Gujarat state level brick industry association

Activities completed ...contd.

- Meeting with brick industry association, East UP
- Testing of strength of bricks carried out in an accredited laboratory
- Interaction with potential suppliers and end-users in progress
- Attended “International Exhibition” on brick and ceramic technologies in Ahmedabad
- Draft brochure prepared
- Website under preparation (http://www.resourceefficientbricks)
- A short video film on construction with REBs is being prepared

AWP 2010

Output 1 Enhancing public sector awareness

1.0	Activity
1.1	Five regional level meetings with key stakeholders
1.2	Five cluster level meetings focusing on brick kiln entrepreneurs and end-users
1.3	One national level meeting

Output 2 Facilitating access to finance to brick kiln owners

2.0	Activity
2.1	Meetings with identified banks and financial institutions – SIDBI, Corporation Bank, NEDFI
2.2	DPRs preparation

AWP 2010 ….contd.

Output 3 Developing knowledge on technology and marketing

3.0	Activity
3.1	Approach paper on developing markets for REBs and incorporating inputs from stakeholders • Interaction with important stakeholders has commenced. • Database on end-users is being compiled.
3.2	Information collation of fly ash bricks focusing on technologies and barriers

AWP 2010 ….contd.

Output 4 Availability of efficient technology models in 5 clusters

4.0	Activity
4.1	Establishing LRCs in other regions
4.2	Documentation of technologies
4.3	Database on potential enterprises
4.4	Match-making for technology adoption
4.5	Identification of international consultant for project inputs

AWP 2010 ….contd.

Output 5 Enhancing capacities of brick kiln enterprises

5.0	Activity
5.1	Organizing exposure visits
5.2	Developing training module

Output 6 Monitoring, learning and evaluation

6.0	Activity
6.1	Project brochure
6.2	Website development
6.3	Inputs from international consultant

AWP 2010 ….contd.

Output 7 Project management

7.0	Activity
7.1	Providing guidance to all LRCs
7.2	• Preparing documentation for periodical reporting • Organizing steering committee meeting
7.3	Preparation of AWP 2011

Work plan 2010

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	**Enhancing public sector awareness**												
	1.1 5 Regional meetings												
	1.2 5 Cluster meetings												
	1.3 1 National meeting												
2	**Facilitating project finance**												
	2.1 Meetings with banks												
	2.2 DPRs preparation												
3	**Developing knowledge on technology and marketing**												
	3.1 Approach paper on REB market												
	3.2 FA bricks - Technology & Barriers												
4	**Technology models in 5 clusters**												
	4.1 LRC - West												
	4.2 LRC - East												
	4.3 LRC - North East												

Work plan 2010 ....contd.

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	**Technology models in 5 clusters**												
4.4	Tech Document with costs												
4.5	Database - Entreprnrs 5 clusters												
4.6	Demo of 12 projects (M/making)												
4.7	International consultant												
5	**Enhancing capacity of entrepreneurs**												
5.1	Exposure visit												
5.2	Training module - South												
5.3	Training module - North												
6	**Monitoring, Learning and evaluation**												
6.1	Brochure												
6.2	Website												
6.3	Mid-course correction												

Summary of budget for 2010

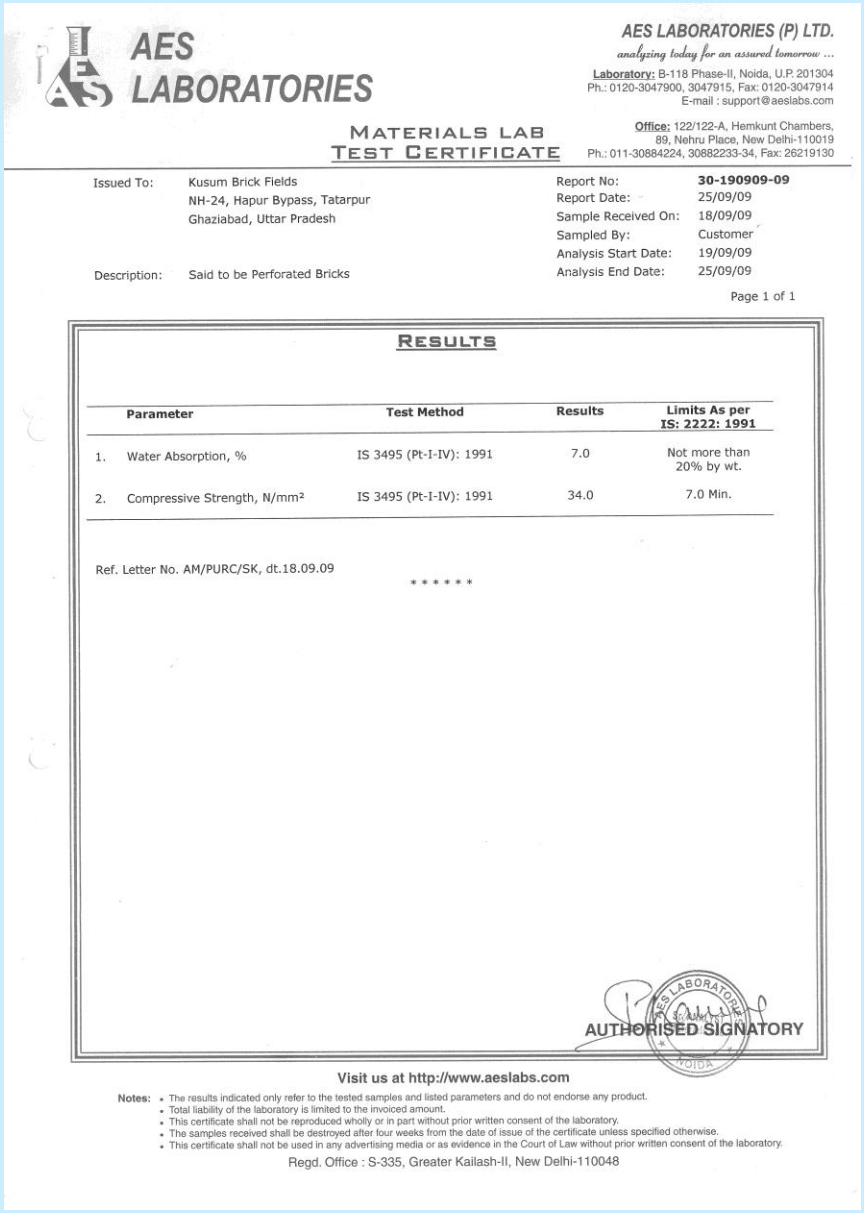
Total budget proposed	**: USD 211,129**
M&E and Audit	**: USD 6,530**
Grand total	**: USD 217,659**
	(INR 100,12,314)
Unspent amount in 2009	**: INR 32,88,593**

Additional fund sought from GEF : INR 67,23,721

Decisions from the Chair

- Approval for the activities and expenditure for the year 2009
- Approval for proposed activities and budget for the year 2010

Test certificate - REBs



AES LABORATORIES

AES LABORATORIES (P) LTD.
analyzing today for an assured tomorrow ...
Laboratory: B-118 Phase-II, Noida, U.P. 201304
Ph.: 0120-3047900, 3047915, Fax: 0120-3047914
E-mail : support@aeslabs.com
Office: 122/122-A, Hemkunt Chambers, 89, Nehru Place, New Delhi-110019
Ph.: 011-30884224, 30882233-34, Fax: 26219130

MATERIALS LAB
TEST CERTIFICATE

Issued To: Kusum Brick Fields
NH-24, Hapur Bypass, Tatarpur
Ghaziabad, Uttar Pradesh

Description: Said to be Perforated Bricks

Report No: **30-190909-09**
Report Date: 25/09/09
Sample Received On: 18/09/09
Sampled By: Customer
Analysis Start Date: 19/09/09
Analysis End Date: 25/09/09

Page 1 of 1

RESULTS

	Parameter	Test Method	Results	Limits As per IS: 2222: 1991
1.	Water Absorption, %	IS 3495 (Pt-I-IV): 1991	7.0	Not more than 20% by wt.
2.	Compressive Strength, N/mm²	IS 3495 (Pt-I-IV): 1991	34.0	7.0 Min.

Ref. Letter No. AM/PURC/SK, dt.18.09.09

* * * * * *

AUTHORISED SIGNATORY

Visit us at http://www.aeslabs.com

Notes:
- The results indicated only refer to the tested samples and listed parameters and do not endorse any product.
- Total liability of the laboratory is limited to the invoiced amount.
- This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after four weeks from the date of issue of the certificate unless specified otherwise.
- This certificate shall not be used in any advertising media or as evidence in the Court of Law without prior written consent of the laboratory.

Regd. Office : S-335, Greater Kailash-II, New Delhi-110048

Thank You

Annexure 14.3

Energy efficiency improvements in Indian brick industry

Project steering committee meeting

6 January 2011

Agenda

- Confirmation of minutes of 3rd Project Steering Committee meeting and action taken
- Technical and financial reporting on the progress of the year ending December 2010
- Proposed activities and fund utilization plan for the year 2011
- Decision on the next date and venue of the PSC meeting
- Any other matter, with the permission of the Chair

Activities highlights (2010)

- Creating awareness on REBs (covering about 500 stakeholders)
  - Regional workshops
    - Agartala (Tripura), Bangalore (Karnataka) and Bhatinda (Punjab)
  - Focus group discussions
    - New Delhi and Bangalore
  - Cluster meetings
    - 13 cluster meetings - North (8), West (3), South (2)
  - Exposure visits
    - 3 visits (Ahmedabad, Bangalore and Jaipur) involving about 60 entrepreneurs

Activities highlights (2010) – Contd.

- A short film on “construction practices with REBs” prepared.
- Informative project web-site
  - Test results of REBs, video film, technology suppliers details, DPRs, list of relevant BIS codes, minutes of various project events
- Participation in exhibitions
  - India International Trade Fair (Delhi), National Convention of Architects (Lucknow)

Activities highlights (2010)

- Access to finance
  - 4 Model DPRs prepared covering Northern, Southern and Western regions
  - Study on barriers for access to finance completed with following findings:
    - Low level of awareness on brick industry by the bankers
    - Absence of book-keeping practices by the industry
      - –Difficulty in mobilizing the official equity
    - Access to bank finance is not much difficult and the credits provided are entrepreneur-centric
    - Brick industry has not invested so far on modernization; only large entrepreneurs can invest on their own and prefer through cash route which is lower than bank term loan
    - Policy support needed for promotion of REBs

Highlights …contd.

- Developing knowledge on technology and marketing
  - NIIST Thiruvananthapuram (CSIR lab)
    - – Testing of soil samples from different parts of the country to ascertain their suitability from REB production
    - – Recommend additives, if required, for extrusion
  - Brick and Tile Research Institute (IZF), Germany
    - – Technology profiling of major technology suppliers from Europe, China and Latin America
    - – Inputs on modifications required in firing processes during technology upgradation
    - – Report on tunnel kiln suitable for Indian conditions
    - – Participation in interactive meets with potential brick kiln entrepreneurs in India during international workshop at Chandigarh
- Production trial of REB in 7 brick kiln units commenced.

Activities highlights (2010)

Regional Workshop – Tripura

(June 18th)

Regional Workshop – Bangalore

(June 28th)

Activities completed …contd.

FGD – New Delhi (9th Nov)

FGD – Bangalore (26th Nov)

- Testing of bricks in accredited labs
- Study on structural stability
- Use of REBs on pilot basis

Highlights …contd.

	BIS Standard		Perforated 1	Hollow 1
	Perforated brick (IS: 2222 - 1989)	Hollow block (IS:3952 – 1988)		
Size	190 x 90 x 90 mm 230 x 110 x 70 mm	190 x 190 x 90 mm 290 x 90 x 90 mm 290 x 140 x 90 mm	230 x 110 x 70 mm	190 x 190 x 90 mm
Compressive strength (N / mm2)	Not less than 7.5 on net area	Not les than 3.5	28.6	6
Water abs. (%)	Not more than 15 %	Not more than 20 %	7.6	10
Perforations	-Area of each perforation shall not exceed 500 mm2 - shell thickness not less than 15 mm and web thickness not less than 10 mm	-shell thickness not less than 11 mm and web thickness not less than 8 mm -Max 63 %	9	32
Testing Agency			IT- BHU Varanasi	Shriram Institute for Industrial Research

Activities completed …contd.

Trial REB Production – South India

Trial REB Production – North India

Summary of expenses (2010)

Total budget : USD 217,659

(Rs 97,94,675)

Total expenditure : Rs 89,56,476

Balance amount : Rs 8,38,199

Annual Work Plan 2011

Annual Work Plan (AWP) 2011

Output 1 Enhancing public sector awareness

	Activities Planned
1.1	Close interaction with BIS for inclusion of REBs in brick work specification -Involvement of expert government body for study on structural stability using REBs (e.g. CBRI, academic institutions)
1.2	Facilitating use of REBs by CPWD and MES on pilot basis
1.3	Organizing 5 Focused group discussions with large end users (CPWD, MES, private builders, architects etc.)

Estimated budget : USD 12459

AWP 2011 …contd

Output 2 Facilitating Project Finance access to brick kiln entrepreneurs

	Activities Planned
2.1	Finalisation of 4 Model DPRs prepared for Western, Southern, Northern and Eastern (discussing with BEE) region
2.2	Preparing Model DPRs for North Eastern region
2.3	Facilitating setting up of demonstration plants by brick kiln entrepreneurs

Estimated budget : USD 19450

AWP 2011 …contd

Output 3 Developing knowledge on technology and marketing

	Activities Planned
3.1	Case studies on REB in building construction
3.2	Preparation of manual on better construction practices with REBs
3.3	- Organizing an international workshop at Chandigarh on March 10, 2011 and interactive meetings between brick kiln entrepreneurs and technology suppliers - Comparative study to show the monetary savings: REB vis-à-vis other building materials
3.4	Organizing 5 cluster level meetings
	Approach papers on REBs and fly ash will be finalized and uploaded in project website.

Estimated budget : USD 29400

AWP 2011 …contd

Output 4 Availability of efficient technology models in 5 clusters

	Activities Planned
4.1	Study on suitability of soil for different regions and dissemination of results
4.2	Availing inputs from international expert on machineries suitable for producing REBs
4.3	Measurement / testing of thermal and physical properties of new / existing REBs
4.4	- Performance monitoring of REB producing units - Quantification of energy savings and CO_2 reduction
4.5	Updating database : REB technologies, potential entrepreneurs and project web-site (continuing activity)

Estimated budget : USD 77750

AWP 2011 …contd

Output 5 Enhancing capacities of brick kiln enterprises

	Activities Planned
5.1	Training program for masons on use of REBs
5.2	Exposure visits for potential brick kiln entrepreneurs
5.3	Technical back-up support to existing / new REB manufacturers on trouble shooting and enhancing their capacity

Estimated budget : USD 77750

AWP 2011

Output 5 Enhancing capacities of brick kiln enterprises

	Activities Planned
6.1	Providing guidance to all LRCs
6.2	• Preparing documentation for periodical reporting • Organizing steering committee meetings
6.3	Preparation of AWP 2012

Estimated budget : USD 29220

Summary of budget for 2011

Total budget proposed	: USD 180,829
M&E and Audit	: USD 6530
Grand total	: USD 187359
	(INR 84,87,363)
Unspent amount in 2010	: INR 838,199

Decisions from the Chair

- Approval for the activities and expenditure for the year 2010
- Approval for proposed activities and budget for the year 2011

Thank You

Work plan 2011

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	**Enhancing public sector awareness**												
	1.1 - Close interaction with BIS - Involvement of Research institution for study										■	■	
	1.2 Facilitating use of REBs												
	1.3 Organizing 5 FGDs						■						
2	**Facilitating project finance**												
	2.1 Finalization of 3 Model DPRs						■						
	2.2 Preparing Model DPRs									■	■		
	2.3 Interactions with Ministries / government departments												
	2.4 Facilitating setting up of demonstration plants										■	■	
3	**Developing knowledge on technology & Marketing**												
	3.1 Preparing case studies on REB						■						
	3.2 Preparation of manual								■				
	3.3 - Organizing interactive meetings			■									
	- Comparative study									■			

Work plan 2011 ….contd.

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	**Technology models in 5 clusters**												
	4.1 Study on suitability of soil												
	4.2 Availing inputs from international expert												
	4.3 Testing of REBs												
	4.4 Performance monitoring of REB and Quantification of energy savings												
	4.5 Updating database												
5	**Enhancing capacity of entrepreneurs**												
	5.1 Training program for masons												
	5.2 Exposure visits												
	5.3 Technical back-up support												
6	**Monitoring, Learning and evaluation**												
	6.1 Providing guidance to LRCs												
	6.2 Preparing documentation and organizing steering committee meeting												
	6.3 Preparation of AWP 2012												

Annexure 15.1

Minutes of the First Project Steering Committee on
UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry

The first meeting of the Project Steering Committee (PSC) of UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry was organized on September 04, 2009 under the chairmanship of Mr R R Rashmi, Joint Secretary, MoEF and National Project Director.

The list of participants is attached as annex: I.

The presentation made by TERI is presented as annex: II.

Discussion Highlights:

1. While discussing the technology note provided by TERI, it was suggested by the NPD that the 20 % of GEF project resources should focus on technological issues related to flyash bricks especially in understanding and removing the barriers identified in TIFAC report and identifying a business solution for the same.

    a. It was suggested that the bricks to be produced through BTK process needs to be tested before it is being presented to the stakeholders for adoption.

    b. There was also a suggestion to revise the project baseline which was developed in 2002. It was agreed that this project will develop synergies with another UNDP/ GEF project on Buildings which is under preparation.

2. Regarding the clusters, it was agreed that the project will focus on 2 clusters – Bangalore and Punjab this year. It was agreed to take up one cluster in North East region (Agartala) however the decision regarding the other 2 clusters (Pune or Gujarat and Varanasi or Kolkata) were left open for further deliberation and finalization at a later stage.

3. It was suggested by NPD that the project monitoring indicators must be specific in terms of workshops held, technology dissemination, demonstration units etc.

4. Regarding the composition of the Project Steering Committee (PSC) it was agreed that it will be chaired by NPD with the following members:
    a. Mr R K Sethi, Director, Climate Change division, MoEF
    b. Dr Preeti Soni, Head, EEU, UNDP
    c. Mr Girish Sethi, Sr Fellow and Director, TERI
    d. HUDCO

e. Other stakeholders and experts to invited on a need basis.

5. It was suggested by NPD that the majority of the project activities should be completed in next two years. However, the PSC will review the project progress comprehensively in December 2010 to decide upon the future course of action. TERI was requested to submit a detail break up of activities, monetary and human resources required to complete one cluster.

6. It was agreed that the project will be audited six monthly and thereafter the grants as programmed in the approved AWP shall be released directly to TERI with the approval of PSC. It was also agreed that the grants programmed for this FY 09 (worth USD 117,020) may be released to TERI immediately.

7. The Project Inception workshop is scheduled for November 18, 2009. TERI was requested to submit a complete list of invitees and detail agenda for the meeting to the Ministry and UNDP. It was suggested that HUDCO, NBCC, BMPTC, SDC could be the major stakeholders.

The meeting ended with a vote of thanks to the chair.

……..

Annex: I – List of participants

- Mr R R Rashmi, Joint Secretary, Climate Change and National Project Director, MoEF (CHAIR)
- Mr R K Sethi, Director, Climate Change, MoEF
- Dr Nayanika Singh, GEF Consultant, MoEF
- Dr Preeti Soni, Head, Energy and Environment Unit, UNDP
- Mr S N Srinivas, Program Officer, Energy and Environment Unit, UNDP
- Mr Girish Sethi, Senior Fellow and Director, Industrial Energy Efficiency Division, TERI
- Col Rakesh Johari, Senior Fellow, TERI
- Mr N Vasudevan, Fellow, TERI
- Mr Sachin Kumar, TERI

Annexure 38.1

UNDP/GEF MSP Brick sector project – Request for ex post facto approval

Project Background and Financials

TERI is the responsible partner for implementing the UNDP/GEF Medium Sized Project (MSP) "Energy efficiency improvements in Indian brick industry". The project started in October 2009 and is expected to be completed by June 2013. The total project budget and fund availability till June 2011 (considering 1 USD = 45 INR) is given below:

Total project budget:	Rs 3.13 crores
Project expenses reported and approved till June 2011:	Rs 1.94 crores
Balance available:	Rs 1.19 crores

Brief history of the project and sequence of events

The ongoing UNDP GEF project in the brick sector was conceived way back in 2001 when TERI had submitted a Project Concept Note on demonstration and dissemination of better operating practices and efficient technologies to UNDP. The project has undergone several modifications primarily in terms of the formats/documents to take care of revised procedures and suggestions of the concerned agencies; however, the overall context remained the same during the ten year period. Sequence of key milestones is given below in chronological order:

Month/Year	Milestones
April 2001	Submission of Project Concept Note by TERI
February 2002	Submission of Project Document by TERI
March 2005	Endorsement by MoEF for preparation of PDF-A document
June/August 2006	Submission/Re-submission of Project Document by TERI
September 2006	Project endorsement by MoEF
Aug/Sept/Dec 2007	Re-submissions of Project Document by TERI
March 2008	GEF agency approval
October 2009	Formal start of project (Date of receipt of first installment by TERI)
November 2009	Project inception workshop

During this entire project formulation and approval period, TERI remained in touch with the industry associations as well as individual entrepreneurs who showed a keen interest in the project during this entire preparatory and approval period i.e. starting from 2001 onwards.

Project activities, annual work plans and audit observations

MoEF constituted a Project Steering Committee (PSC) on 27 October 2009 that is chaired by Joint Secretary (PA-II), MoEF who is also the National Project Director (NPD) of this project. The Steering committee has met 4 times since the start of the project in October 2009. The annual action plans are prepared by TERI as per UNDP formats and submitted for approval at the PSC. Similarly, Quarterly Progress Reports (QPRs), both of financial and physical progress are also prepared as per UNDP formats and submitted for necessary approvals. The action plans for 2009,

2010 and 2011 were duly approved by UNDP/MoEF in June 2009, April 2010 and January 2011 respectively. Similarly, all the submitted QPRs were approved by UNDP/MoEF. In February 2011, the auditor appointed by UNDP observed that the amount charged by TERI under the head "Local Consultants" was very high. Their observation was based on the rates mentioned in the original Project Document that was prepared long back (see table above). TERI was requested by UNDP/auditor to share the basis of calculations of their person-month costs. Detailed justifications of the rates have been provided to UNDP in April 2011 including copies of the salary slips of professionals, social costs and overheads (including expenses of office space) certified by external auditors of TERI. Copy of the same is enclosed again as annexure 1 for reference.

The following facts need to be kept in mind while viewing the person-month rates charged by TERI:

- Copies of actual salary slips of professionals and justification of social and overhead charges have been submitted, duly certified by certified external auditors
- TERI is a not for profit research organization and does not receive any regular grants from government or any other source. Hence, all expenses of running of the organization need to be met through direct project funds.
- Moreover, the person-month rates charged under the project are similar to the rates charged by TERI to various multilateral/bilateral organizations including from UN organizations.

Request for approval

TERI had duly followed all the procedures for getting action plans and QPRs approved since the start of the project. The issue of using rates mentioned in the old Project Document was never raised/pointed out earlier. Moreover, the facts mentioned above need to be borne in mind, especially that the person month rates include cost of office space, which is not charged separately. It is therefore requested that the person-months rates charged till date be approved ex post facto. It is proposed that no further increase in the rates will be charged by TERI (although TERI's salary and overheads are likely to increase in tune with the market trends). Alternately, MoEF/UNDP may agree to a lump-sum budget of Rs 25 lakhs for the period January 2012 to June 2013 for the professional costs of TERI team managing the PMU. There is sufficient balance budget available in the project (nearly Rs 94 lakhs) for various activities being performed by LRCs, other consultancy services and direct costs like travel/ boarding/lodging, workshops, training program organization, etc. The detailed activity plan for 2012 will be submitted in the next PSC for approval.

Submitted for necessary approval please.

Annexure 38.2

Minutes of the Fifth Project Steering Committee on UNDP/ GEF MSP on Energy Efficiency Improvements in the Brick Industry

The fifth meeting of the Project Steering Committee (PSC) of UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry was organized on September 22, 2011 under the chairmanship of Mr R R Rashmi, Joint Secretary, MoEF and National Project Director.

The list of participants is at annex: I.

The presentation made by TERI is at annex: II.

Discussion Highlights:

1. The additional expenditure of Rs 50,000 to IIT, Roorkee for study on structural stability and usage of REBs in building construction was approved. This additional amount is required to pay for a truck load of bricks for the study by IIT.
2. It was agreed that as approved in the Annual Work Plan 2011, the Mid Term Evaluation of this project will be undertaken and UNDP along with TERI was asked to initiate the process while keeping the Ministry fully involved.
3. TERI was asked to provide the calendar of events on a six monthly basis to ensure wider and effective participation.
4. To promote the usage of REBs in public sector, it was suggested to write to CPWD and to all DGs of PWD at the State level to encourage the use of REBs. The letters may also provide information regarding the nearest source of procuring REBs and the other technical expertise available.
5. Besides, public sector, the private manufacturers and users also needs to be focused. As GEF project aims at removing various barriers and creating an enabling environment for market transformation, there is a need to a) develop a marketing plan; b) translate the results of various studies done under the project and translate it into easy to read format for wider dissemination; c) provide training program to mason and similar stakeholders; and, d) document the case studies for promoting use of REBs.
6. PSC asked TERI to work with the financial sector more actively and to identify the banks in a region and then a team of experts should make a personal visit to ensure better understanding.
7. TERI for the first time informed in the PSC that 9 brick kiln manufacturing REBs had been selected which by now have also achieved a reduction of about 7,000 tCO2. PSC asked TERI and UNDP to develop criteria for selecting such units under the project and also inform the PSC on how many more units will be undertaken under this project.
8. TERI also informed that about 7 studies have been undertaken in this project so far and as they were not aware of the rules, they have only sought permission for 1 study from the NPD and the PSC. The criterion for hiring consultancy services was also not known to TERI so it has not been followed. PSC asked UNDP being the GEF agency for this project to update TERI about the processes and procedures while ensuring compliance from now onwards.
9. Regarding the audit observations on the project's physical and financial performance in the last year, two aspects were of major concern: i) the man hour rate charged by TERI under this

project is very high and if the same charges continue the project will not be left with enough financial resources to meet its objectives; and, ii) TERI has utilized 21.19% of the GEF grant in administrative related activities which is against the GEF rule. As per GEF rule, the administrative expenses may not exceed more than 10%. PSC asked UNDP to discuss this matter with TERI and address this matter without reducing the allocations to LRCs and report back to the PSC. The PIR for a period of June 2010 to July 2011 was approved subject to ironing out these concerns.

10. TERI informed that the LRC selected in north east is not responding and the activities are getting delayed. PSC asked TERI to identify the potential LRCs in the region and share the information with the PSC to take an informed decision. However, it was also requested that before initiating this process the present LRC should be informed in writing about the concern and this proposed change.
11. TERI was asked to make LRC outcome wise presentation in the next PSC. It was suggested that the next PSC may be scheduled sometime between December 20 to 24, 2011 once the draft Mid Term Evaluation report is ready for PSC consideration and approval.

The meeting ended with a vote of thanks to the chair.

……

Annex: I – List of participants

- Mr R R Rashmi, Joint Secretary (Climate Change) and National Project Director, MoEF (CHAIR)
- Dr Nayanika Singh, GEF Consultant, MoEF
- Mr Srinivasan Iyer, Team Leader, EEU, UNDP
- Mr S N Srinivas, Program Officer, EEU, UNDP
- Dr Veena Joshi, Senior Advisor, SDC
- Mr Girish Sethi, Senior Fellow and Director, Industrial Energy Efficiency Division, TERI
- Mr N Vasudevan, Fellow, TERI and National Project Manager
- Mr Sachin Kumar, TERI
- Ms Padmini R, Architect, CEPT University, Ahmedabad
- Mr Pritpal Singh, Senior Engineer, PSCST, Chandigarh
- Mr Nagaraju, Field Manager, TERI, Bangalore
- Mr K K Pandey, President, I N P Varanasi

Comments on MTR report

The following comments are related to the revised version of Draft Final Report Mid Term Review (MTR) dated 31 August 2012 of the GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project. These comments along with our comments to the initial Draft Final Report Mid Term Review (MTR) dated 25 July 2012 submitted on 18 August 2012 (attached as Annexure 1) may be taken into consideration while finalizing the MTR report.

General comments

1. The initial draft final Mid Term Review (MTR) report was sent by UNDP on 29th July 2012 to PMU, nearly five months after the reviewers interviewed different organizations/people and made presentation at MoEF on 7th March 2012 on the preliminary findings, which were very positive. We were completely taken by surprise by the transformation in stance of the reviewers between March and July 2012 towards this project.
2. PMU had questioned the validity of the MTR report itself in view of the inordinate delay in finalizing the report. Questions were also raised on what had transpired during the intervening period. (See point 1 under General comments of our response to draft MTR report submitted on 18th August 2012). Umpteen numbers of verbal and oral requests to UNDP to share the findings of the review went unanswered. As an example, see point number '3' of the e-mail dated 28 March 2012 (attached as Annexure 2.1).The project was completely frozen during this period.
3. PMU is now in receipt of the "revised version" of draft final MTR report from UNDP (received on 8th September 2012). It is apparent that the 'new' draft final report has undergone changes in light of our earlier comments. In this revised version, the reviewers have now clarified on page 4, para 4 that they indeed had "a number of useful ongoing interactions" with UNDP to clarify outstanding unclear issues after 9th March 2012. In the same paragraph, the reviewers have mentioned that their findings are strictly independent. However, this statement appears to be far from the truth. The very fact that they were having a number of on-going discussions with the UNDP project team (formally or informally) for 4 to 5 months on their preliminary findings points to the fact that they may have been directly or indirectly influenced by the UNDP team handling this project. If there were "unclear outstanding issues" after the presentation of the preliminary findings at MoEF (i.e. after the mission ended) how is it that the 'independent 'reviewers did not feel to consult the PMU even once. There has been no transparency on what transpired during the intervening period and only when PMU team pointed this out in its comments on the draft final MTR, the reviewers have acknowledged that they had meetings with UNDP team. The whole review process appears to be less than honest and biased against PMU.
4. With regard to the above point, it may also please be noted that all the preparatory activities of this project including the preparation of the Project Document were led by one

of the reviewers while he was at TERI from 2001 till Dec 2006. Therefore, the decision to engage a reviewer with this background itself raises questions on the independent nature of the review process.

5. We would like to point out that at the request of UNDP/GEF consultant; PMU had facilitated the field visits of UNDP/GEF consultants to Bangalore and Varanasi in January 2011. These visits reports and their findings were not shared with the MTR team. TERI team also specifically requested orally as well as in writing for a copy of the visit reports but UNDP preferred not to disclose their reports. This again reiterates the fact that the concerned officials of UNDP have not been transparent in the interactions with PMU.
6. We would like to mention for the sake of records that the reviewers themselves have pointed out at a number of places in the report that the original Project Document and the linked LFA is weak and unrealistic. Comparing the performance of PMU against this unrealistic LFA and marking it 'marginally satisfactory" or "unsatisfactory" is in our opinion totally incorrect. It is precisely for this reason that PMU had asked for a need to have a revised LFA in the 2nd year itself but the revised LFA sent by PMU to UNDP is yet to be finalized.
7. The MTR report acknowledges that the project had a long formulation stage but falls short of mentioning its implications. Similarly, it does not adequately acknowledge the efforts made by project in addressing various technical and institutional barriers impacting growth of REBs in India (e.g. structural stability, standards, etc.). The first Concept note was prepared in 2001 while the project formally started in October 2009, clearly indicating the long gestation period. Hence, as mentioned under point number 13 (page 14) in the response to draft MTR report submitted by PMU on 18 August 2012, PMU did not find it appropriate to question the LFA in the very first project inception meeting held in November 2009 as it would have led to further delays in start of the project. As an example, the Project had envisaged setting up of 12 demonstration units in the first year. This is clearly unrealistic. Similarly, PMU had all along mentioned that PMU is not selecting new units and only facilitating production of REBs in existing units (in a few cases). Such points which reflect the loose ends in the project design were discussed in in various meetings. Hence, “estimating” a causality factor of 20% is not justified as there is no way one can “estimate” and apportions only 20% benefits to the project.
8. The reasons for PMU charging manpower rates higher than what are mentioned in Project Document has been explained many times to UNDP. It was also explained to reviewers in our written response to the draft final report sent on 18th August 2012 (please see point no 6 (page 2) and point 8 (page 11)). This fact has been acknowledged by them in the revised report but only as a footnote. It may be noted that this is a major issue, which has not been resolved for nearly 16 months between PMU and UNDP. The rates issue has led to a cascading effect on the way the deliverables/ outcomes have been looked at by UNDP (in the last one year) and now by the reviewers as well. During the 5th PSC meeting held on 22nd September2011, it was suggested by PSC that this issue should be sorted out mutually between TERI and UNDP and should be reported back to PSC. Many interactions took place between the two teams to resolve this issue. Subsequently, at the request of UNDP, TERI

also submitted a note on 23rd November2011 seeking approval (please refer to Annexure 38.1 of the response to the draft MTR report submitted by PMU on 18th August 2012) but unfortunately, no decision was taken. Had this matter been resolved in a reasonable time frame by UNDP, the way the reviewers would have looked at the deliverables/outcomes would have been totally different. We would like to reiterate that the rates charged by PMU were known to UNDP team handling this project right from the start. We would also like to state that same rates have been given to TERI staff by other UN organizations, including the recently signed World Bank GEF project on energy efficiency.

9. With regard to the comments on "Monitoring, review and evaluation", we would like to submit that for selection of consultants, PMU was never informed that any specific processes had to be followed. This was brought up only in the 5th PSC meeting and never before this issue was raised. Similarly, the issue of demonstration units' selection had been explained earlier by PMU (see annexure 9.1). With regard to presentations by PFU to PSC, it may be noted that all the points related to the project progress were regularly discussed. Therefore implying that monitoring by PFU has been weak and unsatisfactory is totally wrong and baseless.
10. Reviewers have mentioned at a few places in the report that communications with LRCs and their involvement was not adequate. PMU strongly disagrees with this view. LRCs have been fully involved in all the project activities and we are at a loss to understand how this impression has been created. TERI is partnering with the LRCs in other projects as well and share a high degree of mutual trust with them. The reviewers are requested to explicitly elaborate and be more specific while making such tenuous comments. The meeting notes annexed to the report also does not reflect any such view.
11. As several of the general and specific comments given by PMU in response to the draft MTR report submitted on 18 August 2012 are still valid, the present comments should be read in conjunction with our previous comments.

Specific Comments

EXECUTIVE SUMMARY

(1) Page 3 para 1

MTR Report: The term resource efficient bricks (REBs) in the project context is not precisely defined, but in practice REBs in the context of this project refers to perforated or hollow clay fired bricks.

PMU's comments: It is submitted that resource efficient bricks (REBs) were defined in the ProDoc (Refer page number 1, paragraph 1 under Project Summary), To reproduce the sentence, " The outcome of the stakeholder workshop conducted under the PDF-A phase clearly indicated several opportunities exist in Indian brick industry to improve resource efficiencies and promote production of resource efficient bricks such as perforated bricks, hollow blocks and fly ash bricks". However, in the context of the project, the REBs refer to clay-fired perforated or hollow bricks.

Therefore, we request to drop the line '*The term resource efficient bricks (REBs) in the project context is not precisely defined*' from the report. Also the various inferences drawn elsewhere in the report should be correspondingly re-looked at.

(2) Page 5 Column 3

MTR Report:

' Revised approved target (as per TERI presentation to the evaluation team) ' under table 1.1

PMU's comments: This column should be replaced with the targets mentioned under the revised LFA submitted to UNDP on 12 December 2011.

(3) Page 5 Column 4' Achievements ' under table 1.1

MTR Report: Year 2- 4958 tCO2 using the project claimed 100% causality factor. This is based on data of production from 9 brick plants for 2010 and 2011, for which the CO2 savings are fully claimed as project related demo unit savings. However, 8 units had the necessary machinery (extruders) for producing REBs and at least 4 units were commercially producing REBs before the starting of the project, There has been no increase in production during 2011 compared to 2010. So appropriating 100% benefits to project is not correct. An estimated more realistic project causality factor would be 20%

PMU's comments:

It is correct that few brick kiln units had necessary machineries (extruders) for producing REBs before the starting of the project. However, it is to be noted that except the mouthpiece, the equipment chain is same for producing both REBs and solid bricks through mechanized process. The project had convinced the existing entrepreneurs with requisite infrastructure in place to start producing REBs suitable to their respective region. Continuous discussions were held with these brick kiln entrepreneurs and machinery suppliers for making suitable modifications in the existing machineries to facilitate REB production. Further, the confidence level of the brick kiln entrepreneurs producing REBs before the start of the project was also increased on the product (REBs) and they believed that with the project intervention, the market for REBs will increase in future and hence they continued the production of REBs. We do not know the basis on which the 20% causality factor is considered in MTR report and hence do not agree with this figure.

(4) Page 6 Column 5' Results ' under table 1.1

MTR Report: Outcome 1: However, no measurable increase in usage of REBs is foreseen during the 4 year project period

PMU's comments: The project has put in efforts to increase awareness of stakeholders on use of REBs and have taken steps to promote use of REBs through mason's training, preparation of manual on use of REBs, focused interactions with end users like architects/builders/major government departments involved in construction activities at national and state levels, undertaking specific studies from reputed institutions like IIT-Roorkee and CEPT University and interactions with BIS for revision/modification of existing standards on REBs. We feel that the revision of BIS specifications and inclusion of REBs in the Specifications of the government department will increase the market of REBs in near future.

(5) Page 6 Column 5' Results ' under table 1.1

MTR Report: Outcome 2: The project has prepared model DPRs, which have been approved by 1 financial institution. None of the demo units have used project DPRs for financing. No evidence has been provided of any increase in brick kiln REB related loans due to project efforts.

PMU's comments: It may be noted that Model DPR has been approved by one financial institution and one Bank. The letters of approval from the financial institutions indicate their approval of the REB projects in general. We agree that the entrepreneurs of the units facilitated under the project have not used model DPRs for availing financial assistance from Banks. However, it should be noted that these entrepreneurs are progressive brick kiln entrepreneurs in their respective regions, who have better access

to banks to avail financial assistance. The approval letters are more appropriate for brick kiln entrepreneurs who are next in line to these progressive brick kiln entrepreneurs and are planning to invest in technology up gradation and REB production. The approvals from bank / financial institution would certainly help in motivating the brick kiln entrepreneurs and building their confidence level in approaching financial institutions to avail loans. Availing of loan by a brick kiln entrepreneur is solely dependent on the eligibility and financial credibility of the entrepreneur.

(6) Page 7 Column 5' Results ' under table 1.1

MTR Report: Overall the market for REBs has increased, primarily of Weinerberger's hollow blocks, due to the market development efforts of Weinerberger and currently stands at 20 million blocks/ year (190,000 MT/ year). For the 9 demo units, the cumulative production is around 50,000 MT/year and has not shown any increase in 2011 compared to 2010 (in fact it has marginally decreased). Project impact is unknown, but is expected to be no more than, say, 20% of any increase.

PMU's comments: Please note that the Wienerberger's market is primarily in Southern part of the country and that too mainly with the private sector. Wienerberger is a multinational company having a dedicated market team with annual marketing budget of several crores in comparision to the total project cost of Rs. 3.13 crore for a period of 4 years covering different regions. The project is putting its efforts to create REBs market for small brick kiln entrepreneurs who do not have marketing skills, resources etc. to do so. The project has successfully increased awareness of different key stakeholders more importantly the government departments which is one of the largest consumers of bricks and provide a reliable market to small brick kiln entrepreneurs. Hence comparing project results with Wienerberger is not appropriate.

(7) Page 7 Column 5' Results ' under table 1.1

MTR Report: Outcome 4: None of the 9 'demo' brick kiln units have received the systematic support as envisaged in the ProDoc. There is a lack of documentation specific to 9 brick kiln unit project related interventions. This outcome was allocated 42% of the GEF funds. The efforts and progress under this outcome has been minimal.

PMU's comments: It may be noted that in the ProDoc, the term 'demonstration unit' refers to the units that will procure necessary machines for the production of REBs during first year of the project itself. However, there was considerable delay in the formal approval process (about 4 years[1] and this fact is duly acknowledged by MTR team also) and the project team could not formally engage with most of these brick kiln entrepreneurs for such a long period. When the MSP was finally approved, some of the earlier contacts had gone ahead with their own business plans and the project team had

[1] More than 8 years, in case the first attempt in 2001 – 02 to develop a GEF FSP is considered

to start afresh and all the ground works undertaken earlier had lost its importance. To promote the adoption of mechanization and production of REBs, the project has undertaken a number of initiatives to enhance the availability of technology packages in different regions through B2B meetings of brick kiln entrepreneurs with National and International technology suppliers, exposure visits etc. Thus, the project facilitated adoption of REB production and hence a statement like '….efforts and progress under this outcome has been minimal' is certainly not appropriate.

(8) Page 8 Para 21

MTR Report: At the time that the MTR was fielded, the project had expended around 65% of its GEF budget, but as is clear from the table above, the project had achieved less than 50% of its expected results.

PMU's comments. It may be noted that a number of activities which were not envisaged in ProDoc but are important and crucial for project implementation were undertaken by PMU. These include activities such as soil suitability study, structural stability study, interactions with BIS for revision of Standards etc. These activities required additional resources and more involvement of PMU, leading to additional expenses. The results referred by the reviewers are based on the comparison with original LFA, which has since been revised and submitted for approval in December 2011.

(9) Page 9 Column 3' Results ' under table 1.2

MTR Report: The project is weak in its adaptive management and did not use a suitable logical framework as a project management tool.

PMU's comments: PMU strongly denies the statement. We are not clear what is meant by 'weak adaptive management'. In fact we feel that the PMU has been very flexible and a mentioned under point number 8, PMU has undertaken many activities that were not envisaged in the ProDoc but were considered important for the success of the project. Further, all the activities were undertaken as per the approved AWP that is prepared annually. The original LFA submitted for approval of UNDP during June 2006 had undergone a number of changes before the final version in existing form. It may also be noted that the existing version was finalized by UNDP without taking inputs from PMU. In the interest of the project, PMU continued with that LFA and carried out activities to achieve the targets. However, considering the ground realities that have changed considerably due to delay in approval process, PMU requested for modification of the existing LFA mid-way through the project. In concurrence from UNDP, the project revised the LFA and after a number of interactions with UNDP, it was submitted to UNDP/ MoEF on 12 December 2011 along with AWP for the year 2012. Therefore, it is not correct to say that the project is weak in its adaptive management.

(10) Page 9 Column 3' Results ' under table 1.2

MTR Report: The project document envisaged a major role for Local Resource Centres (LRCs) for the implementation of project activities in 5 regions. However, shortcomings were observed in the level of funding, staffing and involvement of LRCs in project management and execution. For example, while the project document proposed service contracts worth US $ 304,400 (mostly for funding LRCs) the value of service contracts actually awarded to LRCs and local consultants during the 28 months of project implementation was only around US $110,000.

PMU's comments: PMU does not accept this statement. The LRCs were duly involved in project planning and implementation of approved activities. Detailed discussions were carried out with them to finalise the activities for the year and related budget, timelines and desired outputs. Annual contracts were signed with them in line with AWP based on the mutually agreeable terms and conditions. The quarterly progress reports (QPR) submitted to UNDP/MoEF clearly mentions the activities undertaken by LRCs and the same were also presented to PSC.

Regular meetings were organized with LRCs to discuss about the project. For example, to discuss about the experiences of the LRCs and to plan the future activities, a meeting with all the LRCs was also organized at Bangalore during June 2010. This was duly reported in the 2nd quarterly progress report of the year 2010. Even, the representatives of all the LRCs participated in the 5th PSC of the project on September 22, 2011 at MoEF. Further, a meeting was also organized at TERI on 30 November 2011 to plan the future activities to achieve the project outputs. Apart from this, the PMU regularly interacted with all the LRCs and their inputs were also taken on all the reports prepared by external consultants. Also, the LRCs participated in programs organized under the project by other LRCs and these programs also provided the opportunity to discuss about the project. The technical reports prepared by one LRC were shared with other LRCs and their inputs were duly taken. Therefore, to say that the LRCs were not involved in the project management and execution of project is not correct.

It may further be noted that the value of service contracts actually awarded to LRCs and local consultants were worth US$ 178281[2] and not US$ 110,000 as mentioned in the MTR.

(11) Page 10 Column 3' Ratings' under table 1.2

MTR Report: The project monitoring and oversight by both the PFU and the PSC has clearly been weak. While going through the minutes of PSC meetings, the MTR team has noted that several important issues like the selection processes to be followed for hiring of consultants, and the identification of demonstration units and their CO2 savings came

[2] It also includes the professional charges worth USD 47381 for LRC-South. The conversion rate considered is 1 USD = INR 55

up for discussion only during the 5th PSC meeting held on 22nd September 2011 (two years after the inception of the project). The oversight of project related contracts by the PFU clearly needs to be significantly improved.

PMU's comments: It may be noted that the progress reports were regularly submitted to UNDP / MoEF through quarterly progress reports.

On the issue of following selection process for hiring of consultants, it may be noted that the PMU was not informed by the UNDP that a procedure has to be followed for hiring of consultants. It is correct that for the first time this issue was discussed during 5th PSC meeting of the project. Had PMU known this earlier, it could have adopted the procedure.

On the issue of identification of units and CO_2 savings, it may please be noted that it was clearly reported in QPR for the period Oct-Dec 2010 that the project provided support to 7 brick kiln units for production of REBs. Since all the expenses for procurement of machineries required for REB production have to be borne by the entrepreneurs without any financial support from the project, the issue of 'selection of units' does not arise. The same was also duly brought to the notice of the steering committee members during 4th PSC meeting held on 6th Jan 2011 (Refer presentation made by PMU attached as Annexure 14.3 of the response to draft MTR report submitted on 18 August 2012). Hence, mentioning that oversight by PMU and PSC was weak is not justified and should be dropped from the text. The kind of assistance provided to these units was also explained in writing to the UNDP (see annexure 9.1).

Further, the project progress and related budget and outcomes were duly presented in all the PSCs. We request the reviewers to go through the presentations that were made in the PSC meetings. In all the PSCs, discussions were held on these aspects. The reviewers may please note that the minutes of the PSCs capture only the important points. They do not capture each and every discussion point. Moreover, the minutes of all the PSCs were prepared by the GEF consultant without taking any inputs from PMU and circulated with due approval of competent authorities.

(12) Page 10 Column 3' Ratings' under table 1.2

MTR Report: The project reached out to a large number of brick makers, architects, etc through seminars, meetings and the project web site. However, as explained elsewhere, the key stakeholders like LRCs, had very little role in the project's management.

PMU's comments: Regarding the involvement of key stakeholders like LRC, we request the reviewers to refer to our response to point number 10.

(13) Page 10 Column 3' Ratings' under table 1.2

> *MTR Report: The financial planning by the PFU has been unsatisfactory. The staff-rate charges charged by TERI for PFU operation and for providing technical experts are 2-4 times of the rates as explicitly budgeted in the ProDoc. For example, the project document specified US$ 576/week as the professional fee for the Project Co-ordinator and US$ 750/week for Technical Experts, however as per data available for 2010, TERI has charged out its staff at rates varying between US $ 1000 to 3100/week.*

PMU's comments: This observation has already been replied under point number 8 (page 11) in our response to draft MTR report submitted on 18 August 2012. We reiterate that this observation by the reviewers is wrong and denied. All the planned expenditures for each year were duly prepared and submitted through AWP of the respective years and in no case the expenditure had exceeded the approved budget for the respective year. Moreover, TERI has been regularly submitting the financial progress in Face Forms on quarterly basis. Further, it is not explicitly mentioned in the ProDoc under which head TERI should charge its manpower. To clarify this, TERI team sought a meeting with the Program Officer handling this project at UNDP before preparing the first Face Form (July to September 2009)[3], A meeting was held at UNDP office which was attended by two senior officials from TERI and Program Officer handling this project from UNDP . During the meeting, TERI asked where we could charge our manpower as there is no mention of TERI under different budget heads. It was clarified by UNDP that TERI can charge its manpower as consultant under the head 'Local consultant' at TERI's manpower rates. It was further mentioned by UNDP that the amount under different budget heads in the same outcome can be readjusted. The issue of TERI rates was also discussed in the meeting held on 2 December 2009 in response to the first Face Form that was submitted by TERI. During the discussions in this meeting also, it was communicated by TERI that it used the existing manpower costs of TERI. As is clear from the above, the issue of rates and use of TERI in-house expertise was discussed during the initial period of the project with UNDP officials. TERI regularly prepared and submitted the Face forms subsequently claiming for the work undertaken by TERI team under different outcomes, including PMU. All these quarterly Face Forms[4] were duly approved by the competent authorities and TERI regularly received the payments.

TERI would also like to submit that a detailed response clarifying the basis for arriving at the TERI rates was provided to UNDP auditors on 28 April 2011 (Please refer 'Annexure No 8.2 of our response to draft MTR report submitted on 18 August 2012)

[3] The first Face Form (July to September 2009) was not accepted by UNDP as it was informed that the project expenses can only be incurred after receipt of funds from UNDP in the project bank account. Hence, the October to December 2009 period was considered as the first accounting period (1st Face Form) (See correspondence at Annexure 13.1)

[4] It may be noted that there is no provision available in the Face Form to show the details of manpower charges and professional time spent.

(14) Page 11 Column 3' Ratings' under table 1.1

MTR Report: TERI, in its comments on the draft MTR report, informed the reviewers that TERI had informed UNDP in September and December 2009 that TERI would be charging its existing manpower at rates higher than that specified in the ProDoc, however, minutes of these meetings have not been provided to support these claims.

PMU's comments: It may be noted that it was not TERI who had informed UNDP that they will be charging its existing man-power rates. On the contrary, when TERI sought clarifications from UNDP that under which budget head they should charge their man-power, it was conveyed by UNDP that TERI could charge its man-power under the head 'local consultant' at their existing rates (which were higher than that specified in the ProDoC). In this regard it may also be noted that since UNDP was aware of this, they never objected to any of the face forms that were submitted by PMU. The payments aagainst all the 7 face forms were released without any remarks.

(15) Page 11 Column 3' Ratings' under table 1.1

MTR Report: The share of financial resources available for service contracts (for managing LRCs and hiring technical experts) has been significantly reduced. While the project document had proposed service contracts worth US $ 304,400 (44% of the budget), the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation is much less and is only around US $110,000 (26% of the expenses incurred to December 2011)

PMU's comments: TERI does not agree with this observation. The annual agreements were signed with LRCs based on the agreed work for the respective year. Further, the project has engaged external consultants to carry out specific studies and a few of these studies were not even envisaged in the ProDoc like structural stability study by IIT-Roorkee and suitability of soil for making REBs by NIIST etc. Therefore, to say that the financial resources available for service contract have been sufficiently reduced is not correct. Further, as reported under point number 10, the value of service contracts actually awarded to LRCs and external consultants were worth US$ 178281 and not US$ 110,000 as mentioned in the MTR.

(16) Page 11 Column 3' Ratings' under table 1.1

MTR Report: In terms of co-financing, TERI was supposed to provide in-kind co-financing of US $ 145,000, however no details are available whether or what part of this co-financing has been provided so far.

PMU's comments: It may be noted that the in-kind contribution from TERI was duly mentioned in the AWP- 2012 submitted to UNDP/MoEF for approval. Further, apart from mentioning the total amount of co-financing in the AWP, there is no format to

provide details of the co-financing.

(17) Page 11 Column 3' Ratings' under table 1.

MTR Report: The project has started the development of some activities, in particular BIS REB certification standards, and some awareness activities that may produce useful ongoing results beyond the project's end.

PMU's comments:TERI has taken concrete steps in promoting the production and use of REBs. The focused interactions with Government departments, undertaking specific technical studies, facilitating production of REBs by brick kin entrepreneurs are some of the initiatives that have even been acknowledged by the reviewers (please refer Page 4, Para5 of the MTR report). These steps will certainly pave the way for uptake of REBs.

(18) Page 12 Column 3' Ratings' under table 1.1

MTR Report: The execution and implementation modalities indicate significant shortcomings in the PFU's operations and in project management, and this calls for major improvements in its functioning during the remaining part of the project

PMU's comments: TERI does not agree with this statement. The project has been implemented as per the approved AWPs and the project progress is duly reported through quarterly progress reports (QPRs) to UNDP/MoEF and is also presented in the PSC. Till December 2011, the project has submitted 9 QPRs and participated in 5 PSCs and never the issue of shortcomings or need of improvement was raised. Apart from these time-bound correspondences, the project team has met number of times with UNDP team and this issue was never raised. Therefore, it is very surprising to note this observation from reviewers that is made without any concrete justification.

(19) Page 12 Column 3' Ratings' under table 1.1

MTR Report: A significant part of the project's limited financial resources have been spent on TERI's in-house manpower providing services as Technical experts. This has been done without defining clear TOR or any defined deliverables for these experts' work.

PMU's comments: This observation by the reviewers is wrong and denied. It is well-known that TERI has in-house experts available in different fields. These experts were involved in the project based on the needs and requirements of the approved AWP. This was done in good faith based on mutual consultation between TERI and UNDP at the start of the project. TERI would like to place on record an interaction between TERI and UNDP during 2009. In this meeting, UNDP had clarified that it could engage its in-house experts in the project and that there are no budgetary norms/constraints for hiring of such experts/consultants under the project. It is additionally submitted that the PMU was not briefed regarding the need to follow UNDP procedure for hiring of consultants. It was only in November 2011 that UNDP shared the guidelines with TERI for hiring

consultants.

(20) Page 12 Column 3' Ratings' under table 1.1

MTR Report: The ToRs for several of the assignments are not sufficiently detailed. In some specific cases, there is a significant deviation between the submitted reports by experts and the ToRs e.g. the ToR for Eckhard Rimple not aligning with the scope of the work undertaken by him.

PMU's comments: Again this observation by the reviewers is denied. All the ToRs signed under this project were clearly detailed out and were duly submitted to UNDP/MOEF. All the reports including draft reports by the consultants engaged under the project, were also submitted to UNDP/MoEF and we never received any feedback on TORs mentioning they are not sufficiently detailed out or there is deviation in submitted reports from ToR. In the specific case of Mr. Eckhard Rimpel, the report prepared by him was shared with the UNDP/MoEF and the LRCs. The feedback was provided to Mr. Rimpel and report was revised twice by him.

(21) Page 12 Column 3' Ratings' under table 1.1

MTR Report: Coordination with LRCs and sustainability of LRCs is an issue.

PMU's comments: TERI strongly denies this statement. There is no coordination issue with the LRCs. In fact, PMU remained in contact with the LRCs on a continuous basis through telephone and emails. Regular project meetings were also organized with LRCs to discuss about the project progress. Their inputs were also taken in preparing AWPs and QPRs. It is surprising to note the observation of coordination issue with LRCs is being made without proper assessment and justification.

Further, it may be noted that all the LRCs were appointed with the approval of PSC. In fact the LRCs for the Southern, Northern and Eastern region were already mentioned in the ProDoC. Therefore, the observation regarding sustainability of LRC at this stage is unjustified. The LRCs for North, South, East and West are well known entities and have the capacity to continue providing services beyond the project duration. In case of LRC for the North-East region, due to non-performance, TERI with the approval of PSC has already suspended its services.

(22) Page 12 Column 3' Ratings' under table 1.1

MTR Report: The reduction is tCO2 is around 1/20th of the target at the end of Year 2. None of the 9 brick kiln units have received the systematic support as envisaged (for 12 brick units) in the ProDoc.

PMU's comments: It may again be noted that the 12 units mentioned in the ProDoc were supposed to purchase new machineries for the production of REBs. However,

actually this is not the case and this has been explained earlier also in point number 7. Therefore, the kind of support mentioned in the ProDoc could not be provided to the units facilitated under the project. Considering the ground realities, exactly for this reason the project had submitted the revised LFA in which the focus is not on demonstration but on technology upgradation. Our response of achieving the 1/ 20th of the target has been provided in point number 3.

(23) Page 12 Column 3' Ratings' under table 1.1

MTR Report: The project management has clearly lacked strategic focus.

PMU's comments: We do not agree with this statement by the reviewers. In view of our responses to all the earlier points, we request the reviewers to revise the statement.

(24) Page 13 Para 2

MTR Report: One very promising development that has occurred since the current India Brick EE project was conceived is that a large modern world best practice brick making plant has opened near Bangalore, which is now successfully mass producing hollow blocks (owned by one of the largest brick making companies in Europe, Wienerberger; which is expected to produce 20 million hollow blocks during 2012). Wienerberger has single handedly created a major new market for clay hollow blocks in South India, and local brick entrepreneurs are also starting to produce similar hollow blocks, although this combined capacity (of 2-4 million blocks/ year) is still unable to meet the huge market demand for hollow fired clay blocks in South India.

PMU's comments: As mentioned in the MTR, Wienerberger is an European company with 227 plants worldwide with the Bangaluru plant being the most advanced using a tunnel kiln, chamber dryer and is fired by petcoke and LPG. According to market estimates, the Bangaluru plant has been built with an approximate investment of about Rs 200 crores. PMU would like to submit that the reviewers have failed to acknowledge need to acknowledge the efforts made by TERI to bring Wienerberger on board in this project. It was a long and tedious process, which required considerable time of PMU.

(25) Page 13 Para 3

MTR Report: Need Real Timeframes and Clear Leadership in Updating Bureau of Indian Standards (BIS) REB/EE Brick Standards - A clear barrier to the uptake of perforated bricks and hollow blocks in India (particularly among the government and public-sector builders) is the existence of outdated technical standards. It is therefore recommended that the project ensures that BIS formally initiates the process for review/modifications of IS:2222: 1991 and IS 3952 -1988 and the process of getting public comments on the draft modifications suggested by the technical committee is fully completed.

PMU's comments: The PMU has already submitted the revised LFA for approval. Some

of these recommendations that are practically doable have already been included in the revised LFA.

(26) Page 13 Para 4

MTR Report: Focus on demonstration/replication projects (Outcome 4): One of the key shortcomings of the project has been a lack of focus on demonstration or replication REB projects. Though almost 66% of the funds for the component have already been spent, the so-called 9 demonstration projects have received only minimal support from the project. There is a need to set clear guidelines for the selection of REB manufacturing units as project demonstration/ replication units and to provide systematic support in the form of specific technical support to streamline/stabilize and increase the production, monitoring, documentation, and support for market development, so that there is a demonstrable improvement in the production volume/quality/productivity of these units and the project is able to meet at least some significant part of its CO2 reduction target.

PMU's comments: TERI would like to bring in the notice of the reviewers once again that in the original ProDoc it was envisaged that the 12 brick kiln units will install REB manufacturing machines during Ist year of the project itself. They had even given their consent regarding this in writing. However, the approval of the project got delayed (as acknowledged by the reviewers under the heading 'Project Formulation' of MTR report on page number 22-23), the project had to start the efforts again from the scratch. Further, it may please be noted that it was not a case of 'selection' of REB manufacturing units as project 'demonstration' since all the hardware was being brought by the brick kiln entrepreneurs without any financial assistance from the project. The fact that the project is facilitating the REB units was clearly brought to the notice of PSC during 4th PSC meeting (please refer to the presentation made by the PMU attached as Annexure 14.3 draft MTR report submitted on 18 August 2012) and 5th PSC meeting (attached as Annexure 26.1). Therefore, the question of setting guidelines for selecting REB units does not arise. Further, the CO_2 reduction targets as per ProDoc were based on the assumption that all 12 units will start producing REBs from Ist year itself and the share of REBs will be 80% of total production. However, as explained earlier that due to late approval of the project the envisaged demonstration units and corresponding CO_2 reduction targets criteria was not feasible. In terms of the technical support, the project has attempted to provide support to all of them. More efforts in this direction can be made in the remaining period of the project.

INTRODUCTION

(27) Page 16 Para 1

MTR Report: However, while a LogFrame and baseline and incremental analysis was included in the ProDoc, it is now clear that the LogFrame and its underlying analysis was very generic and not very closely tailored to the project's specific context and desired outcomes.

PMU's comments: The log frame, baseline and incremental analysis are approved documents by GEF. The original LFA submitted for approval of UNDP during June 2006 had undergone a number of changes before the final version in existing form. It may please be noted that the existing version was finalized by UNDP without taking inputs from TERI. In the interest of the project, TERI continued with that LFA and carried out activities to achieve the targets. However, considering the ground realities, TERI requested for modification of the existing LFA mid-way through the project. In concurrence from UNDP, the project revised the LFA and after a number of interactions with UNDP, it was submitted to UNDP/ MoEF on 12 December 2011 along with AWP for the year 2012.

THE PROJECT AND ITS DEVELOPMENT CONTEXT

(28) Page 22 Para 2

MTR Report: The mid-tem review (MTR) assessment is that the direct project CO2 savings are running at around 1/20th of the anticipated levels.

PMU's comments: PMU does not agree with this assumptive figure of 1/20th and our response to the same is provided in point number 3.

FINDING AND CONCLUSIONS

(29) Page 25 Para 7

MTR Report: The project is weak in its adaptive management and in using a logical framework as a management tool.

PMU's comments: PMU does not agree with this statement. In fact PMU feels that it was very much flexible and adoptive in its approach. e.g. studies related to soil sutability , structural stability, engagement with Wienerberger, BIS engagements etc. which were not envisaged in ProDoc were initiated by TERI.

(30) Page 25 Para 7

MTR Report: No meaningful discussion on the project's logical framework seemed to

have happened during the project's inception meeting. As indicated earlier, the targets for several outcomes are unrealistic and were formulated without proper baselines. The minutes of the five PSC meetings do not refer to any discussion on the logical framework or any attempt by the PFU/PSC/Executive Agency/ Implementation Agency to address the issue of problems with an inadequate logical framework or to suggest modifications to the original logical framework. The PFU in the later half of 2011 (two years after the inception of the project) submitted a revised logical framework, however it is yet to be discussed in the PSC. It is recommended that the LogFrame should be revised at the earliest opportunity.

PMU's comments: This observation has already been replied under point number 13 of PMU's response to draft MTR report submitted on 18 August 2012. To bring to the notice of reviewers, we are responding it again. The inception meeting was attended by all the important stakeholders of the project. During the inaugural session, PMU made the background presentation in which the objective, scope of the project, expected outcomes and all the challenges envisaged during the implementation of the project were discussed in detail[5]. Please refer to the presentation of PMU during the inaugural session (attached as Annexure 13.1 of the PMU's response to draft MTR report submitted on 18 August 2012). Respecting the approved LFA, the project put in the best efforts to achieve the desired outputs. However, considering the ground realities, once it was felt by the project that there is a need to revise the LFA, the project took initiatives as has been elaborated in detail under Point (10). It may please be noted that "modifications to the original logical framework" is not a straight forward process. The LFA goes through a formal process of approval till GEF, if there are any modifications.

Further in this regard, PMU would like to reiterate for the reviewers that the process of developing a GEF project in brick sector started in April 2001 with the submission of Project Concept Note by TERI. After more than eight years (with many modifications/changes in between), the project formally started in October 2009 (Please see table 1). The reviewers should appreciate that it would not have been appropriate for PMU to point out the deficiencies in the LFA in the inception meeting or immediately thereafter when everyone was waiting for the project to start. Putting hurdles at that stage would have meant further delays in the start of the project. It is highly disappointing to note that TERI's positive view is now being interpreted as a shortcoming in the review report.

[5] It may please be noted that TERI was given the LFA (as part of the ProDoc) at the start of the project. The final LFA as existing in the ProDoc was prepared by UNDP international experts.

Table 1: Project milestones

Month/Year	**Milestones**
April 2001	Submission of Project Concept Note by TERI
February 2002	Submission of Project Document by TERI
March 2005	Endorsement by MoEF for preparation of PDF-A document
June/August 2006	Submission/Re-submission of Project Document by TERI
September 2006	Project endorsement by MoEF
Aug/Sept/Dec 2007	Re-submissions of Project Document by TERI
March 2008	GEF agency approval
October 2009	Formal start of project (Date of receipt of first installment by TERI)
November 2009	Project inception workshop

(31) Page 26 Para 2

MTR Report: One of the key areas of deficiency has been with respect to the PFU developing an effective institutional mechanism for the implementation of the project. The project document envisaged a major role for Local Resource Centres (LRCs) for implementation of project activities in 5 regions. However shortcomings are observed in the capabilities, effectiveness, level of funding and involvement of LRCs in project management and execution. For example, while the project document proposed service contracts worth US $ 304,400 (44% of the budget), with a large part for funding of LRCs, the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation is much less and is around US $110,000 (26% of the expenses incurred till December 2011).

PMU's comments: PMU does not agree with this statement and our response to this statement is already provided under point number 10.

(32) Page 26 Para 2

MTR Report: There are no overarching MOUs/agreements between the PFC and LRCs covering the entire duration of the project; and most of the annual contracts with LRCs are not sufficiently detailed.

PMU's comments: PMU disagrees with this statement. In fact, the annual contract with all LRCs clearly mentions about the activities to be undertaken during the year, related budget, timelines and desired outputs. Since the AWPs are approved on yearly basis, accordingly the agreements were signed with respective LRCs on annual basis. However, all the LRCs were aware of the fact that it is a 4-year project and the contract will be signed for each year. This aspect was also clear to UNDP/GEF consultant.

(33) Page 26 Para 3

MTR Report: The project has an operational website, which provides basic information on the project and provides access to the technical reports, papers, and test results. However, there is a need to improve the quality control by PFU prior to uploading of the documents on the website, for example, several of the reports (particularly DPRs) are not of a very high standard and most of the reports do not have proper branding and acknowledgement.

PMU's comments: We would like to state that during the presentation by MTR team on 7 March 2012 at MoEF, the project website was very much appreciated. However, in the evaluation report, this observation seems to have been mellowed down by the reviewers. All the materials and reports were being uploaded regularly till 2011. Before uploading in the project website, all the reports were duly shared with UNDP/MoEF through QPRs. The PMU did not receive any feedback on the materials shared and uploaded in website. The only feedback received from UNDP was in the month of April 2012, after the MTR mission. This point was also raised in PMU's reply to the draft MTR report submitted through e-mail dated 18 August 2012 and the reviewers have ignored to include it in this version.

(34) Page 26 Para 4

MTR Report: The involvement of LRCs in the planning of their project activities is low. There is a need to improve communication and interaction between the PFC and the LRCs to be undertaken in a properly transparent manner.

PMU's comments: PMU does not accept this statement. The LRCs were duly involved in project planning and implementation of approved activities. It has already been explained under Point (10).

Regarding the communication between PFC and LRC, it may be noted that PFC remained in contact with the LRCs on a continuous basis through telephone and emails. Regular

project meetings were also organized with LRCs to discuss about the project progress. Their inputs were also taken in preparing AWPs and QPRs. PMU had mentioned this point earlier as well in the reply to draft MTR report submitted through e-mail dated 18 August 2012, but the reviewers have ignored this response as well.

(35) Page 26 Para 5

MTR Report: The monitoring and oversight by both PFU and PSC has clearly been weak. While going through the minutes of PSC meetings, the MTR team has noted that several important issues like the selection processes to be followed for hiring of consultants, the identification of demonstration units and their CO2 savings came up for discussion only during the 5th PSC meeting held on 22nd September 2011 (two years after the inception of the project). None of the presentations by PFU to the PSC covers details regarding project progress vis-a-vis the project's LogFrame, outcome related budgets and expenditure, etc.

PMU's comments: Our response to this has already been provided under Point (11).

(36) Page 27 Para 1

MTR Report: The oversight of contracts by the PFU needs to be improved. In some cases there have been major deviations between the signed contract (scope of work) and the reports provided by the expert, which clearly indicates either poor detailing of scope of work at the time of contracting or poor oversight by PFU. This is illustrated with an example (please refer to table below) in the case of the contract signed with the international expert Mr Eckhard Rimple and the work he actually produced.

***Table 4.1**: Scope of work vs report for an assignment by an external expert*

Scope of work	***Report by the expert***
Brick industry profile: Brief description of construction materials used internationally (mainly Europe, Latin America and China) and the technologies employed for brick manufacturing (types of kilns, production capacities, product profile, specific energy consumption, etc)	*Description of construction material provided.* *No description provided on the technologies used.*
Technology profile of major machinery manufacturers/ suppliers of hollow blocks/ perforated bricks (mainly Europe, China and Latin America) – Documentation and database of technologies and their detailed specifications and costs	*Technology profile provided for European manufacturers only. No information provided for Chinese or Latin American manufacturers.* *No information on specification and costs.*

Identification of large international brick manufacturers having interest in Indian market	*No information provided.*
Technical inputs on tunnel kilns for brick making suitable to Indian conditions, including detailed cost for setting-up a demonstration plant in India	*No information provided*

PMU's comments: PMU strongly denies this observation. As a matter of fact all the contracts made under this project were duly detailed out in terms of scope of work, deliverables, budget and time frames etc. All these ToRs and the reports including draft reports were always submitted to UNDP/MoEF and their briefs were also presented in PSC.

In case of specific example of Mr. Eckhard Rimple also the observations are not justified. The draft report was duly shared with UNDP and LRCs also. The report has gone number of iterations before the modified report being submitted in September 2011. The PMU has given detailed feedback on the report through e-mail on 02 August 2011. The same is attached as Annexure 36.1. The consultant has addressed these feedbacks and submitted the modified report through e-mail on 09 September 2011. The answers of some of the specific queries raised by PMU were given in the covering e-mail (attached as Annexure 36.2). PMU's response to the observations provided in table is as follows:

Scope of work	**Report by the expert**	**PMU's view**
Brick industry profile: Brief description of construction materials used internationally (mainly Europe, Latin America and China) and the technologies employed for brick manufacturing (types of kilns, production capacities, product profile, specific energy consumption, etc)	Description of construction material provided. No description provided on the technologies used.	Description of construction material: Given at Page number 5 of the report Technology employed for brick manufacturing: Given at page number 10 of the report and in covering e-mail (attached as Annexure 36.2)
Technology profile of major machinery manufacturers/ suppliers of hollow blocks/ perforated bricks (mainly Europe, China and Latin	Technology profile provided for European manufacturers only. No information provided for Chinese or Latin	In the description of major technology suppliers in the report at page number 42 – 47, the web-site of the manufacturers were given. At

America) – Documentation and database of technologies and their detailed specifications and costs	American manufacturers. No information on specification and costs.	these web-sites the details of product are provided. Regarding the cost, it may be noted that in general international machinery suppliers do not give information on cost. As a matter of practice, they first shortlist the machinery requirements based on the clay properties and specify the cost based on that. However, details of pricelist and product profiles of two companies were sent along with the report as mentioned in Annexure 36.2.
Identification of large international brick manufacturers having interest in Indian market	No information provided.	The details of major brick machinery manufacturers are provided in report at page number 42 – 47. Most of them are interested in Indian market and have participated at their own cost in two conferences organized by the project at Chandigarh and Varanasi respectively
Technical inputs on tunnel kilns for brick making suitable to Indian conditions, including detailed cost for setting-up a demonstration plant in India	No information provided	Details provided at page numbers 48 – 50 of the report

(37) Page 27 Para 4

MTR Report: The PFU has so far not sufficiently involved LRCs in planning and decision-making of the project activities. This fact was highlighted by 3 LRCs during the interaction of the MTR team with them (please refer to meeting notes – Annexure E).

PMU's comments: PMU does not agree with this observation also. The LRCs have been involved in all activities including planning and decision making. Our response to this has already been provided under Point number 10. As per the details provided in Annexure-E of the MTR report, we do not find that the LRCs has highlighted the point that they are not involved in planning and decision making of the project.

(38) Page 28 Para 2

MTR Report: The project's financial planning by the PFU has been highly unsatisfactory. The staff-rate charges charged by TERI for PFU operation and for providing technical experts are 2-4 times of those explicitly and clearly budgeted in the ProDoc. The project document specified US$ 576/week as the professional fee for the Project Coordinator and US$ 750/week for Technical Experts, however as per data available for 2010, TERI charged out its staff at rates varying between US $ 1000 to 3100/week.

PMU's comments: PMU does not agree with this observation and our response is provided under Point (13).

(39) Page 28 Para 2

MTR Report: In addition, TERI as the operating agent of the PFU did not even attempt to contract out tasks to lower cost external consultants.

PMU's comments: It is for the information of the reviewers that the following external consultants / organizations were engaged /associated as per the project requirement:

1. IIT- Roorkee
2. NIIST, Thiruvananthapuram
3. IZF Germany
4. Fourth Vision, Ahmedabad
5. Wienerberger India (P) Ltd., Bangalore
6. Invis Multimedia, Thiruvananthapuram
7. Mr. HSS Rao, Bagalore
8. Mr. I Christopher, Bangalore
9. Mr. Sathya Prakash Varanashi, Bangalore
10. Prof. K. Jaisim (Architect, Bangalore)
11. Mr. K. S. Chetan (Architect Bangalore)

12. ECTS (Consortium of European Technology suppliers- specifically brick machinery suppliers)
13. Brick Machinery suppliers within India
14. PSCST, Chandigarh – LRC Northern region
15. INP Varanasi – LRC Eastern region
16. CEPT , Ahmedabad – LRC western region
17. TERI- SRC, Bangalore – LRC Southern region
18. TSCST, Agartala – LRC North Eastern region

Out of these, formal contracts were signed with at least 12 consultants.

(40) Page 28 Para 3

MTR Report: These charge out rates anomalies were not noticed for nearly two years until the first project financial management audit was undertaken.

PMU's comments: As we have already mentioned, all the expenses were done as per the approved AWP and approved budget for any year has never been exceeded. Moreover, all the Face Forms along with the related progress reports were duly submitted to UNDP/MoEF on a quarterly basis and the expenses were also presented in PSC meetings. Therefore, this observation that the so called 'anomalies' were not noticed for nearly two years is incorrect. If at all these 'anomalies' were there, they should have been pointed out by UNDP / GEF consultant immediately..

(41) Page 28 Para 5

MTR Report: Due to the high staff-rate, the time inputs of persons managing PFU and providing technical support in terms of number of person-week of inputs has been drastically reduced, which may be one of the reasons for the poor performance of the PFU.

PMU's comments: PMU does not agree to the allegation of poor performance of PFU that has been made without any justification. It may again be noted that the project progress has been submitted regularly through QPRs to UNDP/MoEF and it was never said that performance of PMU is poor. The project has regularly interacted with LRCs and other stakeholders of the project and moreover, the reviewers have also met with few of them during their field visits. Even in the details of the interaction of the reviewers with different stakeholders (provided as Annexure - E of the MTR report) this issue was not raised by any of them. We fail to understand how reviewers have drawn this conclusion when no stakeholder (UNDP/MoEF/LRCs/brick kiln entrepreneurs etc.)

has ever doubted the performance of PMU. Therefore, this observation should be removed from the MTR report.

(42) Page 28 Para 6

MTR Report: The share of financial resources available for service contracts (for managing LRCs and hiring technical experts) has significantly reduced. While the project document proposed service contracts worth US $ 304,400 (44% of the budget), the value of service contracts awarded to LRCs and local consultants during the 28 months of project implementation is much less and is around US $110,000 (26% of the expenses incurred till December 2011). This may be the reason for very limited support being provided to demonstration units by LRCs.

PMU's comments: PMU does not agree with this observation. Our response to the issue of financial resources is provided under Point (10) and to the issue of demonstration units is provided under Point (7) and (26).

(43) Page 29 Para 2

MTR Report: In terms of co-financing, TERI was supposed to provide in-kind co-financing of US $ 145,000. However no details are available whether or what part of this co-financing has been provided so far.

PMU's comments: PMU's response to this observation is provided under Point (16).

(44) Page 29 Para 2

MTR Report: An additional, US $ 1,854,000 funding is expected to come from brick kiln units. Out of the nine brick making units being claimed as demonstration units by the PFU, eight were either producing REBs/ or had the capability to produce REBs before 2009 and hence had already made major capital investments before the starting of the project. In addition, the so-called demonstration units have received only token support from the project, hence the amount of co-financing that can be attributed to the project activities is likely to be small (estimated to be around 20% in the absence of better data being supplied).

PMU's comments: PMU's response to this observation is provided Point (7) and (27) respectively.

(45) Page 29 Para 3

MTR Report: It is important to note that US $ 20,271 (31% of the total 4-year allocated GEF budget for Project Management) was spent during the first 4 months of the project in 2009. There is no entry for expenditure under Project Management for 2010 and a very small amount of US $ 2835 is booked under this head for 2011, which is quite

inexplicable.

PMU's comments: The figure reported here is not correct. The actual expenditure reported through Face Form for the PMU activities for the period October – December 2009 was INR 2,93,956 (USD 6042), which is only 9% of the total 4 year allocated GEF budget for PMU.

For the year 2010, the 'Project management' head of AWP submitted by the PMU was merged along with "Monitoring, learning and evaluation' by MoEF/UNDP during the approval process. The approved AWP in this combined form was received by PMU and hence the expenses under project management was reported under "Monitoring and therefore, they are not being reflected under the head 'Project Management'.

As per the approved Face Forms (except for the last two quarters of 2011), the expenditure on project management for the three years is as follows:

Year	Expenses on PMU including Monitoring, learning & Evaluation and other expenses as per Face Forms submitted by PMU (USD)
2009	6042
2010	46093
2011	23076

(46) Page 30 Para 2

MTR Report: From the cost effectiveness point of view, the CO2 savings achieved till the end of year 2 are estimated to be only 1/20th of the targeted CO2 savings as given in the project document.

PMU's comments: PMU does not agree with this assumption and our response is provided under Point (3).

(47) Page 31 Para 4

MTR Report: As indicated earlier, there are serious shortcomings in the execution and implementation modalities followed by the PFU and there is an urgent need for major improvements in its functioning during the remaining part of the project.

PMU's comments: PMU does not agree with this observation and our response to this

observation is provided under Point (18).

(48) Page 31 Para 5

MTR Report: The services of TERI's in-house experts and LRC-South (TERI, Bangalore) have been hired without clear ToRs and defined deliverables. This should not continue to be the case in the future.

PMU's comments: PMU does not agree with this observation and our response to this observation is provided under Point (19).

(49) Page 31 Para 6

MTR Report: The ToRs for several of the assignments are not sufficiently detailed and there are significant deviations between the submitted reports by experts and their ToRs. The PFU should improve its contracting process and contract oversight.

PMU's comments: PMU does not agree with this observation and our response to this observation is provided under Point (20).

(50) Page 32 Para 1

MTR Report: The involvement of LRCs in project planning and management is low - which needs to change to ensure ongoing project sustainability.

PMU's comments: PMU does not agree with this observation and our response to this observation is provided under Point (10).

(51) Page 32 Para 8

MTR Report: No evidence was made available to the MTR reviewers which shows that the usage of RE bricks has increased in public buildings during the project's implementation to date

PMU's comments: It may be noted that the data regarding the use of REBs in public buildings was not collected owing to the difficulties in getting information from government departments. Considering this, the PMU has already submitted the revised LFA for approval.

(52) Page 33 Para 1

MTR Report: However, it can be noted that the predominant and fastest growing REB product in India, the hollow clay block produced by Wienerberger and others in South India was not apparently provided by the EE Brick project to IIT Roorkee for structural testing.

PMU's comments: It is correct that the hollow clay blocks produced by Wienerberger and others in Southern India were not included in the study being undertaken by IIT-Roorkee. This is due to the fact that the hollow blocks being produced in South India are mostly of same size as Wienerberger. The project was aware of the fact that Wienerberger has already carried out the all the tests on their product and the corresponding reports have already been submitted to CPWD for inclusion in their specifications and to BIS for modification of their existing codes. BIS has already included these products in their draft specifications, which was circulated to TERI also for the comments during November 2011. Therefore, these products were not included in the present study by IIT- Roorkee. However, no such study has been undertaken for the REBs being produced in Northern India. It may further be noted that this is the first study of its kind that is being undertaken for REBs produced by small brick manufacturers.

(53) Page 34 Para 2

MTR Report: Due to the issues as discussed above, the MTR team is of the view that a minimal increase in use of REBs in public buildings should be expected to be achieved during the project duration. The target of 20% increase in use of REBs in public buildings is thus considered to be unrealistic, and should be replaced by a more realistic target.

PMU's comments: Considering the ground realities and to be realistic, the original LFA has been revised and submitted to UNDP/MoEF for approval on 12 December 2011.

(54) Page 36 Para 4

MTR Report: After going through the 5 model DPRs prepared by the project, the MTR team is of the view that the quality of the DPRs is not up to the mark and they require revision and several improvements:

- *The DPRs do not provide the specification of the product i.e. REBs (size, perforation, physical characteristics) that would be manufactured.*
- *There is no description of the relevant manufacturing process*
- *The assumptions on arriving at the cost of production are not stated*
- *None of the DPRs seems applicable for the production of hollow blocks*

PMU's comments: It may be noted that DPRs are prepared as "model DPRs" that can be used by interested brick kiln entrepreneurs for preparing their unit-specific DPR. The specifications for REBs (size, perforation, physical characteristics) are already notified by BIS. The flow chart for manufacturing process is provided in the DPR. The cost of production has been taken as per the discussions with brick kiln entrepreneurs and machinery suppliers.

It is to inform the reviewers that that the approach used here for DPR preparation is that of a model DPR rather than a unit specific DPR for a particular product. Therefore, the nature of model DPR is intentionally kept general so that a large number of interested brick kiln entrepreneurs can use these DPRs as base to prepare their unit specific DPRs. This approach has been used extensively by the Government of India in their SME program. Hence, reviewers are requested to re-look at this observation. This point was also raised by the reviewers in the draft report and PMU had replied under its response dated 18 August 2012 (see point 30 on page 22 of the reply to draft report).

(55) Page 36 Para 6

MTR Report: It appears that the two letters of approval from the financial institutions have had little practical significance or utility.

PMU's comments: The project team including LRCs have contacted the lead banks in their respective regions and found that the banks/ financial institutions seem to be reluctant to engage with brick sector. It is true that the leading brick kiln entrepreneurs can avail financial assistance based on their credit worthiness. However, this is not true for rest of brick kiln fraternity. The letters of approval from the financial institutions indicates their approval of the REB projects in general and shows their interests and willingness to work in the brick sector that was generally being ignored by the financial institutions. These letters help in motivation of brick kiln entrepreneurs and building their confidence level in approaching financial institutions for availing loans for technology up gradation. This is more appropriate for the group of brick kiln entrepreneurs who are next in line to the progressive brick kiln entrepreneurs. This point was also replied to in PMU's response dated 18 August 2012 (see point 32 on page 23 of the reply to draft report).

(56) Page 37 Para 9

MTR Report: The PFC and the LRCs do not seem to have a comprehensive understanding of the current and the future market potential for REBs (and this is not just due to a lack of clear definition for REBs).

PMU's comments: PMU does not agree with this specific statement. Such kind of generic statement questioning both the PFC and LRCs is clearly uncalled for. However, the PMU acknowledges the need to lay more emphasis on marketing. In fact, the market potential

for REBs is one of the important aspects of the project and this was also discussed during the 5th PSC meeting of the project. A draft TOR to engage market consultant was prepared and was submitted to UNDP for their approval. An activity to this effect has also been included in the draft AWP 2012.

(57) Page 43 Para 1

MTR Report: Out of 8 'demonstration' units visited, at least 4 were producing REBs prior to the start of the India Brick EE project in 2009. Another two units had prior experience of production of REBs before 2009. Except for one unit, all others had extruders (the necessary basic machinery needed to produce hollow or perforated bricks) prior to 2009. Furthermore, the addition or buying of the necessary technology, its financing, and its commissioning has been done by the enterprises without any support of the India Brick EE project. These details and facts about the demonstration units were not brought to the attention of the PSC meetings, and hence suitable adaptive management measures to respond to these facts were not undertaken.

PMU's comments: PMU does not agree with this observation. During the 4th and 5th PSC meetings the project has deliberated on this particular point. Moreover, the support provided to each of the units was specifically submitted to the UNDP/MoEF during December 2011. Therefore, it is not correct to say that details and facts about the demonstration units were not brought to the attention of the PSC meetings.

LESSONG LEARNED

(58) Page 47 Para 2

MTR Report: The PFU at TERI implemented the project with a lot of awareness raising work, which would have been applicable in the earlier 2001-2002 project focusing on brick kiln firing, but generally in the new project the PFU got the "cart before the horse" for most regions of India in terms of most regions needing a reliable electricity supply first and only then would extruders and other mechanisation be applicable. There is little real point in raising awareness and developing a market for REBs if the electricity supply is unreliable for the necessary extruders and other mechanisation without which REBs just cannot be made.

PMU's comments: This point about the importance of reliable electricity supply is well known to everyone.If we were to agree to the reviewers comment of 'cart before the horse' then perhaps one has to totally relook (or even drop) the project, since unreliable electricity in rural India is a reality in today's context.

Ensuring reliable electricity supply is a separate subject altogether and by all means beyond the scope of present project. We would also like to bring to the notice of reviewers that the brick kiln entrepreneurs who have adopted mechanization have

made their back-up arrangements for electricity. Hence idioms like 'cart before the horse' are not relevant in the present context and should be dropped.

On the same note, PMU would like to point out that the reviewers' observations on electricity supply issue in this paragraph contradict their own observations several times in the report including a specific recommendation 6.5 on promoting extruders which needs electricity!

(59) Page 48 Para 1

MTR Report: The UNDP/MoEF/ PSC project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off, untill the first routine financial audit conducted during early 2011 identified the issue of high manpower rates being charged by TERI.

PMU's comments: PMU does not agree to this statement. Statement that UNDP/MoEF/ PSC during the initial two years had a hands-off approach is clearly incorrect. UNDP team including the GEF consultant were fully involved in the project and were well aware of all the issues including the issue of man-power rates. This point has also been replied to in PMU's response to drfat MTR report dated 18 August 2012 (see point 8 on page 11 and 36 on page 25 of the reply to draft report).

(60) Page 48 Para 1

MTR Report: In addition, the selection processes to be followed for hiring of consultants, and the identification of demonstration units and their CO2 savings came up for discussion only during the 5th PSC meeting held on 22nd September 2011 (two years after the inception of the project).

PMU's comments: Our response is provided under point number 11.

ANALYSIS AND RECOMMENDATIONS

(61) Page 52 Para 5

MTR Report: Unfortunately, excessive and ultimately unproductive project efforts were expended in engaging agencies in the West and Northeast of India to meet this ProDoc target of five LRCs.

PMU's comments: The project design envisaged interventions in five regions. It may please be noted that North-East region was not originally envisaged in the Prodoc. It was only at the request of the steering committee that North-East was added as one of the areas for project interventions. Similarly, it was suggested by UNDP to include Gujarat as a focus region for intervention instead of other more developed regions in Western India (Minutes of the 1st PSC meeting attached as Annexure 15.1 of the response to draft

MTR report submitted on 18 August 2012). Hence, from PMU's perspective it followed the advice of PSC/UNDP.

(62) Page 53 Para 1

MTR Report: However, the LRC South is based at the local TERI office, and although the local TERI staff with the support from a local consultant seems to be doing a good job of supporting the project, there is a wider issue of TERI's high staff costs and the sustainability of LRC South post project end. If TERI continues to provide the LRC South role, it will require much closer supervision in future by the PSC and UNDP.

PMU's comments: PMU does not agree with this observation as well. All the activities undertaken under this project have been duly reported to UNDP/MoEF through QPRs, other notes specifically requested by UNDP/ MoEF and presentations in PSC meetings. PMU has provided proof including salary slips of all TERI professionals (including thos based at TERI's regional office at Bangalore) who are involved in this project to UNDP, MoEF and the auditors. We would also like to place on record that involvement of TERI-Southern regional centre as an LRC for the southern region was mentioned in the ProDoc and was also duly brought to the notice of the steering committee members during the presentation of PMU in 2nd PSC meeting (attached as Annexure 14.2 of the response to draft MTR report submitted on 18 August 2012).

Comments on MTR report

TERI wishes to place on record the following comments related to the Draft Final Report Mid Term Review (MTR) dated 25 July 2012 of the GEF-UNDP-MoEF Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project. These comments may be taken into consideration while finalizing the MTR report.

General comments

(1) TERI has received the MTR report from UNDP on 29 July 2012 nearly five months after the review was held. The reasons for the inordinate delay are not known. However, we were completely taken by surprise by the transformation in stance of the reviewers between March 2012 and now. It is apparent from the present shape of the MTR report that there is a significant shift in the viewpoint of the reviewers between 7 March 2012 (when the interim results were presented at the stakeholder meeting held at MoEF) and 25 July 2012. It is pertinent to point out that while the tone of the presentation and discussions on 7 March 2012 was very positive; the reviewers have completely changed their views to produce a report which is completely negative and derogatory. Annex B of the report on people/organization interviewed for MTR mentions that the reviewers had conducted meetings only between 27 February 2012 and 7 March 2012. We are at a loss to understand as to what interactions were held in the past five months of this excruciating wait which has led to a sea change in the views of the reviewers. We feel that the reviewers/UNDP should have kept the PMU in the loop in case there were any meetings/ communications that happened between them in the period March 2012 till July 2012, so that PMU's comments could also have been taken on board while writing the report. If nothing else, keeping PMU in the loop in the internal meetings/communications would have reduced further delay in finalizing the report and bringing in greater transparency to the review process, which in its present form clearly indicates bias against TERI.

(2) TERI further submits that the MTR team has either not gone through in detail all the project documents, notes and correspondence related to the project or have not been given the complete details or intentionally chosen to ignore important facts about what has transpired in the project. Hence, the conclusions drawn by the reviewers are often subjective and not substantiated with documentary evidence. Strangely, in the kick-off meeting between the reviewers and UNDP, no member of PMU was invited. TERI feels that the entire process followed by the reviewers is partial and one-sided and broadly meant to reflect the viewpoints of UNDP, who engaged them.

(3) TERI has put in a lot of efforts since the start of this project (and in fact for many years before the start of the project in terms of creating the right atmosphere and awareness on this

subject) but these efforts have largely been ignored by the reviewers. In fact, one of the reviewers happens to be an ex-employee of TERI and was spearheading TERI's interventions in the brick sector for a number of years. He was also a key member of the TERI team responsible for the pre-project activities including preparation of FSP/MSP. Therefore, the decision of UNDP to engage a reviewer with such background itself is questionable.

(4) TERI would like to state that the report in parts does not appear to be an objective and independent view of the reviewers. At a few places, it appears that they have got unduly influenced by others who have been seeking repeated clarifications from TERI and objecting to various aspects of the project during the past 15 months.

(5) TERI team, working on this project, has a long experience on energy efficiency aspects in MSME sector including the brick sector. Credentials of TERI in terms of its knowledge and competence in the MSME sector have been well recognized by both national and international organizations. The important activities undertaken in MSME sector by TERI include work undertaken for BEE, SIDBI, UNIDO, SDC, JICA, AfD etc. The Program Officer at UNDP also is an ex-employee of TERI and is aware of TERI's credentials. Putting question marks on TERI team at this stage is extremely uncalled for. At a few places in the report, there is also an indication of trust being betrayed by TERI. We feel that such kind of unsubstantiated allegations should be avoided in a technical report like this. We would expect UNDP to intervene and get the negative references to TERI removed from the draft report.

(6) TERI would also like to put on record that all the Face Forms and QPRs were duly approved by MoEF/UNDP and only then payments were released to TERI. In fact, before the first Face Form was prepared, two senior TERI team members (of the level of Senior Fellow) had a meeting with the concerned official at UNDP and it was clearly informed that the head "Local consultants" is meant to be for TERI team working on the project and can use TERI's manpower rates. This aspect, it appears was not informed to reviewers and they have accordingly got an impression that TERI has betrayed the trust that was bestowed on it. In fact, TERI would like to state that the trust that TERI had has been betrayed.

(7) Since the start date of the project got delayed (as also mentioned in MTR report i.e. 6 months later than the schedule) and keeping in mind the seasonal nature of brick making process in India, the implementation of certain activities got delayed and this had resulted in rescheduling of the project activities. This was clearly brought to the notice of PSC members. Further, TERI has never received any feedback from UNDP that the project is lacking in its physical progress, except in the last meeting when UNDP officials requested TERI to focus more on marketing aspects.

(8) The MTR report is heavily loaded on financial aspects rather than focusing on technical aspects of the project. There appears to be a mismatch between the analysis and recommendations of the report. On the issue of staff-rates, TERI had provided detailed replies to the UNDP/UNDP auditors in the past. All the queries were replied with required annexures and basis of calculation of rates. However, despite our best efforts and repeated reminders to the concerned UNDP officers for the last 15 months, this issue remained unresolved. Hence, bringing this issue now by reviewers and putting the blame on TERI is uncalled for. In fact, we

feel that the issue of rates by the MTR reviewers is beyond the direct scope of this review. However, it is for UNDP to have a final view on this aspect.

(9) TERI also strongly objects to the language that has been used at a number of places in the report while referring to TERI. We also object to the wrong interpretation of facts at many places in the report. Use of words like 'nonsense', 'sloppy' is not warranted in a formal document like this and needs to be dropped. This does not reflect a considered and balanced use of words in the MTR report. Some of these have been mentioned under the head Specific Comments.

(10) There is a lot of repetition in the report. For example, the same issue related to financial planning and TERI's in-house expertise is mentioned at umpteen numbers of places without bringing any new perspective into the report. The reviewers clearly have got carried away with the usage of words like 'financial' and 'cost(s)'as is evident from the fact that each of these words have been used over 50 times in the report.

(11) The MTR report has made many sweeping allegations about TERI. This is totally wrong and TERI takes strong objection to these allegations. While specifics of these allegations have been replied under specific comments, we would like to point out that such allegations, if at all, needs to be directed at the PMU rather than TERI.

Specific comments

1. Executive Summary

(i) Page 4 Para 3

MTR Report: The financial planning of the project has been highly unsatisfactory. The PFC (the de facto PMU) has been run by TERI with minimal effective financial oversight. TERI billed the time of its staff's project inputs at rates that were very much higher than those specified in the project document, TERI did not even attempt to contract out tasks to lower cost external consultants, and no one noticed anything was wrong for nearly two years. TERI's arguments that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously stated in the ProDoc is simply not credible when the same TERI staff that were involved in the project's design and funding approval were involved in its implementation.

TERI's comments: This observation by the reviewers is wrong and denied. All the planned expenditures as per Prodoc for each year were duly mentioned in the AWP of the respective years and in no case the expenditure had exceeded the approved budget for the respective year. Moreover, TERI has been regularly submitting the financial progress in Face Forms on quarterly basis. It is wrong to say that TERI did not attempt to contract external consultants. The PMU has engaged external consultants/ institutes for undertaking specific project activities on regular basis. Hence it is false to allege that 'no one noticed that anything was wrong for two years'. The other experts from TERI were involved based on the project needs and requirements as consultants. Details of all activities undertaken and professional time spent by these consultants have already been provided to MoEF/ UNDP on 01/07/2011.

It is well-known that TERI has in-house experts available in different fields. These experts were involved in the project as consultants based on the needs and requirements. This was done in good faith based on mutual consultation between TERI and UNDP at the start of the project. TERI would like to place on record an interaction between TERI and UNDP during 2009. In this meeting, UNDP had clarified that it could engage its in-house experts in the project and that there are no budgetary norms/constraints for hiring of such experts/consultants under the project.

(ii) Page 4 Para 4

MTR Report: However, relying on an NGO/private consulting company (TERI) to look after the wider interests of India without close and constant supervision was intrinsically risky, and this risk was not recognised in the ProDoc. This enabled TERI to use its own staff to provide project consulting inputs

without proper TOR or tendering processes, and at staff rates that were several times higher than those that were clearly specified in the ProDoc.

TERI's comments: It is wrong and baseless to make such sweeping generalizations about NGOs/private consulting companies and wider interest of India. Such statements show the entire NGO/private consulting company sector in poor light and are detrimental to the developmental sector. TERI strongly objects to this statement. The sentence must be expunged from the text forthwith. It is submitted that TERI has a long and successful track record of successfully implementing projects with government, bilateral agencies and multilaterals organizations. All the funds received under the various projects are spent as per guidelines of the donors. The clarification regards involvement of TERI's own staff for the implementation of various project activities have been provided under point (i). This is not repeated here for sake of brevity. It is additionally submitted that the start of the project was delayed by about six months. Adopting a formal tendering process by the PMU would have further delayed the project activities.

(iii) Page 4 Para 6

MTR Report: So it appears that TERI never really understood or acted on the new project prerequisite that EE/REB clay fired bricks/blocks need extruders and extruders need a reliable electricity supply.

TERI's comments: The statement that TERI never really understood or acted on the new project prerequisite is wrong and denied. The PMU and all project consultants are fully aware of the need for adoption of mechanization for brick moulding process specifically for production of REBs and that extruders need reliable electricity supply. By making such allegations the reviewers are trying to pontificate a well-known fact known even to a layman in brick industry.

It is submitted that the project had organized eight exposure visits to the sites using mechanization for moulding bricks and upto 10 interactions with different technology suppliers (European, Indian and Chinese) till 2011.

(iv) Page 4 Para 6

MTR Report: So TERI implemented the project with a lot of awareness raising work, which would have been applicable in the earlier 2001-2002 project focusing on brick kiln firing, but got the "cart before the horse" in many regions of India in terms of their needing extruders and other mechanisation available and usable first before there would be any real point is raising awareness of REBs if they could not be provided locally, given that bricks are generally low value local products.

TERI's comments: This point is not clear and as to which cart and which horse the reviewers are referring to. It is reiterated by TERI that it is equally important to stimulate the demand for REBs by raising awareness as it is important to make REBs available by supply side measures like mechanization/semi-mechanization for REB production. The project has focused on several activities aimed at promoting adoption of mechanization/ semi-mechanization for production of REBs. Hence idioms like 'cart before the horse' are not relevant in the present context and should be dropped.

(v) Page 5 Para 3

MTR Report: UNDP's project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off. TERI should never have been allowed to spend project funds for nearly two years on its own staff without any proper contracting procedures being in place, nor should it have been able to charge around three times the rates for project coordination and administration input to those clearly specified in the ProDoc. UNDP and MoEF did move quickly and decisively once the routine financial audit uncovered what TERI had been doing, but by then the money had been spent and it was too late.

TERI's comments: The allegations leveled on TERI are wrong and denied. Even on comments related to lack of project oversight by UNDP, the reviewers have not missed an opportunity to put the blame on TERI. This clearly shows the bias of the reviewers against TERI.

(vi) Page 5 Para 4

MTR Report: The excessive project charge out rates and the frankly sloppy contract management by TERI constitute a misuse of project funds using ones position of trust for the financial advantage of one's own organisation (TERI).

TERI's comments: TERI strongly objects to the language used and the tone of the statement. The allegations are not correct and denied. The project funds have been utilized for professional charges and other expenses incurred by the project. The project has been regularly submitting financial statements (Face Forms) to UNDP/MoEF. UNDP has also engaged external auditors to conduct audit of the project in February 2011 and March 2012. In both the audit reports such sweeping and derogatory acquisitions like 'misuse of project funds using ones position of trust' have not been made. Such statements must be immediately expunged from the report.

Page 5 Para 4

MTR Report: UNDP has tried hard to renegotiate a more realistic PFC/PMU arrangement with TERI, but it does not seem that TERI has ever really engaged with the issue that they had misused their position of trust in the project, or even admitted that they had signed up to a particular specific ProDoc and therefore their PFC/PMU operations and staffing rates were bound by the ProDoc, including the PC (project coordinator) and assistant's rates that were clearly specified in the ProDoc.

TERI's comments: These comments of the reviewers are biased and incorrect. These are denied by TERI. The reviewers have not taken on board the views of the PMU and have apparently been wrongly influenced by UNDP in making such baseless observations.

It is wrong to state that UNDP tried hard to negotiate a more realistic arrangement with TERI. During all the meetings with UNDP, the PMU had always tried to arrive at a mutually agreeable solution. However, the issues could not get resolved due to inflexible attitude shown by the concerned UNDP official dealing with this project. This position was maintained by UNDP even after NPD had suggested during the 5th PSC meeting that UNDP and TERI should resolve the issues mutually. Subsequently, in the interest of the project TERI had proactively undertaken a number of consultations with UNDP to arrive at a mutually agreeable arrangement. The PMU has spent considerable time and effort in preparing and submitting all the relevant documents related to professional involvement, activities undertaken and professional cost charged to UNDP/ MoEF. It is further submitted that at the request of UNDP, a note was submitted by TERI to NPD with copy to UNDP on 23rd November 2011 seeking approval of the staffing rates (Annexure 38.1), but no response has been received till date. Meanwhile in a recent twist to the whole issue, UNDP conveyed to PMU that since there is no signed agreement with TERI, UNDP is not in a position to resolve the issues directly with TERI and that only NPD can take a decision.

Note:

TERI's comments on the "MTR recommendations" are provided under the head "Analysis and recommendations" of Specific Comments (Point [39] to [58]).

8. Introduction

(1) Page 7 Para 4

MTR Report: It should be noted that to date no India-specific or comprehensive pre-project baseline EE Brick information has been identified for perusal during the MTR.

TERI's comments: The comment on baseline is not relevant in the overall context of the project. Brick making is geographically dispersed and done in the informal sector. There is no organization in the country that keeps records of production and energy data related to brick sector. Also, the baseline preparation in itself is a massive task entailing huge manpower and resources. Under the project there were no specific activity related to compilation of a baseline for the brick sector.

It may be noted that one of the reviewers is an ex-employee of TERI and was previously spearheading the brick project. Both the FSP and MSP were prepared under his guidance. To recall, it is reiterated that a baseline study was undertaken in 2000-01 for preparation of FSP ProDoc. The baseline was based on field data and extensive interactions with industry associations at state/ cluster levels. This baseline was used during the preparation of MSP in 2005-06. The MSP was approved by GEF in 2008 and project activities were initiated in October 2009. The reviewers in Page 10 para 4 have stated that "a new formal project baseline and project alternative development phase was apparently not included, presumably due to a lack of specific funding to undertake such work".

After the start of the project, the PMU has discussed with UNDP that the project should consider the energy consumption in the year 2009 for the 12 brick kilns where the project plans to intervene to be the baseline. Hence there is no need for putting efforts to determine an all-India baseline in this case which would require a considerable percentage of project budget.

(2) Page 7 Para 5

MTR Report: However, while a LogFrame and baseline and incremental analysis was included in the ProDoc, it is now clear that they were very generic, and in particular that the absolutely key role of clay mixing and extruding mechanisation was not identified for the actual realization of EE bricks in demonstration sites and in any subsequent replication plants in India.

TERI's comments: The LogFrame, baseline and incremental analysis are approved documents by GEF. It is well known that production of clay fired resource efficient bricks cannot be produced manually. The key role of clay mixing and mechanization is recognized in the MSP. These facts have also been considered in the LogFrame. Perhaps these are not explicitly visible since only Outcomes are detailed in the LogFrame and not Outputs and Activities. From the very beginning, the project is promoting

adoption of mechanization by brick kiln entrepreneurs. Even the project profiles provided in the ProDoc highlight this feature.

Additionally, attention is drawn to TERI's comments provided on a similar reference to mechanization in Page 4 Para 6 point (iii) of the specific comments on Executive Summary)

3. The Project and its development context

(3) Page 9 Para 2

MTR Report: The intermediate technology of soft molding machinery (as used in India and elsewhere, and also as somewhat promoted in the India Brick EE project) can also only really produce solid bricks.

TERI's comments: It is clarified that the project is not promoting the soft molding machinery which cannot be used for REB production. It only promotes mechanization for production of REBs. This may please be corrected.

(4) Page 11 Para 1

MTR Report: What was clearly not fully appreciated in the new 2005-2008 India Brick EE project formulation process is that one cannot make REBs without mechanisation, including in particular extruders, and that one cannot mechanise or operate extruders without a reliable electricity supply. In addition, it was clearly not fully appreciated (and is even now not generally recognised by project stakeholders) that to produce REBs one really requires the addition of controlled drying of the newly molded extruded green bricks, at a minimum in drying sheds, and that once production reaches a certain level then mechanically ventilated drying chambers start to need to be used.

TERI's comments: The comments related to use of mechanization for REB production is being stated for the third time in this report by the reviewers (already stated in Page 4 Para 6 and Page 7 Para 5). Any way as reiterated in comments to these para earlier also their observations are not correct. The India Brick EE project is well aware of the fact that the resource efficient bricks (hollow/ perforated bricks/ blocks) cannot be produced manually and the basic minimum requirement is adoption of semi-mechanisation/ mechanization in the brick kiln units. This has already been explained in Point (iii) of the specific comments on Executive Summary.

It is totally wrong and baseless to allege that the project has not fully appreciated that controlled drying for production of REBs. The project is fully aware that drying is one of the most important aspects related to mechanized moulding and REB production. Hence these have been duly

incorporated in the project profile reports of various clusters. This fact has been also recognized in the Prodoc (refer Annexure 4 of Prodoc)

It is also wrong to state that need for controlled drying has not been recognized by the project stakeholders. The project has had detailed interactions with brick kiln entrepreneurs on drying. All the brick kiln entrepreneurs with which the project is associated have basic drying sheds for drying of extruded bricks. The project is well aware that after certain level of mechanization, mechanically ventilated drying chambers are required. At present, no customized solutions are available for addressing this need by brick kilns in different regions of the country. Therefore, the project has been facilitating knowledge exchange of progressive brick kiln entrepreneurs with Indian, European and Chinese technology suppliers who can be approached for developing customized drying solutions once the production of mechanically moulded bricks reaches a certain minimum level.

These comments are wrong and not based on facts. They anyway serve no other purpose in the report other preaching some technical jargons to the lay read of the document. These comments need to be removed.

(5) Page 11 Para 2

MTR Report: Along with these early mechanisation attempts there was also the development of extruded brick BIS standards, but unfortunately the minimum perforation level was set at 35% for bricks, and it has transpired that this level of perforation was too ambitious. This is now an inadvertent barrier to the uptake of perforated bricks, as with the 35% minimum perforation level set in BIS standards, and government related brick purchase contracts are unable to use bricks with lower levels of perforations. Requests to amend the relevant BIS standard to include levels of acceptable brick perforations of lower than 35% have been made, but no clear process or timeline is apparent in this necessary relevant BIS standard updating processes.

TERI's comments: The BIS Standards stipulates a minimum perforation percentage as 30% and not 35% as mentioned in MTR report. At present the level of perforations in the bricks being produced in the country is around 10%. Even this level of perforation is presently not acceptable in the market. Therefore, the project has regularly interacted with BIS on this aspect.Even during the interactions with BIS, it has been suggested by BIS that they would be requiring a report preferably by a government institution recommending the suitability of perforated bricks in masonry construction. This is part of the study presently being undertaken by IIT-Roorkee.

On the issue of timelines, BIS has its own procedures and the same was clarified during the stakeholder consultation on 7 March 2012 by the BIS representative. Till 2011, the project was trying its best to expedite the process. To this effect, one of the project team members has also been included in one of the Committees of BIS that deals with this subject.

(6) Page 11 Para 3

MTR Report: Unfortunately the India Brick project has not yet supported such obvious extruder familiarization and import assistance initiatives.

TERI's comments: TERI strongly rejects this statement. It seems that the reviewers have ignored TERI's inputs on this subject.

The project is promoting adoption of mechanization for REB production and all the project efforts till date with brick kiln entrepreneurs are towards achieving this. As a matter of fact, the project has organized 8 number of exposure visits to the sites using mechanization for moulding bricks and 10 number of dedicated interactions with different technology suppliers (European, Indian and Chinese) till 2011. The project has even facilitated the interaction of progressive brick kiln entrepreneurs with state industry department in Bangalore region for providing assistance to brick kiln entrepreneurs to visit China. The facilitation process for brick kiln entrepreneurs for the exposure visit to China has also been included as an activity in the proposed AWP 2012 submitted in December 2011.

(7) Page 12 Bullet Point 1

MTR Report: TERI is a large independent NGO/private consulting firm and was the developer of the GEF project.

TERI's comments: It may please be noted that it is not a "private consulting firm". TERI is registered under Societies Registration Act 1860 (Punjab Amendment) Act, 1957 as applicable in Delhi (Registration No S-7159 dated 18 June 1974). This may be suitably corrected in the report.

(8) Page 12 Footnote 7

MTR Report: Note that there was no mention in the India Brick EE ProDoc of the PFC consisting of more than two contract local consultants working on a part time basis, there was no mention of TERI providing either the two local consultants or the bulk of technical expertise without contracting this out as per normal practice, the rates for the PC (project coordinator) and the assistant were clearly specified in the ProDoc and comprised normal national rates for such roles, and the cost for these two roles were clearly stated to total $75,000 for the whole four scheduled years of the project's implementation.

TERI's comments: It is correct that the ProDoc does not explicitly mention under which head TERI can charge its manpower. It is precisely for this reason that the TERI team sought a meeting with the Program Officer handling this project at UNDP before preparing the first Face Form (July to

September 2009)[1], A meeting was held at UNDP office which was attended by two senior officials from TERI and Program Officer handling this project from UNDP . During the meeting, TERI asked where we could charge our manpower as there is no mention of TERI under different budget heads. It was clarified by UNDP that TERI can charge its manpower as consultant under the head 'Local consultant' at TERI's manpower rates. It was further mentioned by UNDP that the amount under different budget heads in the same outcome can be readjusted. The issue of TERI rates was also discussed in the meeting held on 2 December 2009 in response to the first Face Form that was submitted by TERI. During the discussions in this meeting also, it was communicated by TERI that it used the existing manpower costs of TERI. As is clear from the above, the issue of rates and use of TERI in-house expertise was discussed during this initial period with UNDP officials. TERI regularly prepared and submitted the Face forms subsequently claiming for the work undertaken by TERI team under different outcomes, including PMU. All these quarterly Face Forms[2] were duly approved by the competent authorities and TERI regularly received the payments.

TERI would also like to submit that a detailed response clarifying the basis for arriving at the TERI rates was provided to UNDP auditors on 28 April 2011 (see Annexure 8.2).

4. Findings and conclusions

(9) Page 14 Para 2

MTR Report:

- *Coneptualisation/design – marginally satisfactory*
- *The core TERI team involved in the preparation of the two proposals was the same during the formulation of the two ProDocs, and the TERI team relied heavily on the baseline information collected in 2001 for the FSP. No new baseline study was undertaken for the 2007 MSP proposal.*

TERI's comments: The core team at TERI that was involved in the preparation of FSP and MSP at that time was in fact led by the National Consultant of the present MTR team. Although TERI agrees with the view in the MTR that conceptual design of the MSP is weak, it is surprising that this is being raised by the same person who had conceptualized it initially. However, as per the knowledge of

[1] The first Face Form (July to September 2009) was not accepted by UNDP as it was informed that the project expenses can only be incurred after receipt of funds from UNDP in the project bank account. Hence, the October to December 2009 period was considered as the first accounting period (1st Face Form) (See correspondence at Annexure 8.1)

[2] It may be noted that there is no provision available in the Face Form to show the details of manpower charges and professional time spent.

other members of TERI who were part of the team, it was a general understanding between TERI team and UNDP team that TERI would use the same baseline with modified objective for preparation of the MSP. The reason was that FSP was not approved and it was conveyed to TERI that MSP can be prepared and the process of approval of MSP was simple and would take less time (which ultimately was not the case). Accordingly, the MSP was prepared and submitted during 2006 and had undergone number of iterations before being finally sanctioned in April 2008. At no point of time during these iterations, TERI was suggested to prepare a new baseline.

(10) Page 14 Para 8

MTR Report: One of the weakest links of the project document is its LFA (Logical Framework Analysis) section.

TERI's comments: The original LFA submitted for approval of UNDP during June 2006 had undergone a number of changes before the final version in existing form. It may please be noted that the existing version was finalized by UNDP without taking inputs from TERI. In the interest of the project, TERI continued with that LFA and carried out activities to achieve the targets. However, considering the ground realities, TERI requested for modification of the existing LFA mid-way through the project. In concurrence from UNDP, the project revised the LFA and after a number of interactions with UNDP, it was submitted to UNDP/ MoEF on 12 December 2011 along with AWP for the year 2012. There is no approval so far on the revised LFA.

(11) Page 15 Para 1

MTR Report: Outcome 4 assumes that all the 12 demonstration units would be established and would start production early in Year 1 of the project. This assumption of being able to establish all demonstration units almost immediately in the beginning of the first year of the project's implementation is clearly totally unrealistic.

TERI's comments: While preparing the MSP, the project team was closely involved with progressive brick kiln entrepreneurs who had shown keen interest in adoption of mechanization and production of REBs. However, there was considerable delay in the formal approval process (about 3 years) and the project team could not engage with most of these brick kiln entrepreneurs for such a long period. When the MSP was finally approved, some of the earlier contacts had gone ahead with their own business plans and the project team had to start afresh and all the ground works undertaken earlier had lost its importance. It may also be noted that the communications regarding approval of MSP were received around mid 2009 and the brick making season in India generally ends around this period.

(12) Page 15 Para 2

MTR Report: The project document overestimates CO_2 savings. The calculations are based on a simple assumption of 30% reduction in weight of bricks uniformly across all different types of resource-efficient bricks, without giving any technical specifications of the resource efficient bricks or reference to studies to support the claim. Further, for estimating CO_2 savings for Year 1, it is assumed that all 12 demonstration units would produce around 80% of their production in Year 1, which would only be possible only if all the demonstration units were commissioned in the first quarter of Year 1. This is clearly nonsense.

TERI's comments: Although TERI agrees to the initial text, we strongly object to the use of unprofessional words like "nonsense" in a technical review report.

(13) Page 16 Para 1

MTR Report: i) There is no evidence available that suggests that any meaningful discussion on the project's logical framework happened during the project's inception meeting. As indicated earlier, the targets for several outcomes are unrealistic and were formulated without proper baselines. The minutes of the five PSC meetings do not refer to any discussion on the logical framework or any attempt by the responsible party to address the issue of problems with an inadequate logical framework or to suggest modifications to the original logical framework. The responsible party in the later half of 2011 submitted a revised logical framework, however it is yet to be discussed in the PSC.

TERI's comments: The inception meeting was attended by all the important stakeholders of the project. During the inaugural session, TERI made the background presentation in which the objective, scope of the project, expected outcomes and all the challenges envisaged during the implementation of the project were discussed in detailed[3]. Please refer to the presentation of TERI during the inaugural session (Annexure 13.1). Respecting the approved LFA, the project put in the best efforts to achieve the desired outputs. However, considering the ground realities, once it was felt by the project that there is a need to revise the LFA, the project took initiatives as has been elaborated in detail under Point (10). It may please be noted that "modifications to the original logical framework" is not a straight forward process. The LFA goes through a formal process of approval till GEF.

Further in this regard, TERI would like to remind the reviewers that the process of developing a GEF project in brick sector started in April 2001 with the submission of Project Concept Note by TERI.

[3] It may please be noted that TERI was given the LFA (as part of the ProDoc) at the start of the project. The final LFA as existing in the ProDoc was prepared by UNDP international experts.

After more than eight years (with many modifications/changes in between), the project formally started in October 2009 (Please see table 1). The reviewers should appreciate that it would not have been appropriate for TERI to point out the deficiencies in the LFA in the inception meeting or immediately thereafter when everyone was waiting for the project to start. Putting hurdles at that stage would have meant further delays in the start of the project. It is highly disappointing to note that TERI's positive view is now being interpreted as a shortcoming in the review report.

Table 1: Project milestones

Month/Year	**Milestones**
April 2001	Submission of Project Concept Note by TERI
February 2002	Submission of Project Document by TERI
March 2005	Endorsement by MoEF for preparation of PDF-A document
June/August 2006	Submission/Re-submission of Project Document by TERI
September 2006	Project endorsement by MoEF
Aug/Sept/Dec 2007	Re-submissions of Project Document by TERI
March 2008	GEF agency approval
October 2009	Formal start of project (Date of receipt of first installment by TERI)
November 2009	Project inception workshop

(14) Page 16 Para 2

MTR Report: The planning of work lacks a suitable strategic focus. None of the PSC minutes suggests that detailed discussions took place on annual work plans.

TERI's comments: TERI strongly rejects this statement. It may be noted that the AWPs were presented in Project Steering Committee meetings for seeking approval. The details are presented in table 2.

Table 2. Details of discussion on AWP in PSC meetings

S No	AWP	PSC meeting	Date	One of the agenda/discussion points	Reference
1	2009	1st PSC	04.09.2009	AWP was approved before the 1st PSC. PMU presented the proposed activities in the PSC meeting.	Presentation by PMU (Annexure 14.1)
2	2010	2nd PSC	23.03.2010	Approval of AWP-2010	Presentation by PMU (Annexure 14.2)
3	2011	4th PSC	06.01.2011	Approval of AWP-2011	Presentation by PMU (Annexure 14.3)

It may be noted that Minutes normally do not reflect on the detailed discussions that happen in the meetings. They in general reflect the key points and decisions. However, UNDP may like to comment on this point further as the minutes in this project have always been prepared by UNDP.

(15) Page 16 Para 2

MTR Report: The selection of LRCs in the West and Northeast regions of India seems to have been done without proper assessment.

TERI's comments: For the Western region, CEPT University, Ahmedabad was identified as the LRC. It is a well established institute working in the field of architecture /building materials. The strengths of CEPT in relation to this project include undertaking studies related to resource efficiency and simulation studies. From the beginning, the project intended to utilize these strengths of CEPT to contribute towards achieving the project outputs. Hence CEPT was identified as LRC for western region.

The North East region was added to the project by MoEF during 1st PSC meeting (reference Point (2) of the minutes of the 1st PSC meeting attached as Annexure 15.1). Accordingly the PMU made efforts through available contacts to select a suitable LRC for the region at the earliest. PSCST that had already been identified as LRC for northern region recommended that Tripura State Council for Science and Technology (TSCST) is an active organization in north-east region and have undertaken some activities in brick sector. Accordingly PMU contacted TSCST who showed interest and expressed their willingness to work as LRC for north-east region under the project. TERI interacted with TSCST and found that they had in fact undertaken some activities in the past in brick sector and moreover they were willing to actively work in the brick sector. It may further be noted that there are hardly any organizations working in North east region in the brick sector.

Considering the above, it is not appropriate to say that selection of LRC s in North east and Western region has been done without proper assessment.

(16) Page 16 Para 2

MTR Report: The annual contracts with LRCs are not sufficiently detailed and there are no MOUs/agreements between the PFC and LRCs covering the entire duration of the project. Finally, no proper arrangement for interaction between the PFC and the LRCs seems to be in place.

TERI's comments: TERI disagrees with this statement. In fact, the annual contract with all LRCs clearly mentions about the activities to be undertaken during the year, related budget, timelines and desired outputs. Since the AWPs are approved on yearly basis, accordingly the agreements were

signed with respective LRCs on annual basis. However, all the LRCs were aware of the fact that it is a 4-year project and the contract will be signed for each year.

It may be noted that PMU remained in contact with the LRCs on a continuous basis through telephone and emails. Regular project meetings were also organized with LRCs to discuss about the project progress. Their inputs were also taken in preparing AWPs and QPRs. It is surprising that statements like "No proper arrangement for interaction between the PFC and LRCs seems to be in place" are being made without proper assessment and justification.

(17) Page 16 Para 3

MTR Report: (iii) The project has a well presented operational website, and most of the technical reports have been uploaded on the website. However, the quality of many of the reports is not a of a very high standard.

TERI's comments: We would like to state that during the presentation by MTR team on 7 March 2012 at MoEF, the project website was very much appreciated. However, in the evaluation report, this observation seems to have been mellowed down by the reviwers. The reasons for this are not clear.The reviewers should note that the website was created in 2010. All the materials and reports were being uploaded regularly till 2011. Before uploading in the project website, all the reports were duly shared with UNDP/MoEF through QPRs. We never received any feedback on the contents and quality of material uploaded in website. The only feedback received from UNDP was in the month of April 2012 (It may please be noted that this was after the MTR mission).

(18) Page 16 Para 4

MTR Report: The involvement of LRCs in the planning of their project activities is low. No proper arrangement for interaction between the PFC and the LRCs seems to be in place.

TERI's comments: TERI does not accept this statement. The LRCs were duly involved in project planning and implementation of approved activities. Regarding interaction with LRCs, please refer to our response under Point (16).

(19) Page 16 Para 5

MTR Report: The monitoring and oversight both by both PMC and PSC has clearly been weak. There have been significant deviations from the ProDoc, which are evident in the assessment of the work under each component presented later in this report.

TERI's comments: The activities were planned in accordance with ProDoc. However, during the implementation of the activities, the need was felt to undertake additional activities which were not envisaged in ProDoc. These additional activities were important for the project and the approval for such activities were duly taken in PSC meetings. For example, structural stability study, Work in North-East region, Revision of BIS code, study on soil suitability for REB production, are some of the activities which were not mentioned in the ProDoc but were undertaken by the project in good spirit. It was mentioned in ProDoc that a total of 12 demonstration units will be operational by end of Year-1. However, in the 1st PSC itself it was mentioned that during the year the project will focus in two clusters only namely Bangalore and Punjab and was duly approved by the PSC. Kindly refer to Point (2) of the minutes of the 1st PSC meeting (Annexure 15.1). Further it was clearly reported in QPR (Oct-Dec 2010) that the project provided support to 7 brick kiln units for production of REBs. The same was duly brought to the notice of the steering committee members during 4th PSC meeting held on 6th Jan 2011 (Refer presentation made by PMU attached as Annexure 14.3). Hence, mentioning that oversight by PMU and PSC was weak is not justified.

(20) Page 16 Para 5

MTR Report: The annual work plans and financial allocations have not been sufficiently discussed in the PSC meetings. The contracts with technical experts and LRCs have not been sufficiently detailed.

TERI's comments: TERI does not agree to this statement. Our response to this statement is already given in Point (14) and Point (16).

Hence, we feel that interpreting monitoring, review and evaluation as "unsatisfactory" is unjustified. It is reiterated that the AWPs were discussed and approved after presentations in PSC. A simple statement like "annual work plans …… have not been sufficiently discussed in PSC meetings" is incorrect. Reviewers may like to see the presentations that were made in PSC meetings.

(21) Page 16 Para 6

MTR Report: However, the project has not significantly involved the LRCs and brick manufacturers in planning and decision-making.

TERI's comments: TERI does not accept this statement. LRCs were closely involved in project planning and decision making. This is also reported in Point No. 16. The brick kiln entrepreneurs participated in various project meetings like project inception meeting, cluster meetings and regional meetings. Apart from these meetings, the one to one interactions with progressive brick kiln entrepreneurs were used to obtain their feedback and plan the project activities.

(22) Page 16 Para 6

MTR Report: The project has been able to engage specific technical experts like NIIST, IZF and CEPT but has not been able to build strategic partnerships.

TERI's comments: TERI is not agreeable to this statement. The project already has strong partnership with the mentioned institutes. These partnerships were built to carry out the project related studies. CEPT is already working as LRC in the project.

(23) Page 16 Para 6

MTR Report: The project has engaged with Wienerberger since 2009, but due to a lack of strategic focus has not been able to derive the full benefit of this relationship.

TERI's comments: Wienerberger is an European company, who has set up a technical advanced and modern brick kiln unit near Bangaluru for the production of hollow blocks. Wienerberger has in-house technical expertise as well a professional marketing team. It is only due to the efforts of the project team that a large European company like Wienerberger that does not need any support from the project of this nature agreed to closely involve in various activities of this project. The experts of Wienerberger have participated in various forums like meetings/ workshops/ conference, etc on their own expenses to promote production and use of clay fired REBs. On the request of the project, they have allowed exposure visits in their unit by progressive brick kiln entrepreneurs and have also shared their training facilities and trainers for undertaking masons training program. Hence, TERI feels that the project has benefited from the engagement with Wienerberger effectively and therefore, TERI refutes this statement. In fact, we feel that engagement with Wienerberger has been one of the major achievements upfront in the project. This aspect has been overlooked by the reviewers.

(24) Page 16 Para 7

MTR Report: The financial planning of the project has been highly unsatisfactory. The PFC (the de facto PMU) has been run by TERI with minimal effective financial oversight. TERI billed the time of its staff's project inputs at rates that were very much higher than those specified in the project document, TERI did not even attempt to contract out tasks to lower cost external consultants, and no one noticed anything was wrong for nearly two years. TERI's arguments that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously

stated in the ProDoc is simply not credible when the same TERI staff that were involved in the project's design and funding approval were involved in its implementation.

TERI's comments: TERI does not agree to the statement that the PMU has been run by TERI with minimal effective financial oversight. All the planned expenditures for each year were duly mentioned in the AWP of the respective years and in no case the expenditure had exceeded the approved budget for the respective year. Moreover, TERI has submitted the financial progress in Face Forms on quarterly basis. The statement "TERI's arguments that it was unaware ….." is incorrect. TERI never mentioned it in this fashion to the reviewers. This point regarding rates and involvement of TERI staff has already been explained in Point (8).

Regarding involvement of external consultants, it has been also explained in point no 9. Further, it may be noted that the PMU has engaged external consultants/ institutes for undertaking specific project activities on regular basis as per project needs (e.g. NISST, IZF, IIT-R etc). If all the external consultants were to be hired externally, UNDP should have clearly informed TERI in this regard. Rather, UNDP had informed TERI can use its own resources under the head "Local consultants". Hence, in the light of the above facts, this observation needs to be re-looked objectively.

(25) Page 17 Para 2

MTR Report: The project has developed a number of activities that will likely produce useful ongoing results beyond the project's end. However, the lack of apparent urgency or defined timeframes for key outputs such as the revision of BIS standards or the completion of the brick material and structural studies by IIT Roorkee is a concern. TERI seems unconcerned about these issues around project sustainability.

TERI's comments: TERI does not agree to this statement. It may be noted that the study by IIT Roorkee and the revision of BIS Standards were not envisaged in the Prodoc. These activities were initiated by the project considering their importance in achieving project outputs and the project sustainability. For the records, we would like to mention that the project had tried very hard to engage CBRI, Roorkee for undertaking the structural stability study as suggested by the Additional Director General of CPWD during the Focused Group Discussions at New Delhi on 9th November 2010. The project had requested CBRI, Roorkee a number of times to undertake this study and even organized a meeting with the senior officials of CBRI in December 2010 in this regard. The NPD also took keen interest in this activity and requested CBRI, Roorkee to undertake this study. Subsequently, on TERI's request, a reminder in the form of a DO letter was also sent by the NPD to CBRI, Roorkee. The NPD had even facilitated the sending of a letter by Secretary, MoEF to Secretary, DST in this regard. This issue was discussed in the PSC and it was suggested that TERI could contact other reputed institutes like IITs. Accordingly, the project took initiatives, identified IIT, Roorkee and

initiated the discussions with them. On approval by the NPD, the project engaged IIT, Roorkee for undertaking this study. This entire process took 11 months.

Further, the initiatives with the BIS were also undertaken by the project on its own and the project has been successful in becoming the member of the relevant committee of BIS. Since there is no approved action plan in place for the year 2012, TERI could not pursue with BIS on this aspect.

Therefore, the statement that "TERI seems unconcerned about these issues around project sustainability" is highly objectionable and TERI strongly refutes it. This clearly shows that reviewers were not fully aware of the efforts made by TERI and MoEF Hence, the paragraph may be reworded.

(26) Page 17 Para 3

MTR Report: The lack of real national government project ownership, plus a lack of suitable budget oversight by UNDP until mid 2011, meant that for nearly two years no one noticed that TERI was employing its own senior staff to work on the project with no set TOR or defined deliverables or quality checks, and at what were effectively full international consultancy rates, rather than utilising its own lower cost more junior staff - or even more cost effectively contracting individual staff consultants or external consultants at Indian national rates as was clearly envisaged in the ProDoc's clearly stated national consultancy rates.

TERI's comments: These observations are being repeated a number of times. The issue regarding the involvement of TERI professionals and manpower charges has already been explained in detail under Point (8).

(27) Page 18 Para 1

MTR Report: No evidence was provided to the MTR team which shows that the usage of RE bricks has increased in public buildings during the project's implementation to date.

TERI's comments: It may be noted that the data regarding the use of REBs in public buildings was not collected owing to the difficulties in getting information from government departments. Considering this, the project had already submitted the revised LFA for approval.

(28) Page 18 Para 4

MTR Report: However, the proposal and the contract between TERI and IIT Roorkee is sketchy in terms of technical details regarding the tests to be conducted.

TERI's comments: TERI does not agree to this statement. The agreement signed between IIT-Roorkee and TERI has clearly defined deliverables that would help in meeting the needs of the project for carrying forward the initiative with CPWD and BIS. It was not felt necessary to spell out micro level details of tests in the TOR since IIT, Roorkee is a world renowned institute in field of civil/structural engineering. The tests to be conducted were identified by IIT-Roorkee only as they know this field better than all the concerned stakeholders. Further, the ToR was signed after approval from NPD. During the interaction with PMU, the MTR team never asked for any details of the tests, which by that time were known to TERI. Therefore, this statement needs to be removed.

(29) Page 18 Para 5

MTR Report: The BIS standard for burnt clay perforated bricks (IS 2222: 1991) specifies that the area of perforations shall be between 30-45% of the total area of the corresponding face of the brick for it to be considered as a perforated brick. As most of the perforated bricks being produced in India have lower levels of perforations (10-15%), TERI has apparently been pursuing with BIS an amendment to the specifications.

TERI's comments: TERI has taken concrete steps in pursuing with BIS on modification of existing codes. The MTR team has acknowledged this and mentioned in the same para that a letter has been written by TERI to BIS. Therefore, the word "apparently" needs to be dropped from this line.

(30) Page 21 Para 4

MTR Report: The 5 model DPRs prepared by the project require revision and several improvements:

- *The DPR does not provide the specification of the product i.e. REBs (size, perforation, physical characteristics) that would be manufactured.*
- *There is no description of the relevant manufacturing process*
- *The assumptions on arriving at the cost of production are not stated*
- *None of the DPRs seems applicable for the production of hollow blocks*

TERI's comments: It may be noted that DPRs are prepared as "*model DPRs"* that can be used by interested brick kiln entrepreneurs for preparing their unit-specific DPR. The specifications for REBs

(size, perforation, physical characteristics) are already notified by BIS. The flow chart for manufacturing process is provided in the DPR. The cost of production has been taken as per the discussions with brick kiln entrepreneurs and machinery suppliers.

It is to inform the reviewers that that the approach used here for DPR preparation is that of a model DPR rather than a unit specific DPR for a particular product. Therefore, the nature of model DPR is intentionally kept general so that a large number of interested brick kiln entrepreneurs can use these DPRs as base to prepare their unit specific DPR. This approach has been used extensively by the Govt of india also in their SME programs. Hence, reviewers are requested to re-look at this observation.

(31) Page 21 para 5

MTR Report : However, the support appears based on PSCST brand-equity rather than on a critical appreciation of REB project

TERI's comments: TERI does not agree with this statement. It may be noted that no FI will give any letter of support without duly getting into details of a project. In this case, Corporation Bank is one of the leading commercial banks in the country. It will never give letter just on the basis of brand equity of an organization. Hence , we feel that this statement needs to be dropped.

(32) Page 21 Para 5

MTR Report: It appears that the two letters of approval from the financial institutions have had little practical significance or utility.

TERI's comments: The project team including LRCs have contacted the lead banks in their respective regions and found that the banks/ financial institutions seem to be reluctant to engage with brick sector. It is true that the leading brick kiln entrepreneurs can avail financial assistance based on their credit worthiness. However, this is not true for rest of brick kiln fraternity. The letters of approval from the financial institutions indicates their approval of the REB projects in general and shows their interests and willingness to work in the brick sector that was generally being ignored by the financial institutions. These letters help in motivation of brick kiln entrepreneurs and building their confidence level in approaching financial institutions for availing loans for technology upgradation. This is more appropriate for the group of brick kiln entrepreneurs who are next in line to the progressive brick kiln entrepreneurs.

(33) Page 22 Para 6

MTR Report: The PFC and the LRCs do not seem to have a comprehensive understanding of the current and the future market potential for REBs.

TERI's comments: TERI does not agree with this specific statement. However, TERI acknowledges the need to lay more emphasis on marketing. In fact, the market potential for REBs is one of the important aspects of the project and this was also discussed during the 5th PSC meeting of the project. A draft TOR to engage market consultant was prepared and was submitted to UNDP for their approval. An activity to this effect has also been included in the draft AWP 2012.

5. Lessons learned

(34) Page 27 Para 1

MTR Report: However, relying on an NGO/private consulting company (TERI) to look after the wider interests of India without close and constant supervision was intrinsically risky, and this risk was not recognised in the ProDoc. This enabled TERI to use its own staff to provide project consulting inputs without proper TOR or tendering processes, and at staff rates that were several times higher than those that were clearly specified in the ProDoc.

TERI's comments: TERI strongly objects to these wordings. TERI has been successfully implementing a number of projects in the field involving a variety of donor agencies e.g. government, bilaterals and multilaterals and foundations. TERI has strong and long-term partnerships with these organizations.

Regarding the statement on involvement of TERI's professionals and the related manpower charges, explanations have been provided in Point (8).

(35) Page 27 Para 3

MTR Report: So it appears that TERI never really understood or acted on the new project prerequisite that EE/REB clay fired bricks/blocks need extruders and extruders need a reliable electricity supply.

TERI's comments: The doubts on TERI's capabilities are unwarranted. TERI is fully aware of the need for adoption of mechanization for brick moulding process specifically for production of REBs. As reported under Point (6), the project had undertaken a number of initiatives to expose the brick kiln entrepreneurs to mechanization (use of extruders). Further, the project also understands the status of electricity supply in brick kilns and therefore, even in the cluster profile reports of Prodoc, the

provision for DG set has been duly covered. TERI also objects to the tone and language used in this para (TERI never really understood……).

TERI recognizes the importance of extruders but at the same time one cannot ignore the relevance of awareness generation, which is a well-recognized barrier in the Indian MSME sector in general, and brick sector in particular. Hence, using a phrase like "cart before the horse" is not justified. In this regard, TERI would also like to mention that all the activities undertaken by the project including awareness generation were as per the duly approved AWPs.

(36) Page 28 Para 3

MTR Report: UNDP's project oversight for the first nearly two years of the project's operation was clearly far too trusting and hands-off. TERI should never have been allowed to spend project funds for nearly two years on its own staff without any proper contracting procedures being in place, nor should it have been able to charge around three times the rates for project coordination and administration input to those clearly specified in the ProDoc. UNDP and MoEF did move quickly and decisively once the routine financial audit uncovered what TERI had been doing, but by then the money had been spent and it was too late.

TERI's comments: TERI does not agree to this statement. Statement that UNDP during the initial two years had a hands-off approach is clearly incorrect. As mentioned in Point (8), UNDP team was fully involved in various meetings wherein the issue of rates and involvement of TERI professionals were discussed. In fact, TERI used its own staff at prevalent rates only on the advice of UNDP.

(37) Page 28 Para 4

MTR Report: The excessive project charge out rates and the frankly sloppy contract management by TERI constitute a misuse of project funds using ones position of trust for the financial advantage of one's own organisation (TERI).

TERI's comments: TERI strongly objects to these wordings (e.g. use of derogatory words like "sloppy"). We would like to place in record that TERI has never ever intended to utilize the project funds for its own advantage and never misused the position of trust for its own financial advantage. All the activities under the project and related financial management have been undertaken with good intention and faith. The issue regarding the involvement of TERI professionals and manpower charges has already been explained in detail under Point (8).

(38) Page 28 Para 4

MTR Report: UNDP (and MoEF) took strong and decisive action to stop further excessive expenditure by TERI once it was clear what had gone on. UNDP has tried hard to renegotiate a more realistic PFC/PMU arrangement with TERI, but it does not seem that TERI has ever really engaged with the issue that they had misused their position of trust in the project, or even admitted that they had signed up to a particular specific ProDoc and therefore their PFC/PMU operations and staffing rates were bound by the ProDoc, including the PC (project coordinator) and assistant's rates that were clearly specified in the ProDoc.

TERI's comments: TERI does not accept the above. During all the meetings with UNDP, TERI had always tried to arrive at a mutually agreeable solution. As an example, TERI agreed to provionally use ProDoc rates for its professional involvement in all Face Forms submitted since Q3 of 2011. This was at the specific request of UNDP team that till the decision on TERI professional rates is pending, TERI should use ProDoc rates for future Face Forms. Similarly, TERI even proposed a lumpsum amount towards the balance period of the project in its communication dated 23 November 2011 to NPD with cc to UNDP (Annexure 38.1). This clearly shows that TERI has always tried to find an amicable solution. However, no significant initiative has been taken by UNDP to sort this impasse and in this process precious time of nearly 15 months has been lost. We would like to state for the benefit of the reviewers that UNDP has conveyed that they do not have any signed agreement with TERI; so they cannot negotiate with TERI and that they can only discuss the same with MoEF. This is in spite of the fact that the NPD had clearly suggested during the 5th PSC meeting that UNDP discusses the issue with TERI directly (See S No 9 of Annexure 38.2). TERI and UNDP did have a a number of meetings on the subject and TERI submitted all the relevant details like professional involvement, activities undertaken and professional cost charged to UNDP/ MoEF. However, till date this issue remains unresolved leading to this situation where the ultimate loser is the brick fraternity.

6. Analysis and recommendations

(39) Page 29 Para 3

MTR Report: Wienerberger have undertaken considerable awareness raising and training, they have around five in-house masons and two applications engineers focusing on providing training, and they have trained around 4,500 masons in the proper placing and mortaring of hollow blocks (noting that this is around ten times the applications focused technical training delivered by the India Brick EE project to date). So Wienerberger have single handedly built a major and expanding market for fired clay hollow blocks in South India.

TERI's comments: As mentioned in the MTR, Wienerberger is an European company with 227 plants worldwide with the Bangaluru plant being the most advanced using a tunnel kiln, chamber dryer and is fired by petcoke and LPG. According to market estimates, the Bangaluru plant has been built with an approximate investment of about Rs 200 crores. Moreover, the annual marketing budget of Wienerberger is Rs 2 to 3 crores, in comparison to the total project cost of Rs 3.13 crore for a period of 4 years covering all the regions of the country. Therefore, it may not be appropriate to compare the project achievements with Wienerberger. In fact, the reviewers need to acknowledge the efforts made by TERI to bring Wienerberger on board in this project.

(40) Page 30 Para 3

MTR Report: Apparently TERI has written a letter to BIS (Bureau of Indian Standards) on 25th November 2011 to this effect, however there was no evidence of any TERI follow-up with BIS or of any clear TERI-led process to get a revised IS: 2222-1991 standards development process actually underway in reality under the set BIS formal standards updating process.

TERI's comments: TERI does not agree to this statement and our response is elaborated under Point (29).

(41) Page 30 Para 4

MTR Report: As detailed under Outcome 1 Section 4.2, IIT Roorkee has been engaged to undertake structural stability tests and IIT Roorkee was provided the required bricks for testing in December 2011. However, the proposal and the contract between TERI and IIT Roorkee are sketchy in terms of technical details regarding the tests to be conducted. The study report was expected to be available by March/April 2012 but no draft reports or update on progress of work at IIT Roorkee were available at the time of the MTR review.

TERI's comments: The response to this statement has already been elaborated in Point (28). The project has been regularly interacting with IIT-Roorkee, who have submitted the draft report in June 2012. The report was duly shared with UNDP, MoEF and LRCs and the feedback was also provided to IIT-Roorkee for revision of the report.

(42) Page 30 Para 5

MTR Report: The issue under the "Specification for burnt clay hollow bricks for walls and partitions" (IS: 3952-1988) is apparently that it does include the larger sized hollow block sizes produced by Wienerberger in its specifications. During the stakeholders meeting held on 7th March 2012 with the MTR team, the representative of Wienerberger informed the meeting that they have been pursuing modifications to IS 3952 -1988 for the last 2 years. However, it was not clear that TERI understood the separate but allied nature of the need for changes to IS: 3952-1988 alongside the TERI-led changes sought in IS: 2222-1991. It also did not appear that TERI saw any need for themselves to actively support the changes to IS: 3952-1988.

TERI's comments: It may be noted that the TERI was fully aware of Wienerberger's initiatives and have discussed the same many times during different one to one meetings with BIS officials. As mentioned earlier, TERI interacted with BIS and became a member of the CED-30 committee of the BIS that deals with this subject. The BIS sought the comments from TERI on the proposed third revision of IS: 3952 on 10 Aug2011. This revision of IS: 3952 basically covers hollow blocks manufactured by Wienerberger. TERI discussed the same with Wienerberger and provided its feedback to BIS on 04 Novermber2011. Therefore, this statement is un-warranted in the MTR.

(43) Page 31 Para 3

MTR Report: As the ProDoc project target of 20% increase in use of REBs in public buildings is now clearly unrealistic, it should be replaced by a more realistic targets, namely: -

a) *Specifications for use of REBs (clay fired perforated bricks and hollow blocks) included in the Common Schedule of rates of CPWD and 2 state PWDs.*
b) *REBs are used in at least 1 CPWD and 1 state PWD building project as walling material on an experimental basis.*
c) *BIS formally initiates the process for review/modifications of IS:2222: 1991 and IS 3952 -1988 and the process of getting public comments on the draft modifications suggested by the technical committee is fully completed*

TERI's comments: The PMU has already submitted the revised LFA for approval. Some of these recommendations that are practically doable have already been included in the revised LFA. Kindly refer to Point (10).

(44) Page 31 Para 4

MTR Report: The TERI team developing the MSP (Medium Scale Project) proposal in 2007 relied heavily on the baseline information collected in 2001 for the FSP (full scale project) that was ultimately unsuccessful in obtaining GEF funding. No new baseline study was undertaken for the 2007 MSP proposal.

TERI's comments: TERI does not agree to this statement. Our response to this statement has already been provided in Point (1).

(45) Page 31 Para 4

MTR Report: During the project's implementation to date there is no evidence that the TERI PFC/PMU has either understood the critical importance of machine production for REBs, or applied this knowledge in a practical way in the project's operations if they indeed do understand it.

TERI's comments: TERI does not agree with this. A response to this statement is provided in Points (4) and (6).

(46) Page 31 Para 4

MTR Report: For example LRC East is being supported by the India Brick EE project and is doing its best to support REB growth in its area with the meager funding provided by the India Brick EE project, but there is no apparent understanding by TERI that there is apparently only one extruder in operation in LRC East's area, 80-90% of brick entrepreneurs in the LRC East area do not own the land on which their brick making plant is located so they are not able to provide the brick plants land as security for any loans for mechanisation, and the local power supply is so unreliable that the mechanizing brick plants first have to provide their own power supply, e.g. from rice husk derived gasifiers.

TERI's comments: TERI is fully aware of the ground situation in east Uttar Pradesh. It is totally incorrect to state that TERI is not aware about the limited use of extruders in that region. As a matter of fact, TERI is actively involved in that area since year 2000 and has extensively travelled in that region as a part of other TERI projects in the brick sector (one of the reviewers is fully aware of this fact, hence it is surprising that such a statement is included in the report). Furthermore, the issue related to land as security is common across the country and is not a specific issue related to east Uttar Pradesh. The banks or financial institutions provide loans based on credit worthiness of the entrepreneurs. However, there are number of brick kiln producers in eastern region who can

adopt mechanization and produce REBs. The project is specifically targeting these entrepreneurs. The project team and the entrepreneurs are fully aware that for adoption of mechanization/ semi-mechanization, alternate power supply in the form of DG set is pre-requisite. This has already been explained in Point (35).

Moreover, only one brick kiln entrepreneur throughout the country is using gasifier to meet power requirements of his mechanized brick kiln unit. This is not a feasible option as operating a gasifier unit on a continuous basis is itself a separate project and requires considerable attention. Therefore this example is not appropriate.

(47) Page 32 Para 1

MTR Report: However, there are many manufacturers in China making extruders of varying quality and technical support capacity if their extruders are to be imported into India. Indian brick entrepreneurs are interested in investigating the potential to import suitable extruders from China, but the Indian brick entrepreneurs are not quite sure how and where to start in identifying the most suitable extruders. Unfortunately the India Brick project has not yet supported such obvious extruder familiarization and import assistance initiatives.

TERI's comments: TERI's response to this has already been provided under Point (6).

(48) Page 32 Para 4

MTR Report: Excessive and unfortunately also ultimately unproductive project efforts were expended in engaging agencies in the West and Northeast of India to meet this ProDoc target of five LRCs.

TERI's comments: The project design envisaged interventions in five regions. It may please be noted that North-East region was not originally envisaged in the Prodoc. It was only at the request of the steering committee that North-East was added as one of the areas for project interventions. Simiarly, it was suggested by UNDP to include Gujarat as a focus region for intervention instead of other more developed regions in Western India (Minutes of the 1st PSC meeting attached as Annexure 15.1).

(49) Page 32 Para 4

MTR Report: While the operating energy use of buildings using higher insulation value of bricks is clearly important, this is less of a priority at this point than getting such EE Bricks actual made and in the marketplace and being used in new buildings.

TERI's comments: TERI does not agree to this view. We feel that to motivate the brick kiln entrepreneurs to adopt mechanization/ semi-mechanization for production of REBs, it is important to build their confidence on the product i.e. resource efficient qualities of clay fired perforated/ hollow bricks not only during their production but also during their use in building construction. The better insulating property of REBs as compared to solid bricks is in fact a USP for their marketing. Unless brick kiln entrepreneurs are convinced about the products, they will not use mechanization for this purpose and will produce solid bricks only, and this will defeat the very purpose of the project.

(50) Page 32 Para 5

MTR Report: However, the LRC East region generally lacks extruders, and it also has a generally unreliable electricity supply as well. So brick mechanisation in the LRC East region actually needs to start with brick plant level gasifiers to power modified generators.

TERI's comments: We feel that the specific recommendation of using gasifier to provide power supply to extruders is not appropriate in context of this project. Electricity can be provided by any of the sources that are potentially available at/near the brick sites. Providing electricity is a separate subject in itself and cannot be covered /referred to in the brick project. TERI feels that the issue of availability of electricity is clearly beyond the scope of this project.

(51) Page 33 Para 1

MTR Report: However, the LRC South is based at the local TERI office, and although the local staff seem to be doing a good job of supporting the project, there is a wider issue of TERI's ongoing role in the project, given their charging the project for their staff costs at a rate well in excess of that specified in the ProDoc, and their past lack of contracting out project activities and doing the majoring of such activities with their (expensive) own staff. If TERI continues to provide the LRC South role, it will require much closer supervision in future by the PMU and UNDP.

TERI's comments: TERI strongly objects the tone and language of this paragraph as well. This is obviously again written with some some pre-conceived notions . All the activities undertaken under this project have been duly reported to UNDP/MoEF through QPRs, other notes specifically requested by UNDP/ MoEF and presentations in PSC meetings. TERI has provided proof including salary slips of all TERI professionals (including LRC Bangalore) who are involved in this project to UNDP, MoEF and the auditors. We would also like to place on record that involvement of TERI-Southern regional centre as an LRC for the southern region was duly brought to the notice of the steering committee members during the presentation of PMU in 2nd PSC meeting (Anneuxre 14.2).

(52) Page 33 para 4

MTR Report: A more natural Indian government lead agency for the project would seem to be the Ministry of Industry (as regards the brick making industry) or ideally the Ministry of Construction as the agency most interested in the performance and insulation value of the bricks as used in buildings.

TERI's comments: There is no "Ministry of Construction" in India. The relevant Ministry dealing with brick sector is Ministry of Micro Small and Medium Enterprises. The Ministry of industry and Commerce largely deals with the large organized sector industries like cement, pulp and paper etc.

(53) Page 34 Para 2

MTR Report: For the first nearly two years of the India EE Brick projects implementation: TERI billed considerable amounts of the time of its many staff's project inputs at full commercial rates; TERI billed an excessive amount of its senior staff to the project; and TERI did not even attempted to contract out project activity tasks to lower cost external consultants. TERI's arguments are simply not credible that it was unaware of the given national experts' schedule of rates for consultancy inputs that were clearly and unambiguously stated in the ProDoc, when the same TERI staff that were involved in the India Brick EE project's design and funding approval were involved in its implementation. The lack of real national government project ownership, plus a lack of suitable budget oversight by UNDP for the first two years of project implementation, enabled TERI to effectively use the project as its own private staff funding mechanism and utilise most of the project budget for its own staff, rather than run the project on behalf of GEF as a PFC/PMU should properly do.

TERI's comments: TERI strongly objects the wordings of this paragraph also.

The explanation regarding the use of its own professionals for various activities has already been given in Point (9).

(54) Page 34 Para 3

MTR Report: In a number of significant cases, TERI also did not suggest or undertake suitable adaptive management actions, for example when it should have been clear that extruders and a reliable electricity supply for such extruders were a necessary prerequisite for brick mechanisation which in turn is a necessary prerequisite for producing perforated bricks, and when in should have been clear that the successful emergence of Wienerberger in South India was a great opportunity for the project to build on the success of a major willing new project partner.

TERI's comments: TERI do not agree to this view. As reported earlier, the project is well aware of the need of extruders and reliable electricity supply and the same as been reported under Point (37). Also the association of the project with Wienerberger is duly explained in Point (26).

(55) Page 34 Para 3

MTR Report: The PFC (the de facto PMU) was run by TERI with minimal effective financial or operational oversight by MoEF and UNDP.

TERI's comments: TERI strongly objects to the allegation that the project is run with minimal effective financial and operational planning. As reported earlier, the financial and physical progress of the project were duly reported to UNDP/ MoEF on quarterly basis (through QPRs and Faceforms) as well as through presentations made in PSC meetings.

(56) Page 34 Para 4

MTR Report: UNDP logically feels let down by TERI, and logically expects TERI to now at best manage the project to its end funded from the excessive costs that TERI has charged to date.

TERI's comments: TERI does not agree with this statement. In fact TERI feels let down by UNDP since all the activities were duly approved and discussed in various forums. The genesis of this impasse is clearly the non-acceptance of TERI rates by UNDP /UNDP auditors. The reasons for using these rates has been explained many times earlier, including in the note dated 23 Nov 2011. It is simply difficult to understand why UNDP is unwilling to accept these rates under this project when many other bilateral/multilateral organisations including GEF supported World Bank project has approved similar rates. Under these circumstances blaming TERI is uncalled for.

(57) Page 34 Para 4

MTR Report: TERI seems to take the view that its actions were authorised by the PSC, so that its offer to charge the project its staff inputs at a reduced rate are a suitable way forward in the circumstances. Both sides are clearly expecting the other side to somehow solve the impasse, which is just not happening.

There is a clear need for the India Brick EE project to have a PFC/PMU that focuses on hands-on strategic leadership and also on minimal and cost-effective project management staff inputs. Given the excessive rates and excessive amounts of senior TERI staff time charged to the project until the financial audit, the lack of willingness by TERI to refund these excessive costs charged to the project

under its position of trust as the PFC, and the clarity around allowable PFC/PMU staff charge out rates in the ProDoc, it is recommended that unless TERI is prepared to manage the project to this end with suitable minimal project management only staff inputs charged at the appropriate rates as set out in the ProDoc, then UNDP and MoEF should check the feasibility of moving the role of PFC/PMU to a new more affordable and responsible PFC/PMU.

TERI's comments: It is clear from the MTR report also that there are two diverging views and the last 15 months have not resulted in any solution. In the interest of the brick sector fraternity, which has given tremendous support to TERI and has shown keen interest in this project, TERI is willing to forego any further involvement in this project. UNDP may like to appoint other agencies/contractors to manage the project as they deem fit. However, TERI expects that all the pending payments as per previous contracts/face forms be settled at the earliest.

(58) Page 35 Para 3

MTR Report: The simplest and most direct option would be that UNDP approach PSCST to act as the new project PMU. Alternatively, the new PFC/PMU could be contracted out to a suitable consulting firm/organisation, or it could be provided by a suitable contractor working at UNDP India under the direct supervision of the UNDP Programme Officer (Energy and Climate Change).

TERI's comments: This recommendation is acceptable to TERI.

Annexure 8.1

RE: Face Form

N Vasudevan to: S N Srinivas 12/03/2009 03:19 PM

Cc: Anil Arora, "nayanika.singh@nic.in", Rakesh Johri, Sachin Kumar

Dear Srinivas,

The fund for the project was received in TERI's bank account (opened for the proejct) on 8th October 2009. Therefore the start date for the project is 9th October 2009. In view of the above, the Face Form for the Quarter ending in December 2009 will be submitted on due date.

With regards

N Vasudevan

S N Srinivas <SN.Srinivas@undp.org>

S N Srinivas
<SN.Srinivas@undp.org>
12/03/2009 02:50 PM

To N Vasudevan <nvasu@teri.res.in>

cc Rakesh Johri <rjohri@teri.res.in>, Sachin Kumar <sachink@teri.res.in>, "nayanika.singh@nic.in" <nayanika.singh@nic.in>, Anil Arora <Anil.Arora@undp.org>

Subject RE: Face Form

Dear Vasu
We have discussed this over phone. Can you revise the FACE with expenses made on this project as per project start as discussed.

Srinivas

From: N Vasudevan [mailto:nvasu@teri.res.in]
Sent: Thursday, December 03, 2009 2:10 PM
To: S N Srinivas; nayanika.singh@nic.in; Anil Arora
Cc: Rakesh Johri; Sachin Kumar
Subject: Face Form

I am awaiting your feedback.

With best regards

N Vasudevan

Dear all,

Our accounts is preparing the Face Form for the Quarter ending in Sep.2009. You are aware that the project was

sanctioned on 15 June 2009. and TERI initiated the project activities from Jul 2009 onwards despite money received on 08 Oct 2009. The expenditure incurred during July, Aug and Sep 2009 was done from TERI's account.. The professional time spent for the period July to September 2009 has been accounted and being shown in the Face Form (ending Sep 2009). Hope it is ok.

With best regards

N Vasudevan

Annexure 8.2

TERI's manpower costs not only represent the salaries paid to staff but also other costs such as social cost, welfare benefits and all other indirect costs, which are not charged separately. All indirect costs are included in the manpower rates as a consolidated figure. Therefore, apparently the man-power costs looks high which is not the case. The basis of the calculation was explained to the Auditors and the necessary documents were also shared with them. The basis of calculation of manpower costs are provided below

Basis of calculation of manpower costs charged to UNDP-GEF Project

TERI's manpower costs are fully loaded costs which comprise (1) direct salaries paid to TERI professional staff as per pay slips every month, (2) social benefits (fringe benefits) which include long-term benefits such as provident fund, superannuation, gratuity, leave travel concession, medical allowances, staff welfare expenses and other facilities provided by the organization, and (3) institutional overheads costs include salaries of administrative, secretarial and support staff, office maintenance, insurance, water/electricity, depreciation on capital items and other indirect costs.

Given below is the break up of professional costs charged by TERI to the UNDP-GEF project for the quarter – October – December 2010.

Amount: Rupees

Name	Direct salary paid to staff	Social Charges 82.47%	Sub-total	Institutional Overheads 81.70%	Total manpower costs
Mr N Vasudevan	162417	133946	296363	242129	538492
Mr Girish Sethi	191623	158031	349654	285668	635322
Mr Prosanto Pal	179266	147841	327107	267246	594353
Mr Ananda Mohan Ghosh	120657	99506	220163	179873	400036
Mr Rakesh Johri	137103	113069	250172	204390	454562
Mr Yabbati Nagaraju	61901	51050	112951	92281	205232
Mr Sachin Kumar	111082	91609	202691	165599	368290
Mr Arupendra Nath Mullick	54421.5	44881	99303	81130	180433
Mr R K Joshi	39454	32538	71992	58817	130809

Direct salary paid to staff

The direct salary means the monthly salary paid to TERI staff each month. Salary slips of the monthly salary paid to each staff are attached as proof (Attachment 1).

Social charges : 82.47% on base salary

Social charges (fringe benefits) include various long-term benefits such as provident fund, superannuation benefits, gratuity, performance gratuity, medical allowances etc. These benefits offered to staff are not included in the direct salaries.

The percentage of social benefits is arrived at based on the total costs of social benefits on the total gross salaries paid to research professionals in TERI. This percentage is verified and certified by an external auditor. A copy of the audit certificate is enclosed as Attachment 2.

Institutional overhead charges : 81.70%

Institutional overheads costs include salaries of administrative, secretarial and support staff, office maintenance, insurance, water/electricity, depreciation on capital items and other indirect costs. The percentage of institutional overheads is arrived out by calculating annual costs of institutional overhead costs on gross salaries + social benefits. This percentage is also duly audited by external auditor. Copy of the audit certificate is enclosed as Attachment 2.

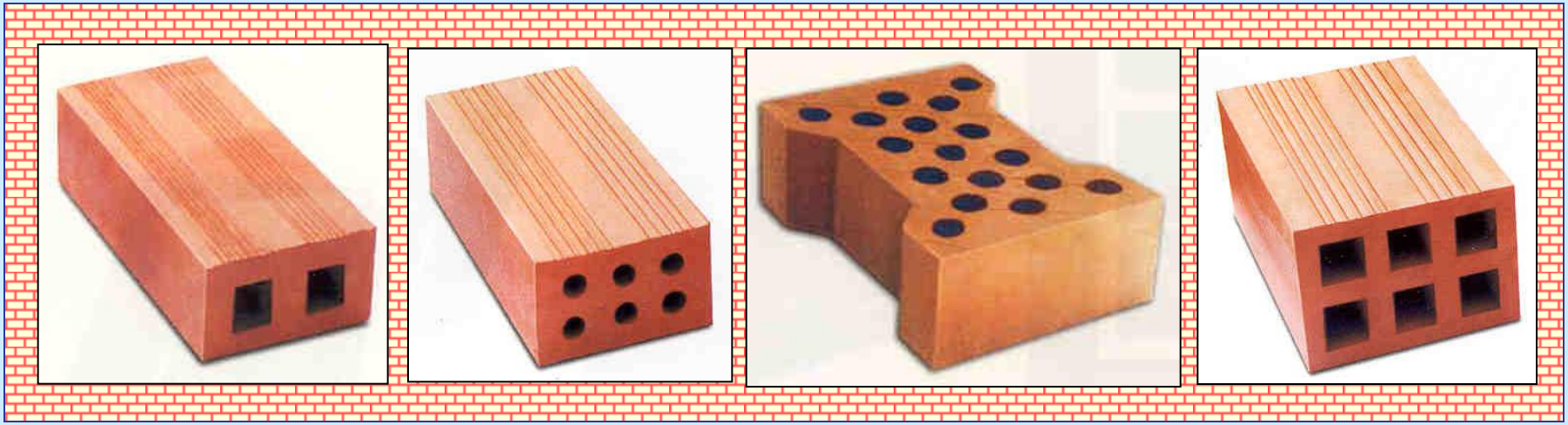
Conclusion

TERI's manpower costs are worked out on the above explained basis. Such rates are charged to various projects undertaken by TERI for various organizations including UN organizations.

Annexure 13.1

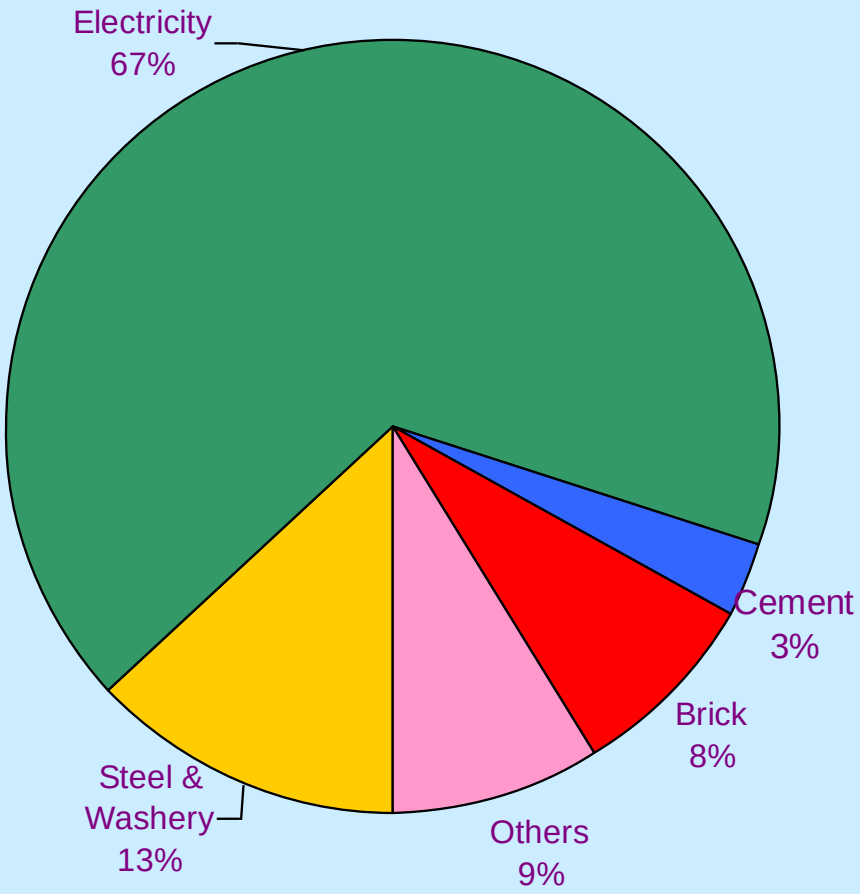
Project inception workshop
Energy Efficiency Improvements in Indian Brick Industry

20 November 2009
TERI, New Delhi



Indian brick industry – A glance

- Brick production : 140 billion/year
  Annual turnover: > Rs 10,000 crore
- No of units: > 1 lakh
- Technologies – Bull's trench kilns and Clamps
- Employment: 80 to 100 lakh people directly linked
- Environment
  - Coal : 24 million tons (8%)
  - Biomass : 5-10 million tons
  - *CO_2 generation – 42 million tons*
  - *Top Soil: 350 million tonnes*



Drivers for Change

- Increasing energy prices and depleting soil availability
- Environmental concerns and regulations
- Shortage / difficulty in sourcing workers
- Market driven
  - Demand for quality products
  - New and alternate building products

Limitations and barriers

- Limited information on resource efficient technologies
- Non-availability of resource efficient model brick kiln units at cluster levels
- Lack of trained manpower
- Limited access to finance
- Unexplored market for alternate building products
- Old specifications and codes for building materials and
- Non-availability of institutional mechanism

Project summary

- Project objective:

  To make India's major brick producing clusters more energy efficient.
- Energy efficiency improvements in Indian brick industry
- Executing Agency – UNDP; Implementing Agency – MoEF, Responsible Partner - TERI
- Project focusing major brick producing clusters in different regions – South, North, West, East, North-East

Why REBs are important – Few advantages

- Energy savings upto 20%
- Reduced top soil consumption of about 30%
- Improved crushing strength (> 200 kg/cm^2)
- Reduced water absorption (< 10%)
- Better finished good quality products
- Reduction in construction costs (5-7%)
- Reduced cooling/ heating load requirements (~5% in energy bills)

Scope of the project

- **Promote** technology upgradation
- **Increase supply** of resource efficient brick (REB) products
- **Capacity building**
  - Environmental issues (Air and Top soil)
  - Energy efficiency
  - Access to finance
  - Technical training
- **Create market** demands

Role of TERI and its Partners

TERI along with regional level LRCs to create enabling conditions for Production and Market for REBs

- Facilitate demonstration units for perforated brick, hollow blocks and fly ash bricks through Local Resource Centres (LRCs)
- Capacity building of stakeholders
- Develop linkage with banks and financial institutions

…contd.

- Facilitate market creation
  - Establish facts such as strengths and properties of various products
  - Create awareness among architects, builders, other end-users and government departments for uptake of REBs
  - Close interaction with BIS, CPWD and MES for inclusion of REBs in their material specifications (Building Codes)
  - Prepare and disseminate promotional material e.g. brochure and website.

Expected project outcomes

- Improvements in energy efficiency and environment
- Availability of resource-efficient brick products across different regions and demand created
- Technology packages available for REB production
- Increased access to finance for technology upgradation projects
- Enhanced knowledge and skills among entrepreneurs and workers

Thank You

Your inputs is required on!

- Your knowledge on REBs and interest to switch over
- Level of investment
  - Interest to take bank loan or own investments
- How do you want to utilize the services of the project
  - Technical services
  - Capacity building

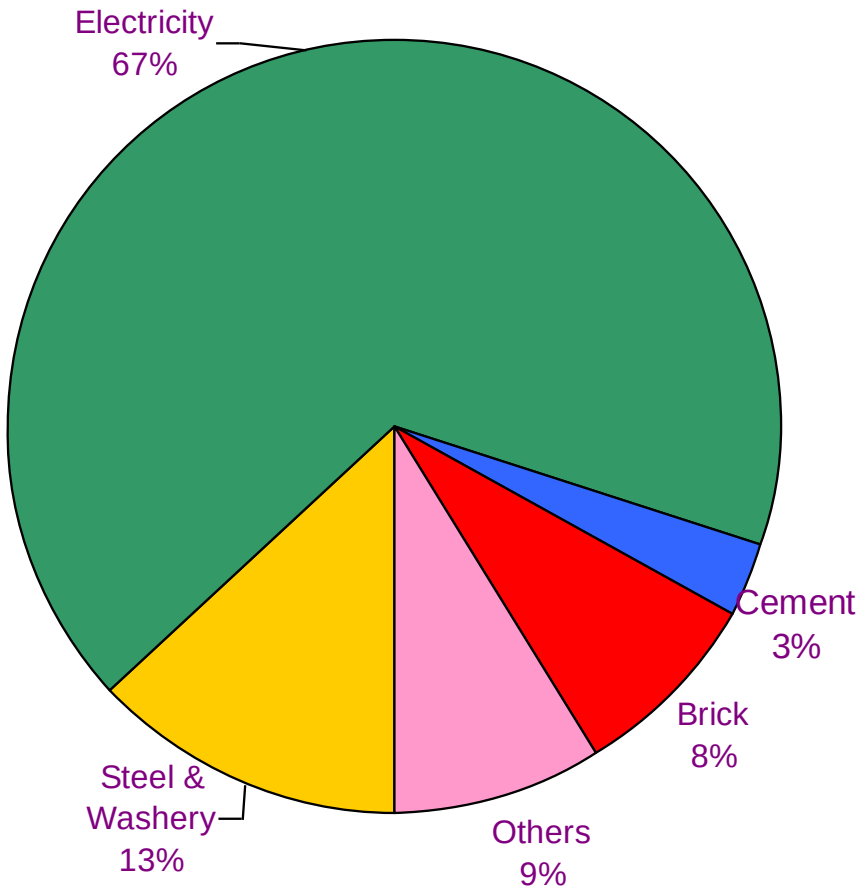
Annexure 14.1

Energy Efficiency Improvements in Indian Brick Industry

TERI, New Delhi

About Indian brick industry

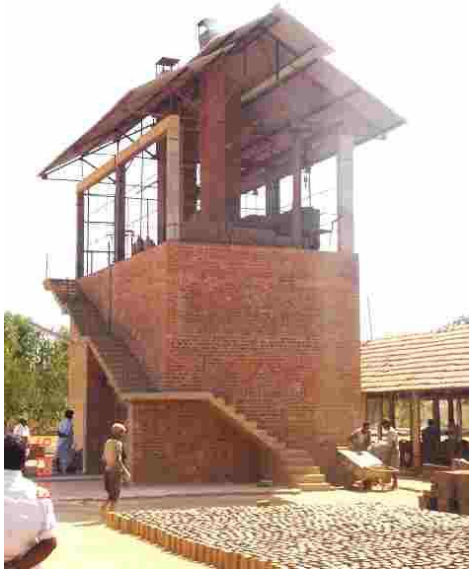
- Brick production : 140 billion per year (Year 2002 study under the GEF project)
- Annual turnover: > Rs 10,000 crore
- No of units: > 1 lakh
- Employment: 80 to 100 lakh people directly linked
- Environment
  - Coal : 24 million tons (8%)
  - Biomass : 5-10 million tons
  - CO_2 generation – 42 million tons
  - Top Soil: 350 million tonnes



Existing technologies in India

BTK

Clamp



VSBK

Existing technologies ...contd.

Features	Type of brick kiln		
	BTK	**Clamp**	**VSBK**
Suitable for	Large brick maker	Small brick maker	Small brick maker
Number of kilns in India	40,000	60,000	100 (during 2005)
Total brick production (billion bricks)	90	50	0.05
Production capacity of brick kilns	30,000 to 50,000 brick/day	2000 to 100000 brick per cycle	4000 brick per shaft
Brick quality	Medium to High	Low	Medium
Kiln construction period (days)	90	–	30–45
Kiln stabilisation period (days)	15–30	4–10	3–4
Working conditions	Harsh	–	Good

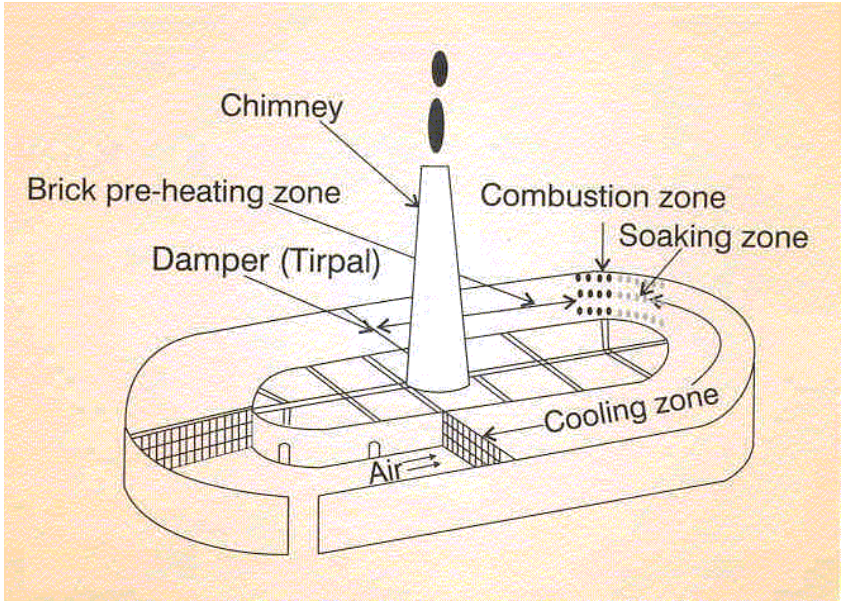
Existing technologies ...contd.

Moulding

- Manual process for green brick making
- Quality of green bricks dependant on skill of moulders
- Open sun drying to dry the green bricks

Firing

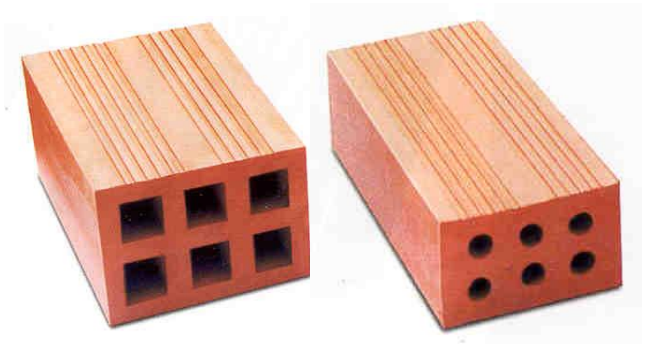
- In BTKs (Bull's trench kilns)



Proposed technology under GEF

- Focusing mainly on large capacity brick kilns i.e. BTKs (Bull's trench kilns)
- Shift from solid bricks to perforated bricks
- Use of semi-mechanized system in place of hand moulding

- Ability to produce a variety of clay brick products, leading to value addition
- Uniform and high quality of green bricks



- Improved energy savings during firing (~ 20%) and saving in top soil (~ 30%)
- Savings in construction costs and cooling/ heating loads

Comparison with existing CDM projects

Present CDM projects

- Focus:
  - Clay based brick firing through VSBK (small scale brick production)
  - Non-clay based fly ash brick production technologies (cold processing)

MSP project

- Focus:
  - Large capacity brick kilns – BTKs (Bull's trench kilns)
  - Clay based bricks i.e. improved moulding technologies
- At present no units involved in REB production
- Support required from GEF to enhance supply and demands by market
- Project activities:
  - Increased supply of REBs & capacity building
  - Create market demands
  - Access to finance for adoption of improved moulding practices

Agenda point-1 : Proposed project activities/ sites

- AWP 2009 already approved by MOEF and UNDP in June 2009
- Focus during the year:
  - Creating awareness among all important stakeholders
  - Establishing LRCs in two regions of project intervention
    - South – Bangaluru
    - North - Punjab
  - Technology identification
  - Initiate interactions in other regions for promoting project activities and establishing LRCs

Stakeholder meeting, Bangaluru (10 Aug 2009)

Intervening clusters and LRCs

Region	Clusters approved	Clusters revised	LRC
North	1. Punjab (Jalandhar) 2. NCR	1. Punjab (Jalandhar)	PSCST, Chandigarh
West	3. Pune	2. Pune	To be identified
South	4. Bangalore	3. Bangalore	TERI-Southern Regional Centre, Bangaluru & Indian Ceramic Society
East Uttar Pradesh/ East	5. Varanasi	4. Varanasi OR Kolkata (?)	Int Nirmata Parishad, Varanasi
North East	-	5. Agartala	To be identified

Agenda point-2 : Monitoring system

- Indicators for various activities prepared in the approved LFA
- Quarterly progress report to be submitted to UNDP/ MoEF
- Presentation on project progress to PSC

Agenda point-3 & 4 : Composition of PMU and Fund flow arrangement

- Composition of PMU
  - Mr N Vasudevan - Project Manager
  - Mr Rakesh Johri – Technical Expert
  - Mr Sachin Kumar – Technical Expert
  - Each LRC will have a "Coordinator" who will report to Project Manager

- Composition of PSC
  - National Project Director - Mr R R Rashmi, Joint Secretary, Climate Change, MoEF
  - Representative from MoEF Climate Change, MoEF
  - Representative from UNDP
  - Representative from TERI – Mr Girish Sethi, Director, Industrial Energy Efficiency Division, TERI

- Fund flow arrangements
  - To be released on an annual basis upon approval of the AWP

Agenda point-5 Inception workshop

- Proposed date : First half of October 2009
- Venue: TERI, New Delhi
- Participants – Ministries, Government organizations, Enterpreneurs, industry associations, machinery suppliers, builders & architects, technical experts.
- Agenda
  - Introductory session
  - Background presentation
  - Technical session with the stakeholders on technology identification, interaction with government departments (e.g. CPWD and MES) for taking up the issue to include REBs in their procurement.

Thank you

Monitoring system - Indicators

Activity	Indicator
Activity 1: Enhancing Public Sector Awareness on Resource efficient products.	Usage of resource-efficient bricks by new public department building contracts increased by 20% by end of project.
Activity 2: Facilitating project finance access to brick kiln entrepreneurs.	Loans from local banks/ financial institutions for technology upgradation tripled by end of project.
Activity 3: Developing of knowledge on technology and marketing	Resource-efficient bricks sold in the market and used for construction.
Activity 4: Availability of efficient technology models in 5 clusters for demonstration projects.	12 EE brick kilns units established in 5 clusters by end of project
Activity 5: Enhancing capacity of brick kiln enterprises	At least 5 brick kiln entrepreneurs in each cluster invest in technology upgradation by end of project

Participants

- MoEF, CPCB, UNDP, SDC
- Government organizations
  - MES (CE Delhi zone), CPWD, DJB, Ministry of MSME, MSME-DI (Chennai), HUDCO, BEE, SDC
- Entrepreneurs
  - Sanjay Dadoo, O P Badlani, Anjaya Reddy, Venugopal, Jindal, Manish Agarwal, Periyasamy
- Industry associations
  - AIBTMF, INP Varanasi, Karnataka brick industry association
- Machinery suppliers
  - Vijay Prakash Industries, Neputne, and Maa Kaali
- Financial institutions/ Banks
  - SIDBI, Corporation Bank
- Builders & architects
- Experts
  - K G K Warrier (RRL), Anil Kumar (BTCON), Mech Bricks (George Mathew), Satyanarayana Rao, Pritpal Singh, R N Jindal (MoEF)
- Detailed mailing list

Detailed list of Participants

1. UNDP
2. CPCB
3. MoEF
4. Brick industry
   AIBTMF – R P S Chandel
   INP – K K Pandey, Badlani
   Bangalore – Shanmugam, Sashi Mohan
   Other associations
   Punjab - ???
   Entrepreneurs, who have already provided consent for the project
5. MSME Development Institutes, DICs, HUDCO (State level, Delhi) – For LRCs
6. Partners
   i) PSCST
   ii) Anil
7. Tech. Provider
   i) Nepture
   ii) Vijayan
   iii) George
   iv) Delhi based
8. State Pollution Control Board (target states)
9. Experts - Warrier
10. Builders and Architects, their associations
11. Mili
12. Banks – SIDBI, Lead banks of the concerned states
13. PWD, DDA, MES

Draft agenda for the inception workshop

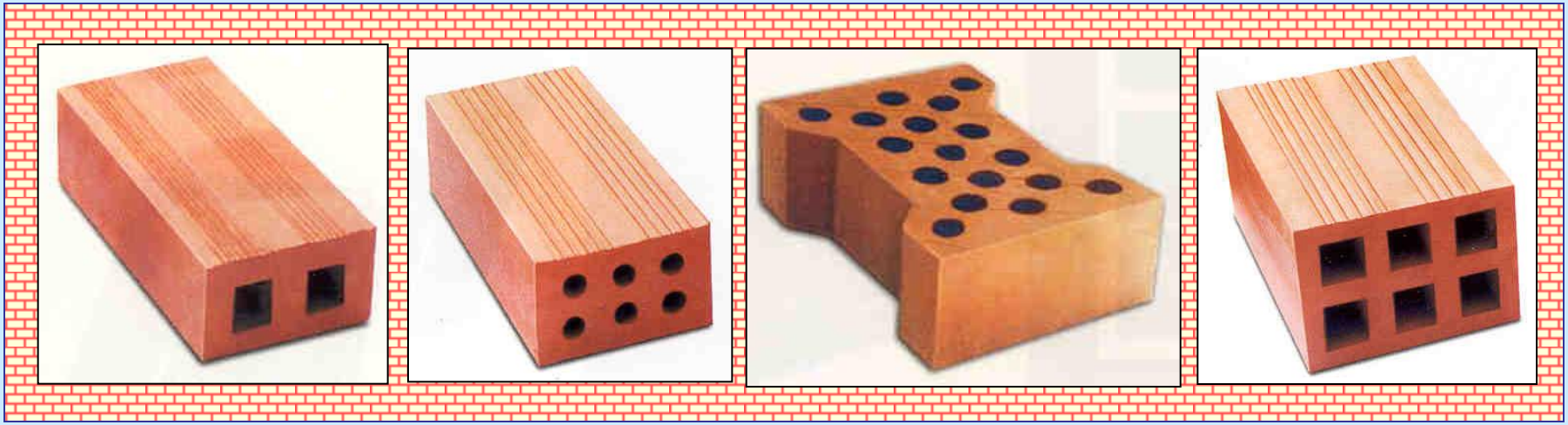
9:00 – 9.30	Registration	TERI
9:30 – 9:35	Welcome address	Mr Girish Sethi, Director, Industrial Energy Efficiency, TERI
9:35 – 9:55	Project presentation	Mr N Vasudevan, Fellow, TERI
9:55 – 10:00	Remarks	Ms Preeti Soni, Head, Energy and Environment Unit, UNDP
10:00 – 10:10	Inaugural address	Mr R R Rashmi, Joint Secretary, Climate Change and National Project Director, MoEF
10:10 – 10:30	Tea Break	
10:30 – 1: 00	Technical session	Views and inputs from entrepreneurs, industry associations, technology providers and financing institutions
1:00 – 2:00	Lunch	
2:00 – 4:00	Technical session	To be continued
4:00 – 4:30	Tea Break	
4:30 – 4:50	Summary of the workshop	Mr Rakesh Johri
4:50 – 5:30	Discussions with Participants Concluding remarks	Mr R R Rashmi & Ms Preeti Soni
5:30 – 5:35	Vote of thanks	Mr Sachin Kumar

Annexure 14.2

Energy efficiency improvements in Indian brick industry

Project steering committee meeting

23 March 2010



Agenda

- Physical and financial progress of the project in year 2009
- Annual Work Plan 2010
- Approvals and feedback from the Chair

Activities highlights (2009)

- Project inception workshop held on Nov 20, 2009
- Participation by various stakeholders
  - Government organizations (CPWD, MES), technology providers, technical experts, regulatory bodies, architects, and builders.

- REBs to play an important role in construction sector
- 2 LRCs finalized – Northern and Southern regions
  - PSCST (Chandigarh)
  - TERI- Southern Regional Centre (Bangalore)

Activities completed during 2009

Output-1 : Enhancing awareness on REBs

	Activity planned	Status
1.1	National level meeting for stakeholders	Completed along with inception workshop
1.2	2 cluster level meetings	One cluster meeting held

Activities completed during 2009

Output-2 : Facilitating access to finance by brick kiln entrepreneurs

	Activity planned	Status
2.1	Identification of interested national and regional financial institutions	Initial identification done- SIDBI, Corporation Bank
2.2	Template framework for DPRs	To be taken up in 2010

Activities completed ….contd.

Output-3 : Developing knowledge on technology and marketing

	Activity planned	Status
3.1	Undertaking research on available technology providers and markets	Evaluation of technology providers completed for Southern region
3.2	Results shared with stakeholders	Workshop and one to one meetings conducted

Identification of REB technology providers

Indian	Multinational
• Neptune Industries, Gujarat • De-Boer Damle Ltd, Mahrashtra • Fortune Engineers, Gujarat • Vijaya Prakash Industries, Kerala • Lakshmi and Company, Tamil Nadu	• Bedeshi, Italy • Baoshang, China • Handle/Rieter-werke, Germany • Verdes, Spain • Walter Cravin, Germany

Activities completed ….contd.

Output-4 : Availability of efficient technology models in 5 clusters

	Activity planned	Status
4.1	Preparation of database of potential brick kiln enterprises	Database prepared for Southern region. Follow up in progress
4.2	Identification and short-list of technologies	Suitable technology short-listed keeping in view the local conditions

Activities completed ….contd.

Output-5 : Enhancing capacities of brick kiln enterprises

	Activity planned	Status
5.1	Establishing LRCs in two regions	North – PSCST South – TERI (SRC) with resource person from Indian Ceramic Society
5.2	Developing training module	Included in AWP 2010
5.3	Organizing exposure visit	Exposure visit organized for 15 entrepreneurs

Exposure visit

Activities completed ….contd.

Output-6 : Monitoring, Learning and evaluation

	Activity planned	Status
6.1	Organizing project inception workshop	Organized on 20th Nov 2009
6.2	Developing promotional material	Included in AWP 2010
6.3	Developing project website	Included in AWP 2010

Output-7 : Setting up the Project Management Unit

	Activity planned	Status
7.1	Formation of PMU	PMU Formed.

Summary of expenses (2009)

Total budget : Rs 56,93,023

(USD 117,020)

Total expenditure : Rs 24,04,430

Balance amount : Rs 32,88,593

Annual Work Plan 2010

Activities completed/ initiated in 1st Quarter 2010

- LRCs identified for following regions & interaction in progress
  - North East – Tripura Council for Science & Technology
  - West – Central Glass and Ceramics Research Institute
  - East – Int Nirmata Parishad (INP), Varanasi
- Regional seminar on brick technologies organized by PSCST (LRC-North)
- One to one interaction with brick kiln entrepreneurs held in Punjab and Southern regions
- Meeting held with Gujarat state level brick industry association

Activities completed ...contd.

- Meeting with brick industry association, East UP
- Testing of strength of bricks carried out in an accredited laboratory
- Interaction with potential suppliers and end-users in progress
- Attended “International Exhibition” on brick and ceramic technologies in Ahmedabad
- Draft brochure prepared
- Website under preparation (http://www.resourceefficientbricks)
- A short video film on construction with REBs is being prepared

AWP 2010

Output 1 Enhancing public sector awareness

1.0	Activity
1.1	Five regional level meetings with key stakeholders
1.2	Five cluster level meetings focusing on brick kiln entrepreneurs and end-users
1.3	One national level meeting

Output 2 Facilitating access to finance to brick kiln owners

2.0	Activity
2.1	Meetings with identified banks and financial institutions – SIDBI, Corporation Bank, NEDFI
2.2	DPRs preparation

AWP 2010 ….contd.

Output 3 Developing knowledge on technology and marketing

3.0	Activity
3.1	Approach paper on developing markets for REBs and incorporating inputs from stakeholders • Interaction with important stakeholders has commenced. • Database on end-users is being compiled.
3.2	Information collation of fly ash bricks focusing on technologies and barriers

AWP 2010 ….contd.

Output 4 Availability of efficient technology models in 5 clusters

4.0	Activity
4.1	Establishing LRCs in other regions
4.2	Documentation of technologies
4.3	Database on potential enterprises
4.4	Match-making for technology adoption
4.5	Identification of international consultant for project inputs

AWP 2010 ….contd.

Output 5 Enhancing capacities of brick kiln enterprises

5.0	Activity
5.1	Organizing exposure visits
5.2	Developing training module

Output 6 Monitoring, learning and evaluation

6.0	Activity
6.1	Project brochure
6.2	Website development
6.3	Inputs from international consultant

AWP 2010 ….contd.

Output 7 Project management

7.0	Activity
7.1	Providing guidance to all LRCs
7.2	• Preparing documentation for periodical reporting • Organizing steering committee meeting
7.3	Preparation of AWP 2011

Work plan 2010

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	**Enhancing public sector awareness**												
	1.1 5 Regional meetings												
	1.2 5 Cluster meetings												
	1.3 1 National meeting												
2	**Facilitating project finance**												
	2.1 Meetings with banks												
	2.2 DPRs preparation												
3	**Developing knowledge on technology and marketing**												
	3.1 Approach paper on REB market												
	3.2 FA bricks - Technology & Barriers												
4	**Technology models in 5 clusters**												
	4.1 LRC - West												
	4.2 LRC - East												
	4.3 LRC - North East												

Work plan 2010 ....contd.

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	**Technology models in 5 clusters**												
4.4	Tech Document with costs												
4.5	Database - Entreprnrs 5 clusters												
4.6	Demo of 12 projects (M/making)												
4.7	International consultant												
5	**Enhancing capacity of entrepreneurs**												
5.1	Exposure visit												
5.2	Training module - South												
5.3	Training module - North												
6	**Monitoring, Learning and evaluation**												
6.1	Brochure												
6.2	Website												
6.3	Mid-course correction												

Summary of budget for 2010

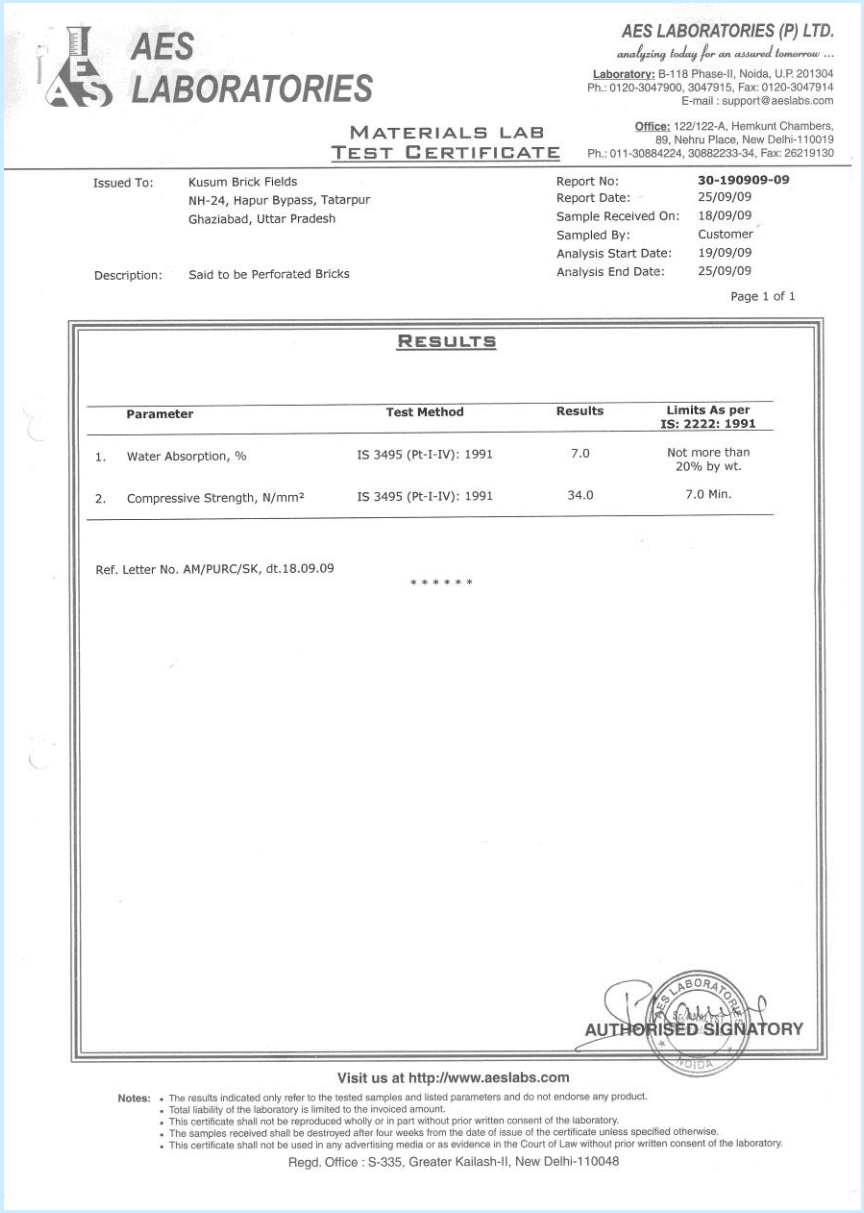
Total budget proposed	**: USD 211,129**
M&E and Audit	**: USD 6,530**
Grand total	**: USD 217,659**
	(INR 100,12,314)
Unspent amount in 2009	**: INR 32,88,593**

Additional fund sought from GEF : INR 67,23,721

Decisions from the Chair

- Approval for the activities and expenditure for the year 2009
- Approval for proposed activities and budget for the year 2010

Test certificate - REBs



AES LABORATORIES

AES LABORATORIES (P) LTD.
analyzing today for an assured tomorrow ...
Laboratory: B-118 Phase-II, Noida, U.P. 201304
Ph.: 0120-3047900, 3047915, Fax: 0120-3047914
E-mail : support@aeslabs.com
Office: 122/122-A, Hemkunt Chambers, 89, Nehru Place, New Delhi-110019
Ph.: 011-30884224, 30882233-34, Fax: 26219130

MATERIALS LAB
TEST CERTIFICATE

Issued To: Kusum Brick Fields
NH-24, Hapur Bypass, Tatarpur
Ghaziabad, Uttar Pradesh

Description: Said to be Perforated Bricks

Report No: **30-190909-09**
Report Date: 25/09/09
Sample Received On: 18/09/09
Sampled By: Customer
Analysis Start Date: 19/09/09
Analysis End Date: 25/09/09

Page 1 of 1

RESULTS

	Parameter	Test Method	Results	Limits As per IS: 2222: 1991
1.	Water Absorption, %	IS 3495 (Pt-I-IV): 1991	7.0	Not more than 20% by wt.
2.	Compressive Strength, N/mm²	IS 3495 (Pt-I-IV): 1991	34.0	7.0 Min.

Ref. Letter No. AM/PURC/SK, dt.18.09.09

* * * * * *

AUTHORISED SIGNATORY

Visit us at http://www.aeslabs.com

Notes:
- The results indicated only refer to the tested samples and listed parameters and do not endorse any product.
- Total liability of the laboratory is limited to the invoiced amount.
- This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after four weeks from the date of issue of the certificate unless specified otherwise.
- This certificate shall not be used in any advertising media or as evidence in the Court of Law without prior written consent of the laboratory.

Regd. Office : S-335, Greater Kailash-II, New Delhi-110048

Thank You

Annexure 14.3

Energy efficiency improvements in Indian brick industry

Project steering committee meeting

6 January 2011

Agenda

- Confirmation of minutes of 3rd Project Steering Committee meeting and action taken
- Technical and financial reporting on the progress of the year ending December 2010
- Proposed activities and fund utilization plan for the year 2011
- Decision on the next date and venue of the PSC meeting
- Any other matter, with the permission of the Chair

Activities highlights (2010)

- Creating awareness on REBs (covering about 500 stakeholders)
  - Regional workshops
    - Agartala (Tripura), Bangalore (Karnataka) and Bhatinda (Punjab)
  - Focus group discussions
    - New Delhi and Bangalore
  - Cluster meetings
    - 13 cluster meetings - North (8), West (3), South (2)
  - Exposure visits
    - 3 visits (Ahmedabad, Bangalore and Jaipur) involving about 60 entrepreneurs

Activities highlights (2010) – Contd.

- A short film on “construction practices with REBs” prepared.
- Informative project web-site
  - Test results of REBs, video film, technology suppliers details, DPRs, list of relevant BIS codes, minutes of various project events
- Participation in exhibitions
  - India International Trade Fair (Delhi), National Convention of Architects (Lucknow)

Activities highlights (2010)

- Access to finance
  - 4 Model DPRs prepared covering Northern, Southern and Western regions
  - Study on barriers for access to finance completed with following findings:
    - Low level of awareness on brick industry by the bankers
    - Absence of book-keeping practices by the industry
      - –Difficulty in mobilizing the official equity
    - Access to bank finance is not much difficult and the credits provided are entrepreneur-centric
    - Brick industry has not invested so far on modernization; only large entrepreneurs can invest on their own and prefer through cash route which is lower than bank term loan
    - Policy support needed for promotion of REBs

Highlights …contd.

- Developing knowledge on technology and marketing
  - NIIST Thiruvananthapuram (CSIR lab)
    - – Testing of soil samples from different parts of the country to ascertain their suitability from REB production
    - – Recommend additives, if required, for extrusion
  - Brick and Tile Research Institute (IZF), Germany
    - – Technology profiling of major technology suppliers from Europe, China and Latin America
    - – Inputs on modifications required in firing processes during technology upgradation
    - – Report on tunnel kiln suitable for Indian conditions
    - – Participation in interactive meets with potential brick kiln entrepreneurs in India during international workshop at Chandigarh
- Production trial of REB in 7 brick kiln units commenced.

Activities highlights (2010)

Regional Workshop – Tripura

(June 18th)

Regional Workshop – Bangalore

(June 28th)

Activities completed …contd.

FGD – New Delhi (9th Nov)

FGD – Bangalore (26th Nov)

- Testing of bricks in accredited labs
- Study on structural stability
- Use of REBs on pilot basis

Highlights …contd.

	BIS Standard		Perforated 1	Hollow 1
	Perforated brick (IS: 2222 - 1989)	Hollow block (IS:3952 – 1988)		
Size	190 x 90 x 90 mm 230 x 110 x 70 mm	190 x 190 x 90 mm 290 x 90 x 90 mm 290 x 140 x 90 mm	230 x 110 x 70 mm	190 x 190 x 90 mm
Compressive strength (N / mm2)	Not less than 7.5 on net area	Not les than 3.5	28.6	6
Water abs. (%)	Not more than 15 %	Not more than 20 %	7.6	10
Perforations	-Area of each perforation shall not exceed 500 mm2 - shell thickness not less than 15 mm and web thickness not less than 10 mm	-shell thickness not less than 11 mm and web thickness not less than 8 mm -Max 63 %	9	32
Testing Agency			IT- BHU Varanasi	Shriram Institute for Industrial Research

Activities completed …contd.

Trial REB Production – South India

Trial REB Production – North India

Summary of expenses (2010)

Total budget : USD 217,659

(Rs 97,94,675)

Total expenditure : Rs 89,56,476

Balance amount : Rs 8,38,199

Annual Work Plan 2011

Annual Work Plan (AWP) 2011

Output 1 Enhancing public sector awareness

	Activities Planned
1.1	Close interaction with BIS for inclusion of REBs in brick work specification -Involvement of expert government body for study on structural stability using REBs (e.g. CBRI, academic institutions)
1.2	Facilitating use of REBs by CPWD and MES on pilot basis
1.3	Organizing 5 Focused group discussions with large end users (CPWD, MES, private builders, architects etc.)

Estimated budget : USD 12459

AWP 2011 …contd

Output 2 Facilitating Project Finance access to brick kiln entrepreneurs

	Activities Planned
2.1	Finalisation of 4 Model DPRs prepared for Western, Southern, Northern and Eastern (discussing with BEE) region
2.2	Preparing Model DPRs for North Eastern region
2.3	Facilitating setting up of demonstration plants by brick kiln entrepreneurs

Estimated budget : USD 19450

AWP 2011 …contd

Output 3 Developing knowledge on technology and marketing

	Activities Planned
3.1	Case studies on REB in building construction
3.2	Preparation of manual on better construction practices with REBs
3.3	- Organizing an international workshop at Chandigarh on March 10, 2011 and interactive meetings between brick kiln entrepreneurs and technology suppliers - Comparative study to show the monetary savings: REB vis-à-vis other building materials
3.4	Organizing 5 cluster level meetings
	Approach papers on REBs and fly ash will be finalized and uploaded in project website.

Estimated budget : USD 29400

AWP 2011 …contd

Output 4 Availability of efficient technology models in 5 clusters

	Activities Planned
4.1	Study on suitability of soil for different regions and dissemination of results
4.2	Availing inputs from international expert on machineries suitable for producing REBs
4.3	Measurement / testing of thermal and physical properties of new / existing REBs
4.4	- Performance monitoring of REB producing units - Quantification of energy savings and CO_2 reduction
4.5	Updating database : REB technologies, potential entrepreneurs and project web-site (continuing activity)

Estimated budget : USD 77750

AWP 2011 …contd

Output 5 Enhancing capacities of brick kiln enterprises

	Activities Planned
5.1	Training program for masons on use of REBs
5.2	Exposure visits for potential brick kiln entrepreneurs
5.3	Technical back-up support to existing / new REB manufacturers on trouble shooting and enhancing their capacity

Estimated budget : USD 77750

AWP 2011

Output 5 Enhancing capacities of brick kiln enterprises

	Activities Planned
6.1	Providing guidance to all LRCs
6.2	• Preparing documentation for periodical reporting • Organizing steering committee meetings
6.3	Preparation of AWP 2012

Estimated budget : USD 29220

Summary of budget for 2011

Total budget proposed	: USD 180,829
M&E and Audit	: USD 6530
Grand total	: USD 187359
	(INR 84,87,363)
Unspent amount in 2010	: INR 838,199

Decisions from the Chair

- Approval for the activities and expenditure for the year 2010
- Approval for proposed activities and budget for the year 2011

Thank You

Work plan 2011

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	**Enhancing public sector awareness**												
	1.1 - Close interaction with BIS - Involvement of Research institution for study										■	■	
	1.2 Facilitating use of REBs												
	1.3 Organizing 5 FGDs						■						
2	**Facilitating project finance**												
	2.1 Finalization of 3 Model DPRs						■						
	2.2 Preparing Model DPRs									■	■		
	2.3 Interactions with Ministries / government departments												
	2.4 Facilitating setting up of demonstration plants										■	■	
3	**Developing knowledge on technology & Marketing**												
	3.1 Preparing case studies on REB						■						
	3.2 Preparation of manual								■				
	3.3 - Organizing interactive meetings			■									
	- Comparative study									■			

Work plan 2011 ….contd.

Action Plan | UNDP-GEF project | Jan 2010 to Dec 2010

N - North; S - South; W - West; E - East; NE- North East, P-PMU

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	**Technology models in 5 clusters**												
	4.1 Study on suitability of soil												
	4.2 Availing inputs from international expert												
	4.3 Testing of REBs												
	4.4 Performance monitoring of REB and Quantification of energy savings												
	4.5 Updating database												
5	**Enhancing capacity of entrepreneurs**												
	5.1 Training program for masons												
	5.2 Exposure visits												
	5.3 Technical back-up support												
6	**Monitoring, Learning and evaluation**												
	6.1 Providing guidance to LRCs												
	6.2 Preparing documentation and organizing steering committee meeting												
	6.3 Preparation of AWP 2012												

Annexure 15.1

Minutes of the First Project Steering Committee on
UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry

The first meeting of the Project Steering Committee (PSC) of UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry was organized on September 04, 2009 under the chairmanship of Mr R R Rashmi, Joint Secretary, MoEF and National Project Director.

The list of participants is attached as annex: I.

The presentation made by TERI is presented as annex: II.

Discussion Highlights:

1. While discussing the technology note provided by TERI, it was suggested by the NPD that the 20 % of GEF project resources should focus on technological issues related to flyash bricks especially in understanding and removing the barriers identified in TIFAC report and identifying a business solution for the same.

    a. It was suggested that the bricks to be produced through BTK process needs to be tested before it is being presented to the stakeholders for adoption.

    b. There was also a suggestion to revise the project baseline which was developed in 2002. It was agreed that this project will develop synergies with another UNDP/ GEF project on Buildings which is under preparation.

2. Regarding the clusters, it was agreed that the project will focus on 2 clusters – Bangalore and Punjab this year. It was agreed to take up one cluster in North East region (Agartala) however the decision regarding the other 2 clusters (Pune or Gujarat and Varanasi or Kolkata) were left open for further deliberation and finalization at a later stage.

3. It was suggested by NPD that the project monitoring indicators must be specific in terms of workshops held, technology dissemination, demonstration units etc.

4. Regarding the composition of the Project Steering Committee (PSC) it was agreed that it will be chaired by NPD with the following members:
    a. Mr R K Sethi, Director, Climate Change division, MoEF
    b. Dr Preeti Soni, Head, EEU, UNDP
    c. Mr Girish Sethi, Sr Fellow and Director, TERI
    d. HUDCO

e. Other stakeholders and experts to invited on a need basis.

5. It was suggested by NPD that the majority of the project activities should be completed in next two years. However, the PSC will review the project progress comprehensively in December 2010 to decide upon the future course of action. TERI was requested to submit a detail break up of activities, monetary and human resources required to complete one cluster.

6. It was agreed that the project will be audited six monthly and thereafter the grants as programmed in the approved AWP shall be released directly to TERI with the approval of PSC. It was also agreed that the grants programmed for this FY 09 (worth USD 117,020) may be released to TERI immediately.

7. The Project Inception workshop is scheduled for November 18, 2009. TERI was requested to submit a complete list of invitees and detail agenda for the meeting to the Ministry and UNDP. It was suggested that HUDCO, NBCC, BMPTC, SDC could be the major stakeholders.

The meeting ended with a vote of thanks to the chair.

……..

Annex: I – List of participants

- Mr R R Rashmi, Joint Secretary, Climate Change and National Project Director, MoEF (CHAIR)
- Mr R K Sethi, Director, Climate Change, MoEF
- Dr Nayanika Singh, GEF Consultant, MoEF
- Dr Preeti Soni, Head, Energy and Environment Unit, UNDP
- Mr S N Srinivas, Program Officer, Energy and Environment Unit, UNDP
- Mr Girish Sethi, Senior Fellow and Director, Industrial Energy Efficiency Division, TERI
- Col Rakesh Johari, Senior Fellow, TERI
- Mr N Vasudevan, Fellow, TERI
- Mr Sachin Kumar, TERI

Annexure 38.1

UNDP/GEF MSP Brick sector project – Request for ex post facto approval

Project Background and Financials

TERI is the responsible partner for implementing the UNDP/GEF Medium Sized Project (MSP) "Energy efficiency improvements in Indian brick industry". The project started in October 2009 and is expected to be completed by June 2013. The total project budget and fund availability till June 2011 (considering 1 USD = 45 INR) is given below:

Total project budget:	Rs 3.13 crores
Project expenses reported and approved till June 2011:	Rs 1.94 crores
Balance available:	Rs 1.19 crores

Brief history of the project and sequence of events

The ongoing UNDP GEF project in the brick sector was conceived way back in 2001 when TERI had submitted a Project Concept Note on demonstration and dissemination of better operating practices and efficient technologies to UNDP. The project has undergone several modifications primarily in terms of the formats/documents to take care of revised procedures and suggestions of the concerned agencies; however, the overall context remained the same during the ten year period. Sequence of key milestones is given below in chronological order:

Month/Year	Milestones
April 2001	Submission of Project Concept Note by TERI
February 2002	Submission of Project Document by TERI
March 2005	Endorsement by MoEF for preparation of PDF-A document
June/August 2006	Submission/Re-submission of Project Document by TERI
September 2006	Project endorsement by MoEF
Aug/Sept/Dec 2007	Re-submissions of Project Document by TERI
March 2008	GEF agency approval
October 2009	Formal start of project (Date of receipt of first installment by TERI)
November 2009	Project inception workshop

During this entire project formulation and approval period, TERI remained in touch with the industry associations as well as individual entrepreneurs who showed a keen interest in the project during this entire preparatory and approval period i.e. starting from 2001 onwards.

Project activities, annual work plans and audit observations

MoEF constituted a Project Steering Committee (PSC) on 27 October 2009 that is chaired by Joint Secretary (PA-II), MoEF who is also the National Project Director (NPD) of this project. The Steering committee has met 4 times since the start of the project in October 2009. The annual action plans are prepared by TERI as per UNDP formats and submitted for approval at the PSC. Similarly, Quarterly Progress Reports (QPRs), both of financial and physical progress are also prepared as per UNDP formats and submitted for necessary approvals. The action plans for 2009,

2010 and 2011 were duly approved by UNDP/MoEF in June 2009, April 2010 and January 2011 respectively. Similarly, all the submitted QPRs were approved by UNDP/MoEF. In February 2011, the auditor appointed by UNDP observed that the amount charged by TERI under the head "Local Consultants" was very high. Their observation was based on the rates mentioned in the original Project Document that was prepared long back (see table above). TERI was requested by UNDP/auditor to share the basis of calculations of their person-month costs. Detailed justifications of the rates have been provided to UNDP in April 2011 including copies of the salary slips of professionals, social costs and overheads (including expenses of office space) certified by external auditors of TERI. Copy of the same is enclosed again as annexure 1 for reference.

The following facts need to be kept in mind while viewing the person-month rates charged by TERI:

- Copies of actual salary slips of professionals and justification of social and overhead charges have been submitted, duly certified by certified external auditors
- TERI is a not for profit research organization and does not receive any regular grants from government or any other source. Hence, all expenses of running of the organization need to be met through direct project funds.
- Moreover, the person-month rates charged under the project are similar to the rates charged by TERI to various multilateral/bilateral organizations including from UN organizations.

Request for approval

TERI had duly followed all the procedures for getting action plans and QPRs approved since the start of the project. The issue of using rates mentioned in the old Project Document was never raised/pointed out earlier. Moreover, the facts mentioned above need to be borne in mind, especially that the person month rates include cost of office space, which is not charged separately. It is therefore requested that the person-months rates charged till date be approved ex post facto. It is proposed that no further increase in the rates will be charged by TERI (although TERI's salary and overheads are likely to increase in tune with the market trends). Alternately, MoEF/UNDP may agree to a lump-sum budget of Rs 25 lakhs for the period January 2012 to June 2013 for the professional costs of TERI team managing the PMU. There is sufficient balance budget available in the project (nearly Rs 94 lakhs) for various activities being performed by LRCs, other consultancy services and direct costs like travel/ boarding/lodging, workshops, training program organization, etc. The detailed activity plan for 2012 will be submitted in the next PSC for approval.

Submitted for necessary approval please.

Annexure 38.2

Minutes of the Fifth Project Steering Committee on UNDP/ GEF MSP on Energy Efficiency Improvements in the Brick Industry

The fifth meeting of the Project Steering Committee (PSC) of UNDP/ GEF MSP on Energy Efficiency Improvements in Brick Industry was organized on September 22, 2011 under the chairmanship of Mr R R Rashmi, Joint Secretary, MoEF and National Project Director.

The list of participants is at annex: I.

The presentation made by TERI is at annex: II.

Discussion Highlights:

1. The additional expenditure of Rs 50,000 to IIT, Roorkee for study on structural stability and usage of REBs in building construction was approved. This additional amount is required to pay for a truck load of bricks for the study by IIT.
2. It was agreed that as approved in the Annual Work Plan 2011, the Mid Term Evaluation of this project will be undertaken and UNDP along with TERI was asked to initiate the process while keeping the Ministry fully involved.
3. TERI was asked to provide the calendar of events on a six monthly basis to ensure wider and effective participation.
4. To promote the usage of REBs in public sector, it was suggested to write to CPWD and to all DGs of PWD at the State level to encourage the use of REBs. The letters may also provide information regarding the nearest source of procuring REBs and the other technical expertise available.
5. Besides, public sector, the private manufacturers and users also needs to be focused. As GEF project aims at removing various barriers and creating an enabling environment for market transformation, there is a need to a) develop a marketing plan; b) translate the results of various studies done under the project and translate it into easy to read format for wider dissemination; c) provide training program to mason and similar stakeholders; and, d) document the case studies for promoting use of REBs.
6. PSC asked TERI to work with the financial sector more actively and to identify the banks in a region and then a team of experts should make a personal visit to ensure better understanding.
7. TERI for the first time informed in the PSC that 9 brick kiln manufacturing REBs had been selected which by now have also achieved a reduction of about 7,000 tCO2. PSC asked TERI and UNDP to develop criteria for selecting such units under the project and also inform the PSC on how many more units will be undertaken under this project.
8. TERI also informed that about 7 studies have been undertaken in this project so far and as they were not aware of the rules, they have only sought permission for 1 study from the NPD and the PSC. The criterion for hiring consultancy services was also not known to TERI so it has not been followed. PSC asked UNDP being the GEF agency for this project to update TERI about the processes and procedures while ensuring compliance from now onwards.
9. Regarding the audit observations on the project's physical and financial performance in the last year, two aspects were of major concern: i) the man hour rate charged by TERI under this

project is very high and if the same charges continue the project will not be left with enough financial resources to meet its objectives; and, ii) TERI has utilized 21.19% of the GEF grant in administrative related activities which is against the GEF rule. As per GEF rule, the administrative expenses may not exceed more than 10%. PSC asked UNDP to discuss this matter with TERI and address this matter without reducing the allocations to LRCs and report back to the PSC. The PIR for a period of June 2010 to July 2011 was approved subject to ironing out these concerns.

10. TERI informed that the LRC selected in north east is not responding and the activities are getting delayed. PSC asked TERI to identify the potential LRCs in the region and share the information with the PSC to take an informed decision. However, it was also requested that before initiating this process the present LRC should be informed in writing about the concern and this proposed change.
11. TERI was asked to make LRC outcome wise presentation in the next PSC. It was suggested that the next PSC may be scheduled sometime between December 20 to 24, 2011 once the draft Mid Term Evaluation report is ready for PSC consideration and approval.

The meeting ended with a vote of thanks to the chair.

……

Annex: I – List of participants

- Mr R R Rashmi, Joint Secretary (Climate Change) and National Project Director, MoEF (CHAIR)
- Dr Nayanika Singh, GEF Consultant, MoEF
- Mr Srinivasan Iyer, Team Leader, EEU, UNDP
- Mr S N Srinivas, Program Officer, EEU, UNDP
- Dr Veena Joshi, Senior Advisor, SDC
- Mr Girish Sethi, Senior Fellow and Director, Industrial Energy Efficiency Division, TERI
- Mr N Vasudevan, Fellow, TERI and National Project Manager
- Mr Sachin Kumar, TERI
- Ms Padmini R, Architect, CEPT University, Ahmedabad
- Mr Pritpal Singh, Senior Engineer, PSCST, Chandigarh
- Mr Nagaraju, Field Manager, TERI, Bangalore
- Mr K K Pandey, President, I N P Varanasi

Annexure 2.1

From:	Sachin Kumar/IE/DEL/TERI
To:	Nayanika <nayanika.singh@nic.in>, SN.Srinivas@undp.org
Cc:	Manju.Narang@undp.org, nayanika.singh@nic.in, nvasu@teri.res.in, rr.rashmi@nic.in, Srinivasan.Iyer@undp.org, Girish Sethi/IE/DEL/TERI@TERI
Date:	03/28/2012 03:28 PM
Subject:	Re: FW: AWP 2012

Dear Dr. Srinivas, Dear Dr. Singh,

Thank you for the mail and suggestions for finalizing the AWP- 2012. TERI acknowledges the fact that the finalization of AWP at the earliest is important for the project progress as already one quarter has passed during the year. However, we would like to bring to your notice the following points:

1. The Q4 Face Forms for the year 2011 has not been approved and partial (expenses other than TERI Delhi man-power cost) approval for the Q3 Face form was accorded. There is no money in the project bank account as the balance amount as on 20 September 2011 has already been returned to UNDP. Therefore, we are unable to make payments to LRCs / consultants for the activities undertaken by them as per the signed agreements for the year 2011. They have submitted their invoices for release of payments. We have received repeated reminders from them and it is becoming very difficult to respond to their queries.

2. The Q3 and Q4 Face Forms for the year 2011 were submitted as Provisional. As desired by UNDP, our Director, Mr. Girish Sethi had also submitted a note (case) to NPD on 23 November 2011 to seek approval of the person-month rates. TERI is yet to receive the approval status of these Face Forms and person-month rates.

   Therefore, we request to approve and release the money for:

   a. Outstanding payment of about Rs. 14.0 lakhs to different LRC/ consultants (excluding TERI's expenses) for which the invoice have already been received. The details are attached as Annexure – A.

   b. Balance amount of about Rs. 2.0 lakhs for LRC/consultant (excluding TERI's expenses) related to AWP- 2011. We are expecting that the invoices for these payments will be submitted soon.

   c. Q3 and Q4 Face Forms for the year 2011 and person-month rates

3. The UNDP/MoEF team had undertaken visits to project sites at Bangalore and Varanasi and had met LRCs and REB producers at these places during 3 – 4 January and 9-10 January 2012 respectively. Following this an external evaluation of the project has also been carried out during 27 February – 6 March 2012. The project would be definitely benefitted if review findings / recommendations of these two evaluations are shared with us.

4. During the stakeholder's consultation on 7 March 2012 at MoEF and also during subsequent meeting at UNDP on 9 March 2012 involving external evaluators, certain issues like (i) Focus on LRC – North and LRC- South and signing activity based agreements with other LRCs (it was also discussed that we should not use the term LRC) (ii) Technical evaluation of existing clay-moulding machineries (iii) TERI to work as a coordinating agency rather than implementing agency etc. were highlighted. We feel these issues are important and also needs to be discussed for finalization of AWP-2012.

5. It may also be noted that a meeting was organized in TERI on 30 November 2011 to deliberate the AWP- 2012. The meeting was attended by LRC- North (PSCST), CEPT (LRC West) and inputs from LRC- South were shared by TERI. Based on the discussions the respective LRCs had submitted their action plan for the year 2012 to TERI. TERI had compiled those inputs and prepared the AWP- 2012 and submitted the same to NPD for approval. Therefore, we feel that there is no need to call these organizations' once again for discussing AWP- 2012 on such a short notice.

6. As per earlier discussions a revised LFA was submitted on 12 December 2011. The project frame-work has undergone several modifications since the project was conceptualized. We feel that revised LFA needs to be finalized in parallel with AWP- 2012. This was also conveyed to the external evaluators by TERI.

We feel that all the points mentioned above (specially point number 1 and 2) need to be sorted out so that we do not face the similar issues during the implementation of activities in 2012 and beyond. We request you to take up all these points in the meeting scheduled during 9AM – 11AM on 30 March 2012 at UNDP, so that a final decision can be taken by senior officials for approval of NPD.

[attachment "Annexure- A and Annexure- B.docx" deleted by Sachin Kumar/IE/DEL/TERI]

****

Fellow
Industrial Energy Efficiency Division
TERI (The Energy & Resources Institute)
Darbari Seth Block, Habitat Place
Lodhi Road, New Delhi 110 003, INDIA
Ph: +91-11-24682100/41504900
Fax: +91-11-24682144/24682145
Email-: sachink@teri.res.in
web: www.teriin.org

Annexure 9.1

From:	Sachin Kumar/IE/DEL/TERI
To:	Nayanika <nayanika.singh@nic.in>
Cc:	N Vasudevan <nvasu@teri.res.in>, rr.rashmi@nic.in, sn.srinivas@undp.org, Srinivasan.Iyer@undp.org, Girish Sethi/IE/DEL/TERI@TERI
Date:	12/30/2011 02:42 PM
Subject:	Re: UNDP-GEF brick project

Dear Madam,

This is with reference to your mail on the subject matter to Mr. N Vasudevan. The responses to the queries are:

(1) The agreement with IIT- Roorkee is for Rs. 5.41 lakhs and full payment has been paid in advance on 19th October 2011. Dr. Umesh Sharma, Assistant Professor, Civil Engineering Department is in-charge of this study in IIT- Roorkee.

(2) The agreements signed with all the LRCs are enclosed as attachment titled 'Agreements'.

(3) The progress made by each LRCs is also summarized and is attached as 'LRCs achievements'

(4) The details of the units where the project has facilitated production/promotion of REBs is attached as ' Details of REB units'.

Regarding the proposed visit to Bangalore, we request you to send the details of your stay at Bangalore. Mr N Vasudevan will meet you at your hotel for the field visit on 3rd January at about 9:30 AM. Hope this suits your convenience.

With regards

Sachin

Details of REB Units

S No	Unit name	Location	Owner	Project assistance	Type of REB	Production	
						2010	2011
1	Prayag Bricks	Varanasi	Mr O P Badlani	• Facilitated interactions with National and International machinery suppliers • Testing of REBs for their physical properties • Technical inputs by international expert during the site visit for (i) modification in the existing machineries for better product quality (ii) drying pattern for reduction in cracks in green product • Market development through o Putting-up stall during architects meet at Lucknow o Participation as speaker in awareness workshop with architects/ builders / Government Departments o Putting of REB stall during various workshop/seminars organized with INP- Varanasi	PB: 190X90X90 PB: 230X110X70 HB: 190X190X90 HB: 230X150X110	180000 480000 85000 --	220000 475000 50000 75000
2	Kusum Bricks	Hapur, Uttar Pradesh	Mr Sanjay Dadoo	• Technical inputs by international expert during the site visit for (i) modification in the existing machineries for better product quality (ii) drying pattern for reduction in cracks in green product • Testing of REBs for their physical properties • Market development through o Putting-up stall during architects meet at Meerut in July 2010 o Participation in Focused Group Discussion with Government Departments at TERI, N. Delhi o Preparation of case study and uploading on project web-site • Increased awareness on REBs through regular interaction with the project team and sectoral experts through participation in various project meetings • Facilitated production of REBs at Dadoo bricks the unit that was not producing REBs during 2010	PB: 230X110X70 HB: 190X190X94	1760000 440000	1440000 360000
3	Dadoo Bricks	Hapur, Uttar Pradesh			PB: 230X110X70 HB: 190X190X94	-- --	2000000 500000
4	Sai Bricks	Ghaziabad, Uttar Pradesh		• Testing of soil suitability for REB production through NIIST • Technical inputs on proper drying of REBs by NIIST expert during site visit • Technical inputs on machinery being used for REB	PB: 230X110X70 PB: 190X90X90	3200000 4800000	3000000 2000000

S No	Unit name	Location	Owner	Project assistance	Type of REB	Production	
						2010	2011
				production by international machinery suppliers during site visit to the plant • Market development through interactions with government departments like CPWD • Increased awareness on REBs through regular interaction with the project team and sectoral experts through participation in various project meetings			
5	Aanjaneya Bricks	Malur, Karnataka	Mr Dasaratha Reddy	• Exposure visits organized to REB producing units • Facilitated interactions with machinery suppliers - both international and national • Facilitated equipment selection and modifications in the machinery to produce REBs • Fine tuning of machinery and selection of REB sizes • Market development through meetings with architects and builders • Interactions with government departments like CPWD • Interactions with Wienerberger, the largest manufacturer of REB in India • Testing of REBs for their physical properties	HB: 400X200X150 HB: 300X100X150	8000 300000	9000 250000
6	Marikamba Bricks	Malur, Karnataka	Mr Srinvasa Moorthy	• Facilitated interactions with machinery suppliers- both international and national • Facilitated equipment selection and modifications in the machinery to produce REBs • Fine tuning of machinery and selection of REB sizes • Market development through meetings with architects and builders • Interactions with government departments like CPWD • Interactions with Wienerberger, the largest manufacturer of REB in India • Testing of REBs for their physical properties	HB: 400X200X150 HB: 300X75X75	15000 --	-- --
7	Lakshmi Venkateshwara Bricks	Malur, Karnataka	Mr Venugopala Krishna	• Facilitated interactions with machinery suppliers- both international and national • Facilitated equipment selection and modifications in the machinery to produce REBs • Fine tuning of machinery and selection of REB sizes • Market development through meetings with architects and builders	HB: 400X200X150	3000	9000

S No	Unit name	Location	Owner	Project assistance	Type of REB	Production	
						2010	2011
				• Interactions with government departments like CPWD • Interactions with Wienerberger, the largest manufacturer of REB in India • Testing of REBs for their properties			
8	Vaishnavi Bricks	Mulbagal, Karnataka	Mr Srinivas	• Facilitated selection of machinery installed at the plant. Regular interactions with the entrepreneur for undertaking marginal modification in the machinery for production of REBs. • Increased awareness on REBs through regular interaction with the project team	Nil	--	--
9	Jai Jalaram Bricks	Godra, Gujarat	Mr Tarun Hemarajani	• Interactions with Wienerberger, the largest manufacturer of REB in India • Increased awareness on REBs through regular interaction with the project team	PB: 235X110X72	--	3000000
10	Bharat Bricks	Derabassi, Punjab	Mr Kulbhushan	• Technical inputs by international expert during the site visit for (i) modification in the existing machineries for better product quality (ii) Drying pattern for reduction in cracks in green product • Testing of soil suitability for REB production through NIIST • Technical inputs on proper drying of REBs by NIIST expert during site visit • Testing of REBs for their physical properties • Facilitated interactions with National and International machinery suppliers • Market development through o Putting-up stall during architects meet at Chandigarh o Participation as speaker in awareness workshop with architects/ builders / Government Departments o Putting of REB stall during various workshop/seminars organized with PSCST-Chandigarh	PB: 230X110X72 (3 holes) PB: 230X110X72 (20 holes)	1400000 5000 --	2600000 5000 --

Note: HB – Hollow Block; PB – Perforated Brick

Apart from these, TERI was closely interacting with Wienerberger, producer of REB having state-of-the-art technologies, on the following. These interactions and participation in the events had helped in bringing visibility to Wienerberger for their products.

- Participation of Wienerberger in various forums organized under the project including project inception workshop
- Interaction with BIS for inclusion/ modifications of standards for REBs
- Exposure programs for brick kiln entrepreneurs to Wienerberger production facility at Kunigal, Bangalore
- Organization of training program for masons at their training facility at Kunigal.

Annexure 26.1

Energy Efficiency Improvements in Indian Bricks Industry

5th Project Steering Committee Meeting

22nd September 2011

The Energy and Resources Institute

Agenda

- Confirmation of the minutes of 4rd Project Steering Committee meeting and action taken
- Technical and financial reporting on the progress for the period Jan – Sep 2011
- Approval for
  - IIT Roorkee study – additional expenditure
  - Modified Log frame
  - Utilization of in-house technical expertise for undertaking key activities
- Decision on the next date and venue of the PSC meeting
- External audit observations
- Any other matter, with the permission of the Chair

Goal

To reduce energy consumption, and restrict GHG emissions by creating appropriate infrastructure for sustained adoption of new and improved technologies for production and use of resource efficient bricks in India

Outcomes

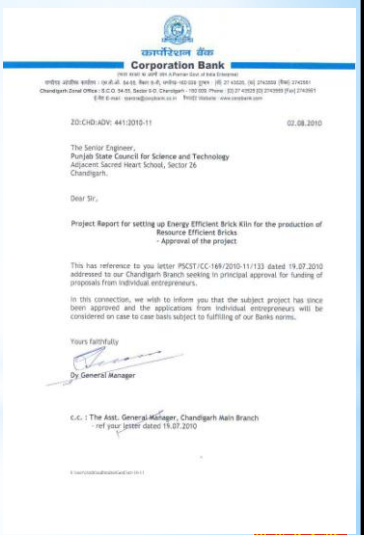
1. Enhancing public sector awareness on resource-efficient products
2. Access to finance for brick kiln entrepreneurs
3. Improved knowledge on technology, including marketing
4. Availability of resource-efficient technology models in 5 clusters through Local Resource Centres
5. Improved capacity of brick kiln entrepreneurs

Outcome 1: Enhancing Public Sector Awareness

- Study on structural stability and usage of REBs in building construction - agreement signed with IIT-Roorkee
- Initiatives with architects and buidlers
  - Facilitated visit of architects to REB producing sites & orders placed to procure REBs
  - Focused Group Discussions at Chandigarh
- Interactions with the government departments:
  - Technology Application and Standard Unit (TAS) – CPWD
  - Bureau of Indian Standard
  - Punjab PWD
  - Focused Group Discussions at Chandigarh

Output 2: Facilitating project finance access to brick kiln entrepreneurs

- Study on financial barriers
  - Credits are entrepreneurs centric rather than sector
  - Selective in terms of tie-up with banks/ geographical areas.
- The DPRs prepared for the Southern region had been in-principle approved by the Karnataka State Financial Corporation
- Northern region DPR approved by Corporation bank
- Loans are availed for high investments (generally more than INR one crore)
- For lower investments (INR 30 – 40 lakhs), the entrepreneurs invest from their own resources



कारपोरेशन बैंक
Corporation Bank

ZO:CHD:ADV: 441:2010-11 02.08.2010

The Senior Engineer,
Punjab State Council for Science and Technology
Adjacent Sacred Heart School, Sector 26
Chandigarh.

Dear Sir,

Project Report for setting up Energy Efficient Brick Kiln for the production of Resource Efficient Bricks
- Approval of the project

This has reference to you letter PSCST/CC-169/2010-11/133 dated 19.07.2010 addressed to our Chandigarh Branch seeking in principal approval for funding of proposals from individual entrepreneurs.

In this connection, we wish to inform you that the subject project has since been approved and the applications from individual entrepreneurs will be considered on case to case basis subject to fulfilling of our Banks norms.

Yours faithfully

Dy General Manager

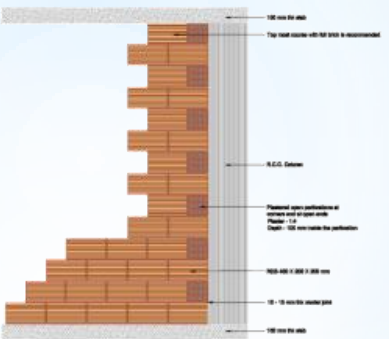
c.c. : The Asst. General Manager, Chandigarh Main Branch
ref your letter dated 19.07.2010

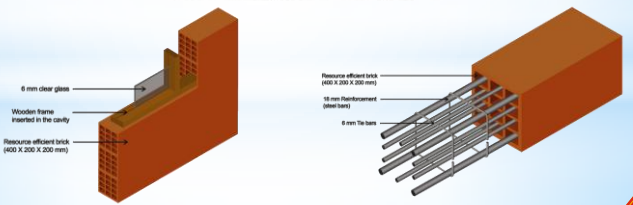
Output 3: Developing knowledge on Technology and Marketing

- Interaction workshop/ meetings between International/national technology suppliers and brick kiln entrepreneurs
  - Chandigarh, Varanasi and Malur
- Study of operational energy consumption analysis for various walling materials carried out (CEPT)
- Preparation of case study on REB use under progress (Sathya Consultant)
- Manual on better construction practices under preparation (CEPT and Sathya Consultant)
- Cluster meetings / Awareness workshops

Output 3: Developing knowledge on Technology and Marketing

Contd...





Web based construction manual for ready reference of architects, builders and others

Output 4: Availability of efficient technology models

- 9 brick kiln units manufacturing REBs - reduction of about 7000 t CO_2
- Soil suitability study for REB production completed with NIIST, Thiruvananthapuram
- Expert from IZF, Germany and NIIST made field visits and provided technical inputs to improve the quality of REB production
  - Modifications in machinery (extruder shaft and mouth piece)
  - Minimum handling of green bricks

Output 5: Enhancing capacity of brick kiln enterprises

- Training program for masons and building contractors was organised in April 2011 at Wienerberger's mason training facility at Kunigal, Bangalore.
  - Video film developed on masons training and uploaded on project web-site
- Exposure visit for 35 entrepreneurs to REB producing unit (Wienerberger) organised in July 2011
- Project provided advisory support to a group of entrepreneurs from Uttar Pradesh and motivated to invest on technology up gradation.
  - The group visited China during July 2011

External consultants / experts engaged in the Project

Study	Organisation / Expert
Barriers and options for accessing finance by brick kiln entrepreneurs	Fourth Vision, Ahmedabad
Suitability of soil for producing REBs	NIIST, Thiruvananthapuram
World-wide brick technology status	IZF, Germany
Technical support to REB producers	
Structural performance of clay-fired REBs for masonary buildings	IIT Roorkee
Manual on better construction practices using REBs	Sathya Consultants
Video film on REB use for construction	Invis multimedia, Thiruvananthapuram
Video film on mason training	I. Christopher

Summary of expenses (January 2011 – June 2011)

- Total approved budget : USD 212359 (INR 9550155)
- Expenses upto June 2011 : INR 48,17,561
- Balance amount : INR 47,38,594

Approval sought from Chair

- IIT Roorkee study – additional expenditure of about Rs. 50,000/-
- Modification of Log frame matrix

Annexure 36.1

Fw: our invoice - first reminder
Sachin Kumar to: Eckhard Rimpel 08/02/2011 12:31 PM
Sent by: **Sachin Kumar**

Dear Mr. Rimpel,

Greetings from TERI !!!!

I would like to thank you for sending the report and technical material. The report reads will and I request you to provide additional information on the report as per the attached Annexure. As you will notice in the Annexure that most of the requested information is to make the report more user friendly. As you are aware that we are promoting production and use of REBs, your report is definitely going to help a lot in our initiative.

Also I would like to inform you that Mr. Marco Hahn (handle) has send a quotation for brick making equipments. I thank you for your support as Mr. Hahn has sent quotation on your advise. I will discuss that quotation with interested entrepreneurs and do hope that they will invest in quality product.

Look forward to your response.

Inputs required on IZF report - 01.08.07.docx

with regards
sachin

Inputs required on draft report – 01.08.11

It was requested earlier to cover the points mentioned at S. No. 1. But however, this has not been covered in the draft report. Request you to address these points and include in the draft report:

1. Reference: Agreement between TERI and IZF,
    a. Point 1 in the scope of work, Brick industry profile: for different countries" Technologies employed for brick manufacturing (types of kilns, production capacities, product profile, specific energy consumption pattern etc.)
    b. Point 4 in the scope of work, "Applicability of different technologies available world-wide for brick manufacturing in the Indian context. This includes technical report on pros and cons and modifications required in the firing process while adopting changes in moulding (including low cost extrusion).
    c. Point 3 in the scope of work, "Technical inputs on tunnel kilns for brick making suitable to Indian conditions, including detailed cost for setting up a demonstration plant in India".(You have visited several brick making plants in India and are well conversant with the product and the attitude of brick kiln entrepreneur also. As you are aware the brick industry in India is on a transition phase and entrepreneurs are looking forward to mechanization. More and more entrepreneurs are willing to adopt energy efficient brick firing technologies like tunnel kiln. With this background this point was added in the scope of work).
2. Draft report page no. 5 section 2: In India brick industry consumes about 540 mil tons per year of top soil .....about 200 km2 (50,000 acre) – pl. mention the source of this data.
3. Draft report page no. 6 section 2 Table 1: Under the region " Southern Europe" type of building construction has been mentioned as concrete skeleton structure filled with horizontal perforated bricks and load bearing brickwork with vertical perforated bricks. As you are aware that under this project we are promoting perforated bricks / hollow blocks etc. in India and it will help enormously in promoting these products, if we have some examples from the European countries where these products are being used as (1) load bearing (name of the countries, details of bricks- like size, compressive strength, load bearing capacity etc. and type of structure where they are used) and (2) non-load bearing (name of the countries, details of bricks- like size, compressive strength, load bearing capacity etc. and type of structure where they are used)
4. Draft report page no. 9 - figure 4, page no. 10 - figure 7 and page no. 11 - figure 9: what does x-axis represent and why values at Y-axis are negative
5. Draft report page no. 12 Table 2: Does outer layer of plaster 10 mm thick (normal practice in India) will be classified as protected layer.
6. Draft report page no. 13 section 4.1 line 3, Examples of some .....(figure 4) , I think it should be (figure 10).
7. Draft report page no. 14 section 4.1.1, please define anisotropy
8. Draft report page no. 14 section 4.1.1, table 3,: please elaborate point number 7 (possibility of ground brick and thin bed joint) and 8(load charge in the wall, reduction factor)
9. Draft report page no. 15 section 4.1.2, line 4 from the top: Pl. elaborate the sentence 'so the bricks have to be ground after firing'

10. Draft report page no. 17 section 4.1.8.1, kindly give example of external insulators. Is it possible to provide picture of such wall.
11. Draft report page no. 18 section 4.1.8.6, please provide the table mentioned in European Standard EN 1745
12. Draft report page no. 23, table 6, please provide the photograph or diagram of the bricks for ease in understanding
13. Draft report page no. 23, table 6, the standard DIN 105-100, does not have brick thickness (mm) 145, 425, 490 (as mentioned in table 4.0, page 16). Does table 6 is based on some other standard
14. Draft report page no. 24, what is the difference between kg/dm3 and kg/m3 and between apparent density and bulk density.
15. Draft report page no. 26 table 13, above what compressive strength the product is classified as load bearing
16. Draft report page no. 31, 32 section 7.4, section 7.5.1, section 7.5.2, section 7.5.3, please provide picture / schematic diagrams
17. Draft report page no. 53, section 11.3, what is wheel loader.
18. General – As you are ware that in India, hand moulded solid brick with a frog is used for construction. One of the main doubts with the user of mechanized brick in India is that the mortar does not stick properly with the smooth surface of mechanized brick and thus proper bonding will not be there between bricks. Can u please address this point.

our invoice - revised report
Eckhard Rimpel to: Sachin Kumar 09/09/2011 07:23 PM

History: This message has been forwarded.

Dear Sachin,

sorry about the delayed answer.

I revised the report and gave some additional explanations to your comments. So I added some points to the topics 2-12 and 16-18 or have given explanations.

But some other points I will try to explain in this mail,

1. Agreement between TERI ans IZF
a. Point 1 in the scope of work.
As I write in the report, Chapter 3
"3. Technology employed for brick manufacturing
As you can find all different types of kilns in the developing countries, **almost all of the developed countries use tunnel kilns**. Also in the Arabian world tunnel kilns are used. If there the implementation of tunnel kilns was not successful, like in Iran where Hoffmann kilns are used, the reason can be found in the composition of the raw material. The Arabian clays content a lot of chlorides, which may destroy the steel suspension of the kilns refractory ceiling.
The sizes of the kilns depend on the production capacity. As the **surface brick producers have a production capacity approximately between 40 t/d up to 200 t/d,** the capacity of masonry brick **producers (hollow bricks) is approximately between 100 t/d and 1,400 t/d** in one kiln.
The product profile depends on the architecture and construction methods of the different countries. An overview of the products can be seen in the next chapters, where the different types of bricks are described in the European and German Standard.
The **energy consumption of the different kilns depend of the special condition at that side** e.g. on the composition of the clay. Clay with a high content of organic material needs less energy, clay with a high content of limestone need a lot of energy for the decomposition of the limestone. In the next figure 4, the specific energy consumption (kJ per kg fired brick) according to the different factories is shown, arranged according to the specific energy content of the used raw material mixture. The values are taken from measurement, IZF had made at the different kilns....."

It is not possible to give an brick industry profile as you mention. In the enclosures I send two pricelists and product profiles from two brick companies, one from Germany and one from Italy, both list have more than 40 pages with about 100 different brick products.

b. There are given examples of brick factories in the Indian context, so called low cost factories and one examples from the company KERATEK together with IZF, which could be suitable for the Indian market (page 50, figure 24). Also a used German factory could be a solution, but under the line, all these is more expensive than an Chinese or Vietnamese solution, but the difference is the quality.

c. in my report page 50 figure 24 is the solution and also an estimated price of such a factory.

13. the multiplied DF size of DIN 105-100 does not include wall thickness 145. all other wall thicknesses 425, 490 are included by a 16DF-size, a 20DF-size as well as a 21DF-size.

14. the difference is only 1000, the official dimension is kg/m^3, but in the brick or building industry the dimension is kg/dm^3 is used for the density.

15. all vertically perforated hollow brick blocks are load bearing, but is depend of the height and the construction of the building which type of brick (compressive strength, thermal conductivity, noise reduction, etc.) the constructor is allowed to use.

I hope this explanations and additions to the report answer your questions.
It is not possible, and I think also not in India to implement one factory which can be copied exactly to another place. As we tried to explain during the workshops with ects and the manufacturers, the typical situation of each entrepreneur and side has to be considered. Otherwise money will be lost.

I know that there are some entrepreneurs willing to invest, but they should not get a drawing and buy machines from a draft proposal. They must come together with a manufacturer, clarify the wishes, the production capacity, the properties of the clay at that side, the boarders between the work, done by the manufacturer or by the own stuff members or Indian companies etc. After that you get an offer. If the next entrepreneur will do the same, the offer will be different, because there are different situations at the side. If you copy only one factory to another side the result will not be the same and money will be lost.

In May 2012 will be the trade fair „ceramitec" in Munic, one of the most important trade fairs for the heavy clay and ceramic industry, try to visit this trade fair and I will arrange some visits to German brick factories, to show that there is not one like another.

I hope this will answer your questions and we are waiting for your payment.

Mit freundlichen Grüßen / Kind regards

Dipl.-Ing. Eckhard Rimpel

INSTITUT FÜR ZIEGELFORSCHUNG ESSEN E.V.
Brick and Tile Research Institute Essen Regd.
Am Zehnthof 197-203
45307 Essen
Tel: +49 201 59 213-48
Fax: + 49 201 59 213-20
mob: +49 171 26 36 541
e-Mail: rimpel@izf.de
http://www.izf.de

please immediately delete it from your system and notify the sender by return email.

Bitte prüfen Sie der Umwelt zuliebe, ob der Ausdruck dieser Mail erforderlich ist. / For the sake of the environment, please check if a printout of the mail is neccessary.

-----Ursprüngliche Nachricht-----
Von: Sachin Kumar [mailto:sachink@teri.res.in]
Gesendet: Dienstag, 2. August 2011 09:01
An: Eckhard Rimpel
Betreff: Fw: our invoice - first reminder

Dear Mr. Rimpel,

Greetings from TERI !!!!

I would like to thank you for sending the report and technical material.
The report reads will and I request you to provide additional information on the report as per the attached Annexure. As you will notice in the Annexure that most of the requested information is to make the report more user friendly. As you are aware that we are promoting production and use of REBs, your report is definitely going to help a lot in our initiative.

Also I would like to inform you that Mr. Marco Hahn (handle) has send a quotation for brick making equipments. I thank you for your support as Mr.
Hahn has sent quotation on your advise. I will discuss that quotation with interested entrepreneurs and do hope that they will invest in quality product.

Look forward to your response.

(See attached file: Inputs required on IZF report - 01.08.07.docx)

with regards

sachin REB-Bricks_V3.pdf

Management Response template

UNDP Management Response Template

Project 3465 – Energy Efficiency Improvements in Indian Brick Industry (India Brick EE) Project Date:20th December 2012

Prepared by: Chitra Narayanswamy	Position: Programme Associate	Unit/Bureau: Energy & Environment Unit (EEU), UNDP India
Cleared by: SN Srinivas	Position: Programme Analyst	Unit/Bureau: EEU
Input into and update in ERC: Manju Narang	Position: Programme Assistant	Unit/Bureau: EEU

Evaluation Recommendation 1: Revision of LFA				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking***	
			Comments	**Status**
1.1 It is important at this stage to prioritize actions and it would be appropriate to revise the LFA (Logical Framework Analysis). The PFU (Project Facilitation Unit) has already submitted a revised LFA to UNDP, but it is recommended that the revision in the LFA should be done in full and open consultation with LRCs (Local Resource Centre), and with other key stakeholders, as well as with MoEF and UNDP	Immediate	The Energy Resources Institute (TERI)	A revised LFA has been submitted by TERI on the basis of what activities in its opinion are relevant.	The LFA submitted by TERI is under discussion, where UNDP has sought that it be prepared in line with the project objective as defined in the ProDoc.
Evaluation Recommendation or Issue 2: Actively Support Replication of Hollow Block Manufacturing, Training and Awareness in South India				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
2.1 The project needs to now focus on targeted awareness raising of REBs in areas where REBs can be produced, such as the promotion of hollow clay blocks in South India where there is now an established market that now cannot be met by Wienerberger alone.	Noted	TERI	It could be taken up as focused activity under AWP 2013	To be initiated
Evaluation Recommendation or Issue 3: Need Real Timeframes and Clear Leadership in Updating Bureau of Indian Standards (BIS) REB/EE Brick Standards				
Management Response:				

Key Action(s)	Time Frame	Responsible Unit(s)	Tracking	
			Comments	Status
3.1 It is recommended that the project ensures that BIS formally initiates the process for review/modifications of IS: 2222-1991 and IS: 3952-1988 and the process of getting public comments on the draft modifications suggested by the technical committee is fully completed for REB/EE brick standards.	noted	TERI/BIS	A report on "Study on structural stability and usage of REBs in building construction" by IIT-Roorkee has been completed which will provide the baseline for BIS to undertake the formal process of modifying the existing standards	In progress
Evaluation Recommendation or Issue 4: Focus on demonstration/replication projects (Outcome 4):				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
4.1 There is a need to set clear guidelines for the selection of REB manufacturing units as project demonstration/ replication units and to provide systematic support in the form of specific technical support to streamline/stabilize and increase the production, monitoring, documentation, and support for market development, so that there is a demonstrable improvement in the production volume/quality/productivity of these units and the project is able to meet at least some significant part of its CO_2 reduction target.	Noted	TERI	MoEF & UNDP will discuss with TERI on formulating a criteria for selection which will stand as a useful reference for future activities of setting up demonstration/ replication units	To be initiated
Evaluation Recommendation or Issue 5: Explicitly Focus on Extruders and Dryers as Key REB/EE Brick Technologies				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
5.1 It is recommended that the India Brick EE project facilitate/organise interested Indian brick entrepreneurs to travel to China and Vietnam (where Chinese extruders have been successfully deployed) to enable the Indian brick entrepreneurs to upgrade their extruder knowledge and help them source specific, affordable and maintainable extruders for	noted	TERI	Under the AWP 2013 the activity to 'Interact with machinery suppliers to procure the lists of brick kiln entrepreneurs who have adopted mechanization (project will interact closely with these brick kiln entrepreneurs to motivate them for	To be initiated

ongoing reliable use in India. In addition, the brick making units which own extruders are often not able to fully utilize them because of lack of both knowledge and equipment for artificial or controlled green brick drying. Hence, providing knowledge and training on artificial or controlled brick drying along with help in sourcing suitable dryers should be a focus area for the project.			producing REBs during next year)' is to be initiated. Further to encouraging the existing entrepreneurs, their success case studies could be disseminated for further replication of REB production by brick kiln manufacturers	
Evaluation Recommendation or Issue 6: Strengthen and Prioritise Support Funding in South and North India				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
6.1 It is recommended that the India Brick EE project strengthens and prioritises its remaining funding in South India (around Bangalore) and North India (around Chandigarh) and, with a new explicit clear end-of-project replication real results focus.	Noted	TERI	The recommendation is accepted and AWP 2013 will incorporate this focus.	To be initiated
Evaluation Recommendation or Issue 7: Enhance Government of India Ownership and Inclusion of REBs/EE Bricks in 13th Five-Year Plan				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
7.1 It is recommended that UNDP and MoEF work together to find an appropriate government Ministry/ Agency (e.g. Building Materials Technology Promotion Council (BMTPC) under Ministry of Housing and Urban Poverty Alleviation, or a suitable agency within MoEF, or the Ministry of Commerce and Industry, or the Bureau of Energy Efficiency, or the Ministry of Micro Small and Medium Enterprises) to consider co-funding the project for its enhanced impact and ongoing sustainability. It is also recommended that UNDP assist MoEF, and any new agency that may take the lead role in REBs/EE Bricks,	noted	MoEF	The recommendation as made for an appropriate ministry/agency to handle the project has been noted by MoEF	In progress

in including EE/REB perforated bricks/hollow blocks using clay and industrial wastes into the planning for the upcoming Indian 13th Five-year Plan.				
Evaluation Recommendation or Issue 8: PFU to Operate within ProDoc Defined Staff Rates and Operate In Line with UNDP-GEF guidelines				
Management Response:				
Key Action(s)	**Time Frame**	**Responsible Unit(s)**	**Tracking**	
			Comments	**Status**
8.1 It is recommended that UNDP/MoEF should first attempt to reach a mutually acceptable agreement with TERI on PFU staff costs/rates and operational modalities, in line with the GEF approved Project Document. Alternatively, TERI should be asked to provide its PFU/PMU inputs from its explicitly agreed in-kind $145,000 project co-funding. If these approaches are not successful, one of the stronger LRCs such as the Punjab State Council for Science & Technology (PSCST) should be approached to act as the new project PFU. Alternatively, the new PFU could be contracted out to a suitable consulting firm/organisation, or it could be provided by a suitable contractor working at UNDP India under the direct supervision of UNDP. Whatever may be the composition of the PFU, the functioning of the PFU needs to improve drastically for the improved performance of the project. It is also important that the PFU operates in line with UNDP-GEF guidelines.	Noted	UNDP	Discussions are on by UNDP with TERI PMU on the overrated costs for the PMU staff and local consultants hired. A letter has been sent by UNDP to TERI on the audit observations made in 2010 & 2011 in this regard.	In progress.