

FINAL EVALUATION

Low Carbon Campaign for Commonwealth Games 2010, Delhi

PIMS 4387

**Government of India
United Nations Development Programme
Global Environment Facility**

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LIST OF ABBREVIATIONS

A/C	air conditioning
AV	audio-visual
APR-PIR	Annual Performance Report – Project Implementation Review
ARP	All Time Productions Ltd.
BEE	Bureau of Energy Efficiency
CEE	Centre for Environment Education
CFL	compact fluorescent lamps
CO	Country Office
CO ₂	carbon dioxide
CMS	Centre for Media Studies
CWG	Commonwealth Games
DEA	Department of Economic Affairs
ECBC	Energy Conservation Building Code
EE	energy efficiency or energy efficient
FA	Functional Area (of OC CWG)
FTL	Forbes Technosys Ltd.
GEF	Global Environment Facility
GHG	greenhouse gas
IISD	International Institute for Sustainable Development
INR	Indian Rupee
kWh	kilowatt-hour
LED	light-emitting diode
MoEF	Ministry of Environment and Forests
MNRE	Ministry of New and Renewable Energy
NCR	National Capital Region
NFD	Nehru Foundation for Development
NGO	non-governmental organization
NPD	National Project Director
OC CWG	Organizing Committee of the Commonwealth Games
PIF	GEF Project Identification Form
PD (ProDoc)	Project Document
PMB	Project Management Board
PMU	Project Management Unit
QPR	Queen's Baton Relay
PR	project progress reporting
PSC	Project Steering Committee
RCU	UNDP Regional Coordination Unit
RWA	Resident Welfare Association
SFD	State Forest Department
SGP	UNDP/GEF Small Grants Programme
SME	small and medium enterprise
tCO ₂	tonne of CO ₂
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USD	United States dollar

EXECUTIVE SUMMARY

The XIX Commonwealth Games were held in New Delhi from 3-14 October 2010; the largest multi-sport event held in India to date. As the host of the Commonwealth Games (CWG), the Government of National Capital Territory of Delhi committed itself to hosting a “Green Games” by inducing behavioural change towards low carbon practices.

A project was conceived by the end of 2009 that, implemented by the UN Development Programme (UNDP) and co-financed by the Global Environment Facility (GEF), would use the CWG as an opportunity to promote low carbon practices (green lifestyles) by raising the awareness of athletes, visitors, media, and other participants of the CWG and the general public and inform on options to reduce their carbon footprint; and highlight GEF's contribution to addressing global environmental challenges in India.

Implementation started in May 2010 and ended on 31 December 2010 by UNDP and the Indian implementing partners, Ministry of Environment and Forest (MoEF), Bureau of Energy Efficiency (BEE) and Centre for Media Studies (CMS), while the Centre for Environment Education (CEE) of MoEF hosted the Project Management Unit (PMU). The GEF budget was USD 950,000 with co-financing from the before-mentioned Indian partners and the Ministry of New and Renewable Energy (MNRE) totalling USD 3.6 million.

In accordance with UNDP and GEF requirements, a final evaluation was carried out by two independent evaluators, Mr Jan van den Akker (Netherlands) and Mr P. M. Sadaphal (India) by the end of February 2011. Their findings are written down in this evaluation report that provides a review of the progress of the project's outcomes and outputs, implementation issues and of project design.

The Project Document (ProDoc) mentions as **overall objective** of the project: “Development and promotion of a low carbon campaign for the 2010 Commonwealth Games as a means of inducing a behavioural change amongst the citizens, athletes and visitors for the adoption of environmentally sustainable practices”.

The project has had the following main **outcomes**:

1. Enhanced public image of the GEF as a global entity to support environmentally sustainable development;
2. Awareness created among public, students, athletes, visitors, facility managers and media on low carbon practices;
3. CWG participants, Delhi residents, and visitors begin to take steps to reduce their carbon footprint;
4. Assessment & guidelines for ‘greening’ future sporting events in the country developed

The main **achievements** have been:

- Various audio-visuals and pop-ups were aired on TV, websites, flights and at the CWG venues;
- Low-carbon fairs were organised (consisting of documentary screening, workshops, exposure trips and competitions, aiming at schools and colleges) in five cities;
- Awareness Campaigns on ‘Low Carbon Lifestyles’ were conducted in about 50 to 60 locations on Queens Baton Route. A publication (toolkit) entitled ‘Low Carbon Lifestyles’ was published and used as training tool.

- Two Green Concerts were organised;
- Training was organised for NGOs (training of trainers) to promote the 'low carbon lifestyle toolkit' which was disseminated and promoted at various events to NGOs, institutions, companies and individuals;
- About 6 'low carbon promotion' kiosks (looking like an ATM machine) were installed at the CWG venue, while in total 19 have been transferred to institutions. At the kiosks, one can check one's carbon footprint in terms of energy, water and transport use and waste production;
- Around 150,000-160,000 sapling were planted to (partly) offset greenhouse gas emissions associated with the CWG;
- An assessment was made of GHG emission associated with the CWG games and guidelines for greening future sports events.

Main **conclusions** and **suggestions** of the Evaluation Team are:

Implementation and stakeholder involvement

The project involved participation of and cooperation with several Government entities, private sector, event organizers and local NGOs and institutions. In general, the planned activities were implemented successfully and within a very strict timeframe determined by the timing of the Commonwealth Games in October 2010, while project activities only started by May 2010. The project has been quite instrumental in providing a boost to 'green lifestyles and low-carbon options' by using the CWG 2010 as a platform to provide messages in printed form, AVs, campaigning and events and training. In terms of **implementation**, we would rate as *highly satisfactorily*, given the quality of some of these outputs.

Project concept and design

However, the Evaluation Team has some doubts on the sustainability and replicability, which can partly be traced back to project design. Given the time constraint in project design and implementation, the focus was on designing the campaign around the CWG, held in October 2010, but this has led to less attention to a) monitoring and measuring impact and b) sustainability and replication.

The impacts of the project's intervention have not been quantified, except for the emission reduction associated with tree planting. While as such the 'low-carbon' campaigning was implemented well, we are not sure what the impact has been. How many people are really changing their lifestyle?

Spectators, athletes and other CWG participants and the public at large have been exposed to slick campaigning, but it is also has been a one-time shot. This has the danger that the message will be quickly forgotten if not repeated. A lot of excellent material has been developed, but there is no real action plan on how to further use these materials in the (near) future by the project partners or how these materials can be adapted and used in future mega events.

In terms of impacts/outcomes, we would like to rate as only *marginally satisfactory*. Combining the output rating with the impact/outcomes rating we derive the average rating for **attainment of outcome and objective** as *satisfactory*. Given the lack of sustainability considerations in **project design** we would also like to rate as *satisfactory*, given the fact that project designers had to work within a given tight timeframe and responded to the request to organise a 'greening opportunities' project at the CWG 2010, which they did well by focussing on 'green campaigning'.

However, from a **sustainability** point of view it is *marginally satisfactory*, reflecting our opinion as Evaluators that the funding (and implementing) agencies could have more of a longer-term vision on 'green events' rather than supporting last-minute interventions.

The project would have benefitted from having included an activity to ensure sustainability and replication, e.g., by means of a **post-project action** plan with recommendations to the various Indian partners:

- Guidelines and suggestions for partners (Ministries, NGOs, institutions) on how to continue to use the materials (AV, radio messages) and how to distribute or re-print materials in future. Also, the CWG being an international event, it is felt that many of these audio-visual materials could be used for future sporting events;
- Kiosks; with only 20 available the impact will be minimal (one per every 50 million Indians) and, even assuming that all will be properly installed and used by the institutions these have been transferred to (which one of the Evaluators checked and did not find encouraging evidence of), we suggest that it is better to adapt the software for use on the Internet or even merged with Excel sheet calculation of the 'Low Carbon Lifestyle toolkit';
- Although proposed in the original ProDoc, there has been no carbon offset purchase system implemented (understandably, given the time constraints of project design). Nonetheless, this could be added as a feature in the above-mentioned Internet-based 'carbon footprint calculators';
- Surveys to determine the extent of awareness of people on environmentally sound practices and green lifestyles and the 'measure' the impact of the project-supported 'green campaigning' as well as an appropriate mechanism to ensure continuous monitoring and documentation of sapling survival status and taking of corrective action to ensure a certain minimal survival rate.
- Mechanism on how to implement 'green' recommendations and guidelines (such as formulated in the Enzen report) in future sports and other mega events.

Although understanding that the operations of the projects have been closed, in principle, nonetheless we suggest that options could be explored to use the remaining GEF funds in the budget (about USD 170,000) to prepare such a post-project action plan; if the Country Office's administrative procedures would allow so.

Lessons learned and recommendations for future events

World events hosted by developing countries, such as 2010 FIFA World Cup in South Africa, the 2008 Summer and 2014 Winter Olympics and the recent 2010 Commonwealth Games can serve as a catalyst and platform to promote environmentally sound technologies and practices, by:

- Campaigning for and demonstration of 'green' technologies, practices and lifestyles in front of a national and global audience;
- Building environmentally sound infrastructure to support an influx of millions people in the host cities that will continue to use the infrastructure and an environmentally sound practice even after the event is over.

Regarding the latter bullet point, construction and infrastructure improvements taking place in preparation of the sports event as well as implementation of energy savings measures during the event, present a substantial opportunity for energy savings and related carbon emission reduction. However, a commitment to reduce the environmental impact right at the inception or bidding stage of the event is necessary to highlight the importance of implementing sustainable practices to all stakeholders involved in the planning and organization of the event. The establishment of a team at the inception stage of the

event dedicated towards developing clear targets of environmental performance for each of the activities/components that go into the planning conduct of the event is required.

One problem is that, internationally and nationally, there are no clear guidelines on greening such mega events and how to define the boundaries. The methodologies adopted for the carbon assessments vary for each of the sporting events making it difficult to compare the carbon emissions of one event with another. The differences arise from inconsistent boundary definitions (organizational as well as operational), time frames, as well as with the individual methodologies to estimate emissions from a particular activity. The attempts to estimate the carbon footprint of sporting events have so far been to limit the boundaries to only those that occur 'during' the sporting event. Emissions resulting from the planning and construction of sporting infrastructure need to be distributed over their lifetime and allocated according to the event period.

The approach to developing guidelines has to be goal-based with clear energy saving targets drawn up and guidelines for each venue based on an evaluation of various measures that achieve these targets with the least investment. In order to do so, it then becomes necessary to establish baselines against which the interventions can be compared and evaluated. The targets should be viable and based on a realistic assessment of measures that could be adopted to achieve them and should be translated into specific, implementable action plans for each of the responsible actors to follow. The action plans are to be based on the techno-economic feasibility of each of the measures, which will be contextual and site specific.

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1. INTRODUCTION

1.1 Background

The XIX Commonwealth Games were held in New Delhi from 3-14 October 2010. As the host of the Commonwealth Games (CWG), the Government of National Capital Territory of Delhi committed itself to hosting a “Green Games” by inducing behavioural change towards low carbon practices and becoming the benchmark for multi-disciplinary games in the future.

The XIX 2010 CWG have been the largest multi-sport event held in India to date. The Games attracted a large number of tourists and spectators. To commemorate this special occasion and leave behind a positive and sustainable legacy, the CWG Organizing Committee (OC CWG) decided to promote low carbon practices for the Games¹.

The outreach activities of the proposed project would use the CWG as an opportunity to:

- Promote low carbon practices (green lifestyles) by raising the awareness of athletes, visitors, media, and other participants of the CWG and the general public and inform on options to reduce their carbon footprint;
- Highlight GEF's contribution to addressing global environmental challenges in India

The project was conceived by the end of 2009 and the project concept, termed PIF (Project Identification Form) was formulated early 2010 to request co-funding by the Global Environment Facility (GEF), which was approved by GEF in February 2010. The full documentation of the project was approved thereafter and implementation started in May 2010 with the UN Development Programme (UNDP) as GEF implementing agency. The full title of the project is “Low Carbon Campaign for Commonwealth Games 2010 Delhi”; however, in this report it may be referred to by the short title “CWG 2010” project.

1.2 Project objectives and strategy

The Project Document (ProDoc) mentions as **overall objective** of the project: “Development and promotion of a low carbon campaign for the 2010 Commonwealth Games as a means of inducing a behavioural change amongst the citizens, athletes and visitors for the adoption of environmentally sustainable practices”.

The project is expected to contribute to this objective by realising the following **outcomes**:

- Enhanced public image of the GEF as a global entity to support environmentally sustainable development;
- Awareness created among public, students, athletes, visitors, facility managers and media on low carbon practices;
- CWG participants, Delhi residents, and visitors begin to take steps to reduce their carbon footprint;
- Assessment & guidelines for ‘greening’ future sporting events in the country developed

¹ The Project Document mentions that ‘although state-of-the-art, energy efficient venues are being constructed; there is a need to increase awareness about low carbon practices among facility managers, volunteers, athletes, visitors, media, and other participants’.

Activities and the outputs under each outcome and the actual achievements will be described in detail in Chapter 2. The project was implemented for a very short time period of 6 month, which, of course, was a necessity as the messages on 'green lifestyles' that had to be aired on TV and radio and other info had to be disseminated during the 2010 CWG event, i.e. in October 2010.

1.3 Evaluation purpose and methodology

The project's activities ended on 31 December 2010. As needed per UNDP and GEF requirements (see also Annex A, terms of Reference of the Evaluation), a final evaluation by independent reviewers (i.e., not employed by UNDP or linked to the design and implementation of the CWG 2010 Project) was carried out.

Two independent consultants, Mr J. H. A. van den Akker (Netherlands) and Mr P. M. Sadaphal (India) were selected to carry out the evaluation during the last two weeks of February, including a one-week visit to India by the international consultant, in order to review progress reports, project technical and other reporting and to meet the most important project stakeholders.

During the mission, the Evaluator drew up a table of contents that covers the issues to be addressed as mentioned in its Terms of Reference and follows the structure of this report:

- Introduction (background, project description, evaluation purpose and methodology, observations on final evaluation);
- Findings on project progress
 - Project's performance in terms of results (achieving objectives and outputs by means of realized activities and inputs used) and impacts, quantitatively and qualitatively measured by indicators (as set in the project document and activity reports)
 - Evaluators' assessment of the project design and execution (way of implementation and management, monitoring and evaluation, budget and cost-effectiveness, external factors, stakeholder involvement);
- Conclusions and recommendations
 - Conclusions, taking into account sustainability and replicability issues
 - Lessons learned and recommendations

The Evaluators adopted the following **methodology of evaluation**

- i) Review of project documentation, such as the Project Document and Executive Summary, project technical reports (see Annex B.2 for a list of reports and documents reviewed)
- ii) Meetings with the UNDP, National Project Director and main project partners (see Annex B.1 for the schedule of meetings)

This report is divided into three sections. This first introduction section provides general background of the project, purpose of evaluation, project implementation setup, partners/stakeholders and evaluation methodology. The next section dwells on findings regarding project management and achievements. These findings are described within the logical framework design of the project, as described in the Project Document and progress reports. In the third section, conclusions from the observations and findings are discussed in the context of project objectives. These also pertain to sustainability and replicability of project. The section ends with recommendations and some lessons learnt.

1.4 Project set-up and main stakeholders

Main project participants

The Organizing Committee of the Commonwealth Games (OC CWG) has assumed overall responsibility for the achievement of the project results as the Implementing Partner (GEF Local Executing Agency). UNDP has provided overall management and guidance from its New Delhi Country Office and the Regional Coordination Unit (RCU) in Bangkok, and has been responsible for monitoring and evaluation of the project as per normal GEF and UNDP requirements.

The Project Steering Committee (PSC) formed at the outset of implementation, was responsible for taking management decisions, for ensuring quality of the project processes and products, and for monitoring and evaluation of achievements as well as accountability. The PSC has been chaired by the Special Director General of the OC GWC, who as National Project Director (NPD) has been responsible for overall guidance to the Project Management Unit (PMU)². A Project Management Unit, entrusted with the task of day-to-day management of all activities under this project, was hosted at the Centre for Environment Education (CEE), an autonomous non-government organization supported by the Ministry of Environment and Forests, Government of India.

The Committee has met 14 times, between April 2010 (the time of commencement of project implementation) and its last meeting, held on 29 December 2010. The following organizations were members of the PSC:

- Ministry of Environment and Forests (MoEF)
- Bureau of Energy Efficiency (BEE)
- Centre for Media Studies (CMS)
- UNDP

In addition, PMU³ and OC CWG⁴ staff members attended the meeting as well as special invitees from various organizations participating in the project's activities.

It should be noted that a Project Management Board (PMB) has been set by UNDP with the Government of India to oversee coordination of projects in UNDP's 'Energy and Environment' cluster of projects (more details are given in Section 2.3.1 of this report). It is co-chaired by Department of Economic Affairs (DEA, Ministry of Finance) and UNDP, while the invitees included GEF Operational Focal Point as well as NPDs (National Project Directors) of all on-going projects. The PMB oversees the delivery and achievement of results for all the initiatives under the energy and environment programme outcome and provides strategic directions for future programmes in this outcome area, including the appraisal of new project initiatives. A Project Steering Committee (PSC) is chaired by NPD with members from all co-financing partners (BEE, MNRE), GEF OFP, UNDP, Government of Delhi and invitees on need basis. PSC oversees the delivery and achievement of results of the project.

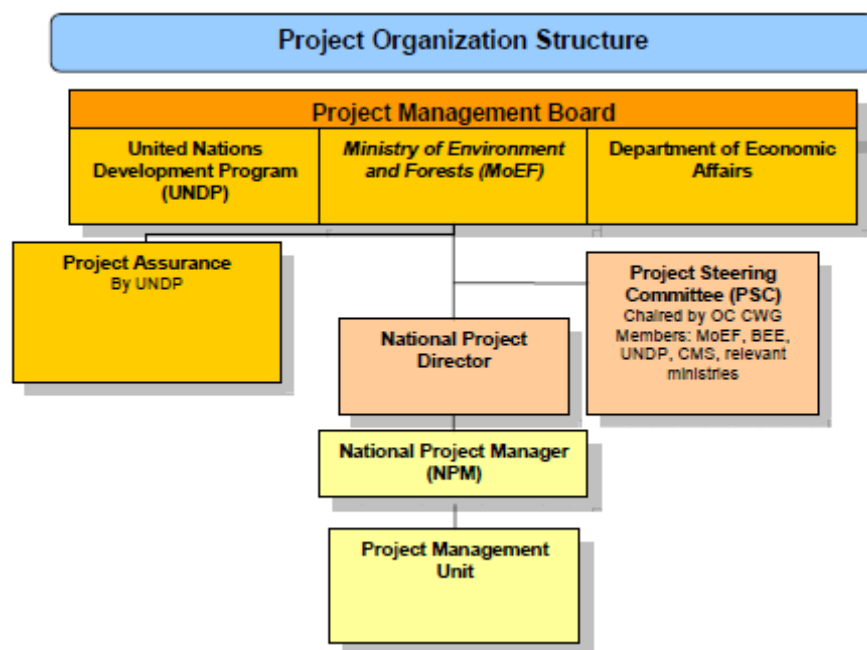
An overview of the programme and project management structure is given below:

² Mr. Sudhir Mital

³ Ms. Manisha Sanghani, Mr. Sharad Gaur (Project Managers, PMU), Mr. Dilip Mirzapura

⁴ Dr. Shiv Dhawan (Project Manager and Consultant Green Games, OC CWG)

Figure 1 Project organization



2. FINDINGS

2.1 Achievement of impacts and outputs

For each of the four outcomes, as mentioned in paragraph 1.2, this section assesses the progress in the implementation of the project's outcomes and outputs, following the format as reported by the Project Management Unit (PMU) in various communications on project progress. This somewhat deviates from the original list of outcomes and outputs, as given in the Project Document (ProDoc) and the Results Framework and is summarised in Table 1 below.

Table 1 Overview of realized project outcomes and outputs

Output (as in progress reporting by PMU, PR)	Indicator/output (as given in the original ProDoc, PD) ⁵	Achievements by Dec. 2010 (as observed by the Evaluation Team)
Outcome 1 PR: Enhanced public image of the GEF as a global entity to support environmentally sustainable development PD: Enhanced public image of the GEF as a global entity to support low carbon practices for XIX 2010 Commonwealth Games		
1.1 Aired 30 AV profiles, 10 <i>shera</i> pop ups ⁶ and 10 radio messages on Green Commonwealth Games	- Aired audio visual (AV) profiles on greening Delhi, India and Commonwealth Games on television channels 30 AV profiles delivered by famous Indian personalities - Developed low carbon messages and promoted - Developed pop ups on low carbon practices for television channels 10 <i>shera</i> pop-ups on low carbon practices - Delivered radio messages and discussions on environment and sports - About 100 messages and discussions on resource conservation (energy and water), renewable energy, waste recycling, use of public transport, and local biodiversity conservation delivered on the radio	- About 30 AV profiles and 10 <i>shera</i> pop-ups were developed and aired on TV channels, websites, flights and CWG game venues during the period Sep-Oct 2010; 10 radio messages were developed, but not aired (due to cost and organisational considerations)
1.2 Four Low Carbon Fairs (of 5 days duration) in Shimla, Shillong, Hyderabad and Port Blair	Completed organized low carbon fairs (comprising of documentary screening, workshops, exposure trips and competitions) to create awareness on low carbon practices especially among school and college students in	Five low-carbon fairs organised in Shimla, Hyderabad, Shillong, Port Blair and Trivandrum in the period 30 June – 7 October

⁵ It should be noted that the numbering of outputs in the GEF CEO Endorsement/Approval form somewhat deviates from numbering in the corresponding ProDoc, notably in the numbering of outputs 1.2 to 1.6 (1.2 to 1.5 in the CEO E/A form)

⁶ *Shera*(tiger)is the mascot of the CWG 2010

Output (as in progress reporting by PMU, PR)	Indicator/output (as given in the original ProDoc, PD) ⁵	Achievements by Dec. 2010 (as observed by the Evaluation Team)
	four feeder cities (other than the four green concert cities), along the QBR national route (Hyderabad, Port Blair, Shimla and Shillong) ○ Low-carbon fairs organised in 4 cities	
1.3 Three Green Concerts	Green concerts conducted 4 concerts organised in 4 cities	Two Green Concerts organised. First one in Kolkata on 31-07- 10 and the second in Pune on 04- 09-10
1.4 Plantations in selected places along the Queen's Baton Relay QBR) route	Plantation completed in selected districts/cities along the QBR from 25 June to 30 September 2010 - Plantation plan developed; reporting mechanism developed for State Forest Departments (SFDs) to report on survival rate and post planting care 50,000 saplings planted in 100 districts / cities	Plantation along QBR route by State Forest Departments (SFD) as well as by SGP was done along QBR route along with education activities
Outcome 2 PR: Awareness created among public, students, athletes, visitors, facility managers and media on low carbon practices PD: Awareness created among public, students, athletes, visitors, facility managers (venue managers and operators) and media on low carbon practices		
2.1 Low carbon campaign material (sustainable waste management and sustainable transportation) for Delhi and NCR	- Developed low carbon promotion campaign material for various national and city (Delhi and National Capital Region) events - Web based and electronic versions of campaign material on low carbon practices - Completed events in Delhi and on the route of QBR	About 90,000 toolkits printed and disseminated along with 2 workshops for promotion of toolkit (about 10,000 remain at offices of CEE and Nehru Foundation for Development (NFD) for future distribution to 85 NGOs, 28 institutions, 11 companies, 11 CEE offices, Government departments and individuals.
2.2 Volunteer training on low carbon practices	- Developed and disseminated training kits for Training of Trainers (ToTs) - Established Training kit - Trained trainers in low carbon practices chosen amongst CWG volunteers 300 trainers selected and trained on low carbon practices - Trained CWG volunteers in low carbon practices 29,700 volunteers from Delhi and NCR trained	See 2.1

Output (as in progress reporting by PMU, PR)	Indicator/output (as given in the original ProDoc, PD) ⁵	Achievements by Dec. 2010 (as observed by the Evaluation Team)
2.3 Resident Welfare Associations(RWA) Workshops	Completed organized campaigns to empower CWG Organizing Committee, Resident Welfare Associations (RWA's), athletes, volunteers, facility managers, students and other citizens on low carbon practices in Delhi and NCR • implementation of low carbon activities/programs (energy, water, waste, sustainable transport) • Impact monitoring plan for monitoring impacts	Cancelled, partly due to lack of involvement of Government of Delhi
Outcome 3 PR: CWG participants, Delhi residents, and visitors begin to take steps to reduce their carbon footprint PD: CWG participants, New Delhi residents, and visitors begin to take steps to reduce their carbon footprints		
3.1 Set up and operationalize 20 low carbon promotion kiosks during the CWG near the stadiums and Games village	GEF-UNDP low carbon promotion kiosks during the CWG near the Stadiums and Games village • 20 carbon footprint calculator kiosks installed at key locations	Twenty low carbon promotion kiosks designed, developed of which 6 installed at games venues. Later transferred to museum and educational institutes, but not functional yet
Outcome 4 PR: Assessment & guidelines for 'greening' future sporting events in the country developed PD: Guidelines for 'greening' future sporting events in the country developed		
4.1 Quantification of result of project interventions 4.2 Manual developed – "Guidelines and Best Practices for Greening Major Sporting Events"	• Independent assessment of the low carbon practices undertaken ○ Quantification of results • Developed 'guidelines and best practices manual' for greening future sporting events in the country ○ Manual developed	Report prepared containing the assessment and guidelines
Impacts		
Climate change impact (greenhouse gas emissions)	• Emissions due to CWG: 85,464 tCO₂ over 10 years • Direct (plantations): 50,000 trees: 15,000 tCO₂ over 10 years (assuming 0.3 tCO₂ per sapling over 10 years) • Indirect (lifestyle changes): 252,657 tCO₂	• Emissions due to CWG (before, during and after): 717,502 tCO₂ (Enzen estimate; see Table 4) • Direct (plantations): Project: 162,000 trees (124,000 tCO₂ over 30 yrs, assuming 0.76 tCO₂ per tree over 30 yrs) Project and associated planting programmes: 1.924 million saplings (1.46 million tCO₂ over 30 yrs; see

Output (as in progress reporting by PMU, PR)	Indicator/output (as given in the original ProDoc, PD) ⁵	Achievements by Dec. 2010 (as observed by the Evaluation Team)
		Table 3) • Indirect (lifestyle changes): Not quantified
Awareness on green lifestyles and reducing carbon footprint	Indirect emission reduction is based on awareness creation by 30 campaigns: • 7.5% of foreign and 3.5% of domestic tourists by carbon offsets at the kiosks • 6,000 of the CWG volunteers (20%) reduce their energy consumption by 15% in comparison with the baseline of 1,770 kWh per year • Of the expected 1.05 million viewers (10%, 105,000) reduce their energy consumption by 15% in comparison with the baseline of 1,770 kWh per year	Not quantified, but the Evaluation Team noted that carbon offset purchased took place on a negligible or non-quantifiable scale. Some replacement by CFLs has been reported by some NGOs

Description, outcome 1

Output 1.1

The company All Time Productions Pvt. Ltd was given the contract to develop 30 audio visuals (AVs) linking energy and environmental issues with all the 17 sports played at the XIX Commonwealth Games 2010 (CWG 2010). The AVs show sports participants, individual(s) or a team, giving a 'green message', e.g. 'use biogas' (boxing), 'promote green buildings (swimming), 'promote hydropower' (swimming), 'water conservation' (wrestling), 'avoid plastic' (hockey), 'use CFLs' (squash), 'do not leave your fridge door open' (table tennis), etc. AVs were also displayed at airport lounges, CWG 2010 stadiums, YouTube, the GEF and MoEF websites and shared with subscribers of the UN Solution Exchange on Climate Change and the IISD Climate Change Network,

These AVs were telecasted on several national channels (news, music, general entertainment) on time slots, which were carefully selected in consultation with MoEF, MNRE and BEE to reach out to the maximum number of people. The campaign was from 16 to 31 October. In addition, radio messages were developed by introducing a new character called 'Sting Man'. Due to cost and organisational considerations these could not be aired.

Shera pop-ups were developed (appearing at the bottom of the TV screen and using the tiger mascot of CWG, *shera*) and telecasted on DD News daily for one month (27/09-26/10), running in one scroll (with 6 or 7 pop-ups) with breaks in between scrolls. The pop-ups promoted green behaviour, such as car-pooling, promotion of cycling, use of biogas, use of CFLs, switch off unused appliances, etc. Some pop-ups were put up on the GEF website

While GEF funds provided funding for the development of AVs, pop-ups and radio messages, air time was bought by the three government entities involved, i.e. ten each by MNRE, MoEF and BEE with a

Figure 2 Photos, Low Carbon Fairs



Above; left: Port Blair marathon; right: Slogan writing competition, Shimla
Below; left: Animation workshop, Thiruvananthapuram; right: Film making session, Hyderabad
Source: CMS Environment (CMS, 2010)

contribution of about INR 20 million each (part of the project's co-financing). More information can be found in the activity summary report ATP (2011).

The Evaluators note that the promo materials can be used in future. In fact, a lot of good-quality material was developed and should be available and used in the future. BEE has aired some AVs again after the Games (removing the CWG logo), but the project has not ended with a plan on how to use promo materials by Government partners in future.

Output 1.2

CMS (Centre for Media Studies) organised Low Carbon Fairs in the five cities of Shimla, Hyderabad, Shillong, Port Blair and Thiruvananthapuram, involving activities such as the Energy Conservation Marathon, Low Carbon Practices Primer: Workshop for Teachers, Painting Competition, Green Filmmaking Workshop for Youth, Low Carbon Practices Creativity Competitions, Green Hero Awards, Eco Tour, Green Film Screenings. The activities were organised in the run-up to the Games (3-14 October) during the period 30 June – 7 October (see also Figure 2).

Going by the participation, media reporting and response to these fairs, it is felt that significant impact has been created. Given below is the total extent of reach leveraged by the low carbon fair activity as compiled from the final report submitted by CMS (Table 2):

Table 2 Extent of participation in various activities under the Low Carbon Fairs

Venue	Number of participants						Green Heros awarded
	Marathon	Teacher w/shops	Creativity Competitions	Green Film making w/shops	Green Film screenings	Nature Conservation tours	
Shimla	200	30	250	30	7,200	45	4
Hyderabad	340	25	177	25	8,000	130	6
Shillong	150	45	200	52	7,000	42	2
Thiruvananthapuram	168	28	200	25	11,000	45	3
Port Blair	225	32	150	30	7,500	50	14
Total	1083	160	977	162	40,700	312	29
Grand total	43,423						

While the participation achieved is more than satisfactory, it is felt that scheduling the Green Concerts (described in Output 1.3) at the time of these Low Carbon Fairs might have enhanced the extent of outreach for both these activities.

Output 1.3

The activities under this output were organized by Miran Productions. The purpose of the “green concert” was to inform, educate and motivate audience to be a part of the green games movement. In order to achieve this objective two green concerts were conducted, one at Kolkata on 31 July and another in Pune on 4 September 2010. The concerts included pre-event activities, such as promotion of the concert and the concept, educating and informing the public, awareness amongst the masses, and promotion of the Commonwealth games as ‘green games’. All this was achieved through direct mailers, hoardings, posters, leaflets, one-on-one interaction with various groups & associations, print, radio & television advertising. Eco- friendly messages were delivered to the people through radio, leaflets; AV’s etc.

The concerts were performed by a locally popular band known as ‘Euphoria’. Review of media coverage indicates that the concerts have received a good response: as per Miran (2010) report, the Kolkata concert was attended by about 2000 people and the one in Pune was attended by about 3,500 people. Well-known personalities such as artists, sports icons as well as local and state-level government officials attended the concerts and shared their endorsement of low carbon lifestyles by taking the ‘green pledge’. A quiz based on CWG and environment was conducted in the first part of the concerts and selected GEF -MoEF short films were also showcased. ‘Green warriors’ were selected and given rewards, while a ‘Green slogan competition’ was organized through radio, to increase the participation. The performers highlighted the need to adopt low carbon lifestyles several times during the concerts and took assurances from the public for abiding by them. Last but not the least, attempts were made to organize the events in as ‘green’ manner as possible. For example, the Pune concert saved 100 kW by using the latest LED technology for

stage lighting. More information on Miran Production can be found in the end-of-activity report Miran (2010).

Output 1.4

One activity of the project is to (partly) offset the carbon footprint of the Games by planting tree saplings in various districts and cities and along the Queen's Baton Relay (QBR) in schools, colleges, villages, institutions. As part of activity 4.2 of the project, the report Enzen (2010) gives the following estimate of the offsets due to plantation activities, directly supported by the project (CWG forests, SGP-supported activities; 152,000 saplings) as well as leveraged by linkages with other activities:

Table 3 Estimation of carbon offsets from plantation activities

	Number of saplings	Carbon offset (tCO ₂)
CWG forests	65,000	49,400
Drupka Buddhist plantation	1,000,000	760,000
GEF SGP activities	97,078	73,779
GEF-funded Pan India plantation	745,028	566,221
UNEP plantations	17,700	13,452
Total	1,924,806	1,462,853

The activity was implemented by the Nehru Foundation for Development (NFD) in cooperation with the UNDP/GEF Small Grants Programme (SGP), which finances a number of biodiversity projects with NGOs (see www.sgpindia.org). The institutions (schools, colleges, communities) participating in outputs 2.1 and 2.2 (see further) linked with the State Forest Department (SFD) and conducted plantations (the UNDP/SGP facilitated the links with the SFDs and ensures sustainable way of management arrangements for the plants (species were identified in accordance with local conditions). Each partner facilitated around 100-150 saplings in and around their campus or common places at a total of about 152,000 saplings. Estimated CWG emissions (calculated as 717,502 tCO₂ in the Enzen (2011a) report seem to be adequately offset; of course, subject to survival of the planted saplings for the aforementioned period.

Description, outcome 2

Outputs 2.1 and 2.2

NFD also implemented the activities of outputs 2.1 and 2.2, which focused on creating awareness on low carbon practices and sustainable lifestyles by involving schools children, citizens in large numbers, institutions and SGP partners in the cities along the QBR route in India (see Figures 3 and 4). This was achieved by organizing training on low carbon practices and creating visibility by rallies, meetings in the cities of the QBR. NFD typically partnered up with an NGO (partner in the SGP) in the concerned city, which then tied up with several institutions (schools, colleges, city institutions). Regional Cells in the cities of the Centre for Environment Education (CEE) then trained the NGO partners (training of trainers) that on their turn provided training sessions to the participating institutions (with about 25-30 participants per institution) on low carbon lifestyles. The participants designed and prepared banners, posters and placards on the theme 'Low carbon lifestyles and practices'. Participants took part in rallies along the

QBR route and spread the message of low carbon lifestyles. Certificates were handed to teachers, institutions and NGO members as 'Green Citizens'.

A 'Low Carbon lifestyle' toolkit was developed, consisting of a booklet and a CD-ROM. The CD-ROM contains an Excel sheet as well as a set of PowerPoint presentations on climate change and low-carbon practices that can be adopted by people (saving electricity at home; installing solar water heaters; efficient use of paper; transportation. The toolkit was made available on a number of websites and some 100,000 copies were printed⁷. More details on distribution can be found in the report NFD (2011b). The 'low carbon lifestyle' campaign reached about 88 cities, involving 86 NGO partners, sensitizing about 60,000 people (according to NFD, 2011a). As per latest information provided by the UNDP Small Grants Coordinator, considerable interest has been shown in this booklet by several parties. The booklet has been translated into several Indian languages and a number of parties are intending to pay for its dissemination.

Figure 3 Activities supported by NFD (plantations, low-carbon lifestyle toolkit)



With the Queen's Baton; Baripada



Plantations in a school in Jodhpur



Launching the toolkit in Pune

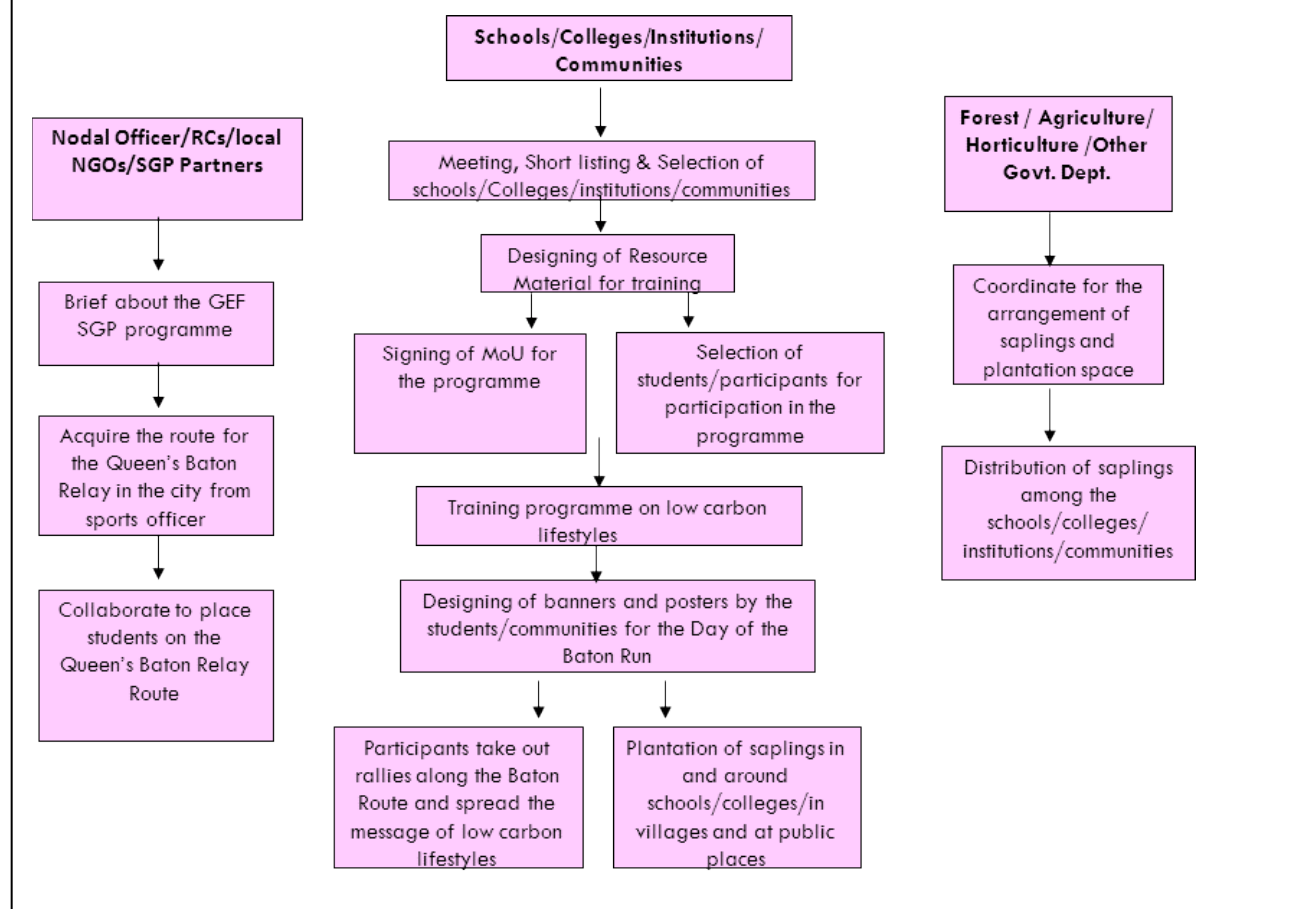


Spreading awareness by rallies on the street

⁷

www.solutionexchange-un.net.in; www.ceeindia.org; www.moef.nic.in; www.sgpindia.org; www.greenteacher.org; www.paryavaranmitra.in; www.ekonnnect.net; www.indiaenvironmentportal.org.in; www.scribd.com; www.assets.wwwindia.org; www.thinktosustain.com

Figure 4 Overview of implementation of activities by Nehru Foundation for Development



Description, outcome 3

Output 3.1

The company Forbes Technosys Ltd. (FTL) developed and designed Carbon Footprint calculator kiosk for providing information and general awareness to people. The low-carbon promotion kiosk supplied comprises of touch screen, CPU, modem and carbon calculator software with feature of SMS, mail or print of information. The Calculator software calculates the carbon footprint for the household's energy and water consumption, transportation needs (see Figure 5), based on Indian lifestyles.

Twenty kiosks were developed and produced in September, of which by the end of September (before the start of the Games) 6 were installed at various venue locations. Training was provided to volunteers to manage the kiosk and explain its operation and



use to the public during the event. A training manual (FTL, 2010a) as well as a technical manual (FTL, 2010b) was elaborated for this purpose. More information in the implementation of the activities and timeline can be found in FTL (2010c).

After the Games the kiosks were transferred to various museums and technology training centres, but are reportedly not in operation yet (spot-check by one of the Evaluators) and one has gone missing. FTL has committed to maintain the kiosks for a one-year period (until October 2011), under which it will also provide training to operators at the places where they have been relocated.

While the outreach of 20 kiosks in a populous country such as India is limited, the Evaluators suggest adapting the software so that it can be put in websites (e.g., UNDP, BEE, Ministries, NGOs, etc.). New features can be added, such as purchase of carbon credits using online transaction (this was originally proposed in the Project Document, but not implemented due to the time constraints). An appropriate institutional infrastructure would have to be defined.

Description, Outcome 4

Outputs 4.1 and 4.2

These activities were carried out by Enzen Global Solution (Bangalore). The main deliverable was the report “Assessment of Low Carbon Practices followed during Commonwealth Games 2010 and Guidelines and Best Practices for Greening Sporting Events in India” (Enzen, 2011a), with the following main elements:

- Overview of ‘green initiatives’ proposed for CWG 2010;
- Estimate of carbon emissions associated with the CGW 2010;
- Guidelines and ‘best practices’ for greening sporting events.

One of the mandates of the Organizing Committee of the Commonwealth Games (OC CWG) was to incorporate environmental considerations in the planning and staging of the CWG. With support from the UN Environment Program UNEP a ‘greening framework’ was developed consisting of the following key initiatives:

- *Green infrastructure* (energy conservation, efficient lighting using LEDs and CFLs; use of occupancy and daylight sensors, solar water heaters; water conservation measures, waste water treatment and rain water harvesting; use of waste concrete and recycled PVC in construction; use of paints with low VOCs and installation of air quality control systems)⁸;
- *Green hospitality* (transportation based on cleaner fuels, such as CNG-based vehicles; guidelines for green catering, such as procurement of fair trade and eco-friendly materials and ODS-free refrigeration; appropriate collection, separation and treatment of organic and other waste; offering eco-friendly accommodation);

⁸ LED: light-emitting diode; CFL: compact fluorescent lamp; PVC: poly vinyl chloride; VOC: volatile organic compound; ODS: ozone-depleting substance

Figure 5 Screen shots of the Carbon footprint calculator



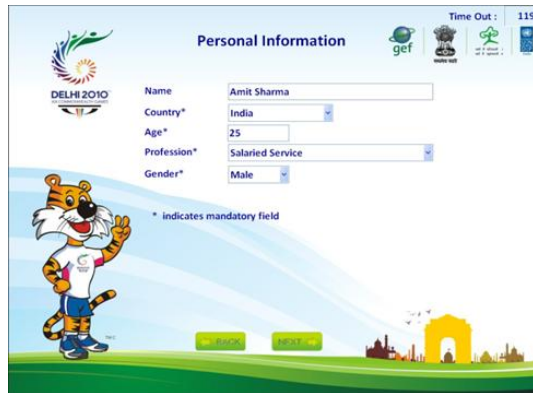
Welcome to
Carbon Footprint Calculator Kiosk
Touch to Start

What is a Carbon Calculator?
A Carbon Footprint Calculator assesses the amount of CO₂ (Carbon dioxide) emissions resulting from our day-to-day activities such as power consumption, using transport for commuting, consuming food, resources, discarding of waste, etc. It usually expresses the value in kg or tonnes of CO₂ per year.

What is Carbon Footprint?
The Carbon Footprint is the sum of all CO₂ emissions that are caused or induced by our activities in a given time period. It is usually calculated for a year as a per capita basis. It can be used as an assessment and communication tool to manage environmental risk by individuals, institutions, and governments.

What actions make an impact?
We need to make conscious efforts to reduce Global Warming by conserving less of fossil fuels like Coal, Oil, Diesel, Petrol, etc. hence reducing the Carbon emissions.

For more >>> **Take your test!**
Estimated carbon footprint: 3000 kg a year (10 tonnes)



Personal Information

Name: Amit Sharma
Country*: India
Age*: 25
Profession*: Salaried Service
Gender*: Male

* Indicates mandatory field

Time Out : 119

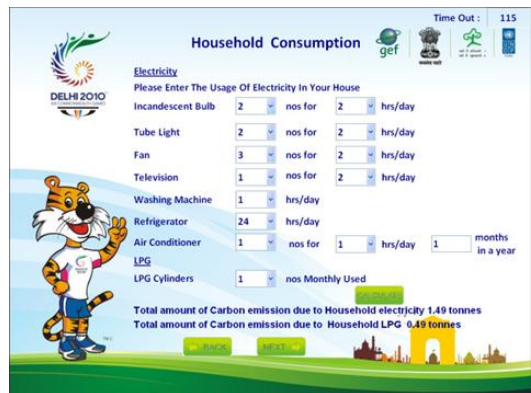


What is a Carbon Calculator?

A Carbon Footprint Calculator helps us understand, in CO₂ emission terms, how much pressure is being exerted on the planet by a given human activity. It measures the amount of CO₂ emissions involved in producing the resources we use daily, in providing the energy we consume, and in absorbing the waste we generate. This figure is based on currently available technologies, and may change as newer resource management capabilities emerge. This CO₂ calculation also helps us understand the different degrees of impact from our individual and social lifestyles.

So that we may compare the figures globally, the calculations here have been compiled in SI units and the results are in tonnes or kg per year.

Time Out : 92



Household Consumption

Electricity
Please Enter The Usage Of Electricity In Your House

Incandescent Bulb: 2 nos for 2 hrs/day
Tube Light: 2 nos for 2 hrs/day
Fan: 3 nos for 2 hrs/day
Television: 1 nos for 2 hrs/day
Washing Machine: 1 hrs/day
Refrigerator: 24 hrs/day
Air Conditioner: 1 nos for 1 hrs/day 1 months in a year
LPG: 1 nos Monthly Used
LPG Cylinders: 1 nos Monthly Used

Total amount of Carbon emission due to Household electricity: 1.49 tonnes
Total amount of Carbon emission due to Household LPG: 0.49 tonnes

Time Out : 115



Transportation Consumption

Business/Professional

How many kilometers do you travel in a month/year?

Motor bike: 300 km/month
Car: 200 km/month
Bus: 500 km/month
Train: 5000 km/year
Flight: km/year

Total amount of carbon emission due to your transportation per year = 1.44 tonnes

Time Out : 118



Food Consumption

How much of the food that you eat is organic?

Organic Food: ☒ None
Meat: ☐ Some
Locally Purchased Food: ☐ Most
Food Packing: ☐ All

0.7 tonnes carbon

Total amount of carbon emission due to food per year=0.7 tonnes.

Time Out : 119



Food Consumption

How much meat/dairy do you eat personally?

Organic Food: ☐ Above-average meat
Meat: ☒ Average meat
Locally Purchased Food: ☐ Below-average meat
Food Packing: ☐ Lacto-vegetarian
0.4 tonnes carbon
Vegan

Total amount of carbon emission due to food per year=1.1 tonnes.

Time Out : 119



Food Consumption

How much of your food is produced locally?

Organic Food: ☐ Very little
Meat: ☒ Average
Locally Purchased Food: ☐ Above average
Food Packing: ☐ Almost all
0.3 tonnes carbon

Total amount of carbon emission due to food per year=1.4 tonnes.

Time Out : 119



- *Green ceremonies* during the QBR, Opening and Closing of the Games, including awareness campaigns (supported by the UNDP/GEF project; see Outcomes 1-3) as well as introducing energy and waste management during the ceremonies (such as use of efficient lighting, waste segregation);
- *Greening and offsets*, including plantations (partly supported by the UNDP/GEF project, see output 1.4) and offering carbon footprint offset purchase options for spectators and attendees.

A more detailed list of 'green interventions' that had been planned is available in the Enzen (2011a) report. It is not always clear from the report in how far the measures proposed were actually implemented. For example, the kiosks manufactured did not have a carbon offset purchase option. The report mentions on page 44 that 'Discussions with OC CWG officials revealed that these purchases were not significant'.

The report does give a detailed calculation of the carbon footprint of the Games, of which a summary is presented in Table 4. It gives total emissions of 717,502 tCO₂ related to the sports

Table 4 Estimation of carbon footprint of the CWG 2010, India

BEFORE Games	Carbon emissions (tCO ₂)	DURING Games	Carbon emissions (tCO ₂)	AFTER Games	Carbon emissions (tCO ₂)	TOTAL emissions (tCO ₂)
OWNED EMISSIONS	447,509.45		28,421.14		196,040.04	671,970.63
1. CWG Organising Committee and PMU	11,380.20	1. CWG Organising Committee and PMU	3,419.73	1. Sports Infrastructure and Precinct use	94,494.12	
- Electricity consumption in facilities	5,609.61	- Electricity consumption in facilities	377.61	- Energy consumption in facilities	94,494.12	
- International air travel (including Games Family officials)	2,834.49	- International air travel (including Games Family officials)	192.41			
- Domestic air travel	203.54	- Energy consumption related to hotel accommodation	58.54			
- Energy consumption related to hotel accommodation	1,378.69	- Vehicle fleet (including local travel for STGs)	2,791.17			
- Vehicle fleet	1,353.86					
2. Sports infrastructure & Games Village construction	436,129.25	2. Special Travel Groups (Athletes, technical officials, etc.)	13,892.32	2. Games Village operation	101,545.92	
- Embodied energy	436,129.25	- International air travel	12,681.32	- Energy consumption – accommodation	101,545.92	
		- Domestic air travel	266			
		- Energy consumption related to STG accommodation	945			
3. Queens Baton Relay	214.80	3. Sports Infrastructure and Precinct use	11,109.09			
- International Route	84.20	- Energy consumption (including Games Village)	10,666.02			
- National Route	130.59	- Catering	443.07			
ASSOCIATED EMISSIONS	468.3		45,063.05			45,531.1
1. CWG Organising Committee and PMU	468.3	1. Spectator travel and accommodation	41,077.78			
- Staff commute	468.3	- International air travel	5,842.12			
		- Domestic air travel	8,038.81			
		- Energy consumption related to hotel accommodation	6,493.07			
		- Local travel	20,703.78			
		2. Games Family	3,665.68			
		- International travel	2,504.78			
		- Energy consumption related to hotel accommodation	1,160.90			
		3. CWG Organising Committee and PMU	319.6			
		- Staff commute	319.6			
TOTAL emissions (tCO₂)	447,977.79		73,484.19		196,040.04	717,502.02

Source: Enzen (2011a, 2011b)

Definitions:

Owned emissions: Direct emissions from activities under financial or operational control of CWG 2010
Associated emissions: Activities not under the operational/financial control of CWG 2010
Before Games: Bid win to 10 days before the Opening ceremony
During: 10 days before the Opening ceremony to 3 days after the closing ceremony
After: 3 days after Closing ceremony to life of facilities

infrastructure and Games Village construction and energy consumption and travel of OC CWG officials, athletes and spectators. This would be offset by the carbon sequestration activities (1,462,853 tCO₂; see Table 3).

On the project itself, the Enzen (2011a) report only estimates the *direct* emission reduction, defined as number of trees planted. The target was to plant 50,000 saplings, with GEF-supported planting (including SGP) of about 150-160,000 saplings. With associated planting included (reaching 1.9 million saplings in total), the estimated CO₂ sequestration is about 1.46 million tCO₂. The indirect emission reduction (due to consumer awareness campaigning and resulting lifestyle changes amongst spectators, participants and public at large) has not been quantified.

2.2 Effectiveness of project implementation

2.2.1 Management and implementation approach; monitoring and evaluation

Being linked with the CWG 2010, the project had to follow a strict timeline from approval by GEF Sec of the project concept (a.k.a. PIF) in February 2010, formulation of the project documentation in a couple of months' time and initiation of activities. The project partners have met frequently in the Project Steering Committee (14 times) in the period May-December 2010 to ensure a timely implementation of activities and discuss issues encountered in project implementation.

Given the short duration of the project, no annual project review report (APR-PIRs) has been prepared (yet), although progress and issues can be derived from the PSC minutes of meeting as well as the end reports that each subcontracted party (such as CMS, ATP, NFD, Enzen, Forbes) has prepared (see Annex B.2).

2.2.2 Stakeholder participation

The project has been successful in, first of all, bringing together various Government Ministries and agencies, such as the OC CWG (sports), MoEF (environment), BEE (energy efficiency) and MNRE (new and renewable energy). A number of Indian NGOs (CMS, NFD, CEE) and companies (Enzen, Forbes) have implemented the activities in cooperation with local NGOs and training institutes and colleges in various Indian cities. All this had to be organised in relatively short period of time and the cooperation with the UNDP/GEF Small Grants Programme (SGP) was beneficial in involving local NGOs in the awareness campaigning.

2.2.3 Financial planning and delivery of co-financing

Table 5 provides an overview of the GEF budget and actual expenditures. The total amount spent (including commitments for 2011) would be USD 775,149, implying that USD 174,481 would be unspent (and returned to the GEF). The balance is due to the fact that some activities were cancelled or less money was spent than expected. Some budget lines have a higher expenditure, due to the fact that partners (ATP, CMS, Miran, CEE) had to pay 10.3% service tax as per standard practice (but not envisaged in the original budget design), and this extra amount had to be facilitated in the budget.

Table 5 gives a similar overview of the co-financing. According to Table 5, about 92% of co-financing has actually been forthcoming. A substantial amount of co-financing has been for airing the AVs on TV, provided by MNRE, BEE and MoEFF (USD 1,296,702 in total). This has been

Table 5 Planned GEF budget and actual amounts spent

Targets	Planned Activities	Budget USD	Amount Spent USD	Remarks (Reason for variance)	Budget carried forward to AWP 2011
1. Enhanced public image of the GEF as a global entity to support environmentally sustainable development	Aired 30 AV profiles, 10 shera pop ups and 10 radio messages on Green Commonwealth Games and low carbon practices	157,000	179,514	Service tax paid extra as per PSC decision	0
	Four Low Carbon Fairs (of 5 days duration) in Shimla, Shillong, Hyderabad and Port Blair	33,000	45,570	5th Low Carbon fair and service tax as sanctioned by PSC	0
	Three Green Concerts	200,000	213,911	Service tax paid extra as per PSC decision	0
	Plantation in selected districts/ cities along the QBR route	100,000	0	To be paid after Dec 2010 as final reports in required formats are awaited	60,175
2. Awareness created among public, students, athletes, visitors, facility managers and media on low carbon practices	Low carbon campaign material (sustainable waste management and sustainable transportation) for Delhi and NCR	50,000	77,466	As per PSC sanction	0
	Volunteer training on low carbon practices	50,000	0	Activity cancelled as per PSC decision	0
	RWA Workshops	73,750	0	Activity cancelled as per PSC decision	0
3. CWG participants, Delhi residents, and visitors begin to take steps to reduce their carbon footprint	Set up and operationalize 20 low carbon promotion kiosks during the CWG near the stadiums and Games village	120,000	68,638	As per budget submitted by partner	0
4. Assessment & Guidelines for 'greening' future sporting events in the country developed	Quantification of results from project interventions	100,000	10,300	Draft report ready. Balance amount to be paid after Dec 2010 on submission of final report	15,060
	A manual developed – "Guidelines and Best Practices for Greening Major Sporting Events"				
5 Project Management Unit	To coordinate and manage project	60,000	65,765	Service tax paid extra as per PSC decision	0
	Total	943,750	661,164		75,235
Communication, ISS, M&E, Audit		6,250	6,250		32,500
	Grand Total	950,000	667,414		107,735

Source: PMU

labelled 'in-kind', but should be considered as 'cash' since air time had to be bought. More details are given in Annex D.

2.3 Project design and relevance

2.3.1 Project relevance and country ownership

The project is consistent with priorities of the Government of India. For example, the Eleventh Five Year Plan (FYP) also sets relevant national goals, such as to: (i) Reduce energy intensity per unit of GDP by 20% over the 11th FYP period; (ii) Enhance the share of renewable energy technologies to 10% of the total contribution of electricity, and (iii) Increase forest cover by 5%.

Furthermore, the green initiatives promoted by the project such as energy efficiency and water management are identified as priority interventions in the National Action Plan on Climate

Change (NAPCC). NAPCC demonstrates GOI's commitment to counter climate change and adapt to climate variability. To bring greater coordination between several ministries and agencies, the initiative is being coordinated by the 'Prime Minister's Council on Climate Change' and will be implemented through "eight missions along with some other initiatives"⁹. One of the 'National Missions' is for enhanced energy efficiency

The Energy Conservation Act of 2001 calls for the implementation of Energy Conservation Building Codes (ECBC), appliance standards and labelling and energy efficiency schemes for the agriculture, municipal and industrial sectors. To coordinate a number of energy efficiency initiatives supported by GEF, a "Programmatic Framework Project for Energy Efficiency in India" (GEF project 3538) was formulated as an umbrella project. Five projects on energy efficiency were initially proposed under this program: (i) Energy Efficiency Improvements in commercial Buildings (UNDP); (ii) Chiller Energy Efficiency Project (World Bank); (iii) Financing Energy Efficiency in Small and Medium Enterprises (World Bank); (iv) Promoting

Table 6 Co-financing as budgeted and actual disbursements

Resource allocation	As per ProDoc	Actuals	Remarks
Co financing			
CWG Organising committee	900,000	900,000	In kind support to project towards infrastructure facilities (office space, computer, printer, meeting room etc) and human resources (admin and programme staff support and involvement to project).
Ministry of Environment & Forests (in kind)	1,000,000	417,582	Rs. 1.90 Crore (USD 417,582) for air time on TV. In kind: State Forest Departments dedication of plantations to CWG 2010 coordinated through MoEF
Ministry of Environment & Forests (in cash)	100,000		Cash contribution for Green concerts. Could not be utilised as only 2 concerts organised. This amount was refunded to MoEF
Bureau of Energy Efficiency (in kind)	200,000	439,560	Rs. 2 Crore (USD 439,560) for air time of AVs
CMS	244,778	244,778	Part of larger CMS programme of activities
Other	205,222	439,560	Rs. 2 Crore (USD 439,560) by MNRE for air time for AVs
Total	3,600,000	3,216,630	

Source: PMU and UNDP

1 crore = 10 million; 1 lakh = 100,000

⁹ The 'National mission for Enhanced Energy Efficiency' strengthening the legal mandate of Energy Conservation Act of 2001, promote market based mechanisms to enhance cost effective investments in energy efficiency in energy-intensive large industries and facilities, accelerate shift to energy efficient equipment create mechanisms to finance demand side management energy saving programs, and fiscal instruments to promote energy efficiency. 'National mission on Sustainable Habitat' envisages improving energy efficiency in buildings through mechanisms such as Energy Conservation Building Codes (ECBC), management of solid waste and modal shift to public transport. 'National Mission on Strategic Knowledge for Climate Change' envisages a strategic knowledge mission to support documenting socio-economic impact of climate change, support dedicated climate change related academic units in Universities, other scientific institutions. It envisages putting up a climate science research fund. Private sector initiatives for developments of innovative technologies for adaptation and mitigation would be encouraged through venture capital funds.

Energy Efficiency and Renewable Energy in Selected SME Clusters in India (UNIDO); and, (v) Improving Energy Efficiency in the Indian Railways System (UNDP). The CWG 2010 project is also linked with the umbrella project. The umbrella project is overseen by the Project Management Board¹⁰ (see also Figure 1).

2.3.2 Conceptualization

Green campaigning using the Games

The project aims at using the CWG 2010 as a platform to launch ‘green campaigning’. By targeting such a major sporting event as a catalyst, the outreach programs promoted under the project aimed to raise awareness of the athletes, visitors, media, and other participants of the CWG and the general public about low-carbon options to reduce the human impact on the environment, much more than a stand-alone campaign on ‘green lifestyles’ would have done. It would have been impossible to have such a number of well-known people (sports people, artist, politicians) together in a limited time. In this sense, the project is well-conceptualised.

Greening the Games themselves

Nonetheless, the Evaluators, when having a first look at the project documentation, were a little surprised that the project did not supported any ‘greening’ of the CWG itself. This has happened in some projects that GEF has supported in other countries, for example the 2010 FIFA World Cup in South Africa in which GEF supported two projects, one on improving energy-efficient public transportation and the other on awareness-raising¹¹.

Of course, the CWG 2010 Low Carbon campaign project was only conceived in 2009, one year before the Games, while preparation of such mega events takes much more time. This is no critique at the project designers as such, who had to work within the given timeframe, but organizations, such as UNDP or GEF should realize that for ‘greening’ mega events adequate time is needed to assess baseline, recommend guidelines and implement these. The Organising Committee for the Commonwealth Games 2010 was constituted in February 2005 after New Delhi was successful in its bid to host the Games. In many cases, particularly those relating to construction, renovation and retrofits, the lead times for implementation are significantly long. Guidelines and measures for incorporating ‘green’ initiatives need to be developed prior to or during the planning and design stage for effective implementation, if to be effective.

The Enzen (2011a) report mentions that “the approach to developing guidelines has to be goal-based with clear energy saving targets drawn up and guidelines for each venue based on an evaluation of various measures that achieve these targets with the least investment. In order to do so, it then becomes necessary to establish baselines against which the interventions can be compared and evaluated”. The Enzen (2011a) report does give a detailed estimate of the CO₂ emissions, but mentions it cannot quantify green measures undertaken during the event, due to the lack of having reliable documentation on baseline.

¹⁰ Implementing Partners are Ministry of Environment and Forests (MoEF), Ministry of New and Renewable Energy (MNRE), Ministry of Power (MoP), Bureau of Energy Efficiency (BEE) and state governments and is co-chaired by UNDP and Department of Economic Affairs (DEA)

¹¹ See for example the publication *Greening Opportunities at World Events*, available at www.thegef.org

Project logical framework

The Evaluation Team noticed that, in comparison with the Project Documentation, the list of outcomes and outputs has been re-shuffled, as summarized in Table 1. While it is not uncommon to revise the project list of outputs at project inception, that the re-definition has been done to accommodate the Terms of Reference and work scope of the implementing partners rather than doing the other way around.

However, this has the danger that activities are carried out without connection. For example, we noticed that there are in fact two carbon footprint calculators, one developed by NFD and distributed as an Excel sheet in the Low Carbon Lifestyles Toolkit and one that has been used in the Carbon Footprint kiosks. Similarly, certain activities held in the Low Carbon Fairs and Green Concerts such as giving awards to prominent citizens who worked on environmental issues, etc., were overlapping. Also, Green concerts could have complemented Low Carbon Fairs; toolkits could also have been distributed in Low Carbon Fairs and Green Concerts; Carbon Footprint kiosks could have been installed at all Low Carbon Fair and Green Concert venues as well; the best Green Films produced in the Low Carbon Fairs could have been publicized /screened / distributed in Green Concerts or other venues, and so on. Several possibilities for mutual complementing of activities could have been explored.

Monitoring of project impacts; sustainability

The Evaluation Team appreciates the great time pressure the project designers and later the PMU must have been on. Understandably the focus has been on making the awareness campaign a success and the strict deadlines could not be missed, but this may have led to a reduced attention to post-project monitoring and sustainability of the project's activities. The Evaluators have the following observations:

- While 1.9 million saplings have been planted directly or associated with the CWG 2010 Low Carbon Campaign project, it is assumed that these will be taken care of for the next 10-30 years by NGOs and SFDs, but it would have been useful to have some documentation on how their monitoring would take place by the implementing partners to ensure high tree survival rates. i.e. an appropriate systems could have been put in place to ensure that the planted saplings survive and their growth is monitored over the years;
- Spectators, athletes and other CWG participants and the public at large have been exposed to slick campaigning, but it has also has been a one-time shot. This has the danger that the message will be quickly forgotten if not repeated. A lot of excellent material has been developed, but we fear that the entire set of highly creative, effective and impressionable material produced at considerable expense under this project may never get a chance to create the kind of impact it has the potential to create amongst the public and remain unutilized in the years to come. This is because there is no real action plan on how these materials further in the (near) future or how these materials can be adapted and used in future mega events.

Planting programme

Theoretically, the tree planting associated with the Games has offset its carbon footprint, at least according to the estimates given in the Enzen (2011a) report. Nonetheless, the Evaluation Team would like to caution against declaring the CWG as 'green':

- While laudable, carbon sequestration is 'temporary' in nature; no one can guarantee the survival of the plantation after several decades, which in the negative case, would imply re-injection of the carbon in the atmosphere;
- 'Green' construction and infrastructure improvements and reduced energy consumption have a lasting carbon emission reduction impact and should be preferred as first option.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Main conclusions

3.3.1 Implementation

A description of the outcomes and impacts has been provided in detail in Section 2.1. In short, the low-carbon campaign carried out 2 months before and during the CWG 2010 consisted of:

- Airing audio-visuals on TV and during the Games;
- Low carbon fairs and Green Concerts in selected cities;
- Dissemination of low-carbon toolkit and associated awareness-raising;
- Low-carbon promotion kiosks at the event;
- Planting trees to offset carbon emissions.

The project involved participation of and cooperation with several Government entities, private sector, event organizers and local NGOs and institutions. In general, the planned activities were implemented successfully and within a very strict timeframe determined by the timing of the Commonwealth Games in October 2010, while project activities only started by May 2010. The PSC has been quite involved and had been meeting almost every 2 or 3 weeks until 29 December 2010.

The Evaluation Team is asked in its ToR (see Annex A) to give ratings on various aspects of the project. We give a rating of *highly satisfactory* to **project implementation**, including stakeholder participation. The Evaluators congratulate the PMU and PSC in having achieved most of the project outcomes

3.3.2 Attainment of outcomes and objectives; project design; sustainability

The project has been quite instrumental in providing a boost to ‘green lifestyles and low-carbon options’ by using the CWG 2010 as a platform to provide messages in printed form, AVs, campaigning and events and training. In terms of outputs, we would rate as *highly satisfactorily*, given the quality of some of these outputs.

However, we have some doubts on the sustainability and replicability, which can partly be traced back to project design. Given the time constraint in project design and implementation, the focus was on designing the campaign around the CWG, held in October. We noticed there is no real follow-up and monitoring built into the project design:

- The project document list direct emission reduction impacts (due to tree planting) and indirect impacts (due to lifestyle changes by people as a consequence of the project’s campaigning). The ProDoc’s logical framework mentions ‘quantification of results from the project’s intervention’. On the direct emission reductions, there is reporting required from the NGOs and institutions that planted trees, but these are immediately after the project’s end and do not allow for some longer-term monitoring. On the indirect emissions, some surveys should have been done to determine the extent of awareness on environmentally sound practices;
- The Evaluation Team understands that a UNDP project has a beginning and an end after which UNDP or GEF cannot be involved any longer. But given the one-time character of the

CWG-based 'green campaign', some thought should have been given on the longer term, especially since awareness creation is a matter of repeating the 'green' message repeatedly and consistently over time. The project design lacks a post-project action plan.

Given the fact that even GEF funds are left, these could have been used to elaborate such a plan:

- Guidelines and suggestions for partners (Ministries, NGOs, institutions) on how to continue to use the materials (AV, radio messages) and how to distribute or re-print materials in future. Also, the CWG being an international event, it is felt that many of these audio-visual materials could have been used (perhaps with suitable adaptations) for reaching television viewers in other countries as well thus leveraging the international nature of this event (although understanding time might have been too short to contact foreign TV stations);
- Kiosks; with only 20 available the impact will be minimal (one per every 50 million Indians) and, even assuming that all will be properly installed and used by the institutions these have been transferred to (which one of the Evaluators checked and did not find encouraging evidence of), we suggest that the software could be adapted for use on the Internet or even merged with the Excel sheet calculation of the 'Low Carbon Lifestyle toolkit';
- Although proposed in the original ProDoc, there has been no carbon offset purchase system implemented (understandably, given the time constraints of project design). Nonetheless, this could be added as a feature in the above-mentioned Internet-based 'carbon footprint calculators';
- Surveys to determine the extent of awareness of people on environmentally sound practices and green lifestyles and to 'measure' the impact of the project-supported 'green campaigning'.
- An appropriate mechanism to ensure continuous monitoring and documentation of sapling survival status and taking of corrective action to ensure a certain minimal survival rate.
- Mechanism on how to implement 'green' recommendations and guidelines (such as formulated in the Enzen report) in future sports and other mega events.

On the positive side, the Evaluators heard that some of the materials elaborated are being used. For example, BEE has aired some AVs again on TV (paying for air time from its budget; and with the CWG logo removed).

In terms of impacts/outcomes, we would like to rate as only *marginally satisfactory*. Combining the output rating with the impact/outcomes rating we derive the average rating for **attainment of outcome and objective** as *satisfactory*. Given the lack of sustainability considerations in **project design** we would also like to rate as *satisfactory*. Project designers had to work within a given tight timeframe and responded quickly to the request to organise a 'greening opportunities' project at the CWG 2010, which they did well by focussing on 'green campaigning'. However, from a **sustainability** point of view it is *marginally satisfactory*, reflecting our opinion as Evaluators that the funding (and implementing) agencies could have more of a longer-term vision on 'green events' rather than supporting last-minute interventions.

3.2 Lessons learnt and recommendations

World events hosted by developing countries, such as 2010 FIFA World Cup in South Africa, the 2008 Summer and 2014 Winter Olympics and the recent 2010 Commonwealth Games can serve as a catalyst and platform to promote environmentally sound technologies and practices, by:

- Campaigning for and demonstrating 'green' technologies, practices and lifestyles in front of a national and global audience;

Box 1 Issues and challenges in implementing sustainability measures at the CWG 2010

The Enzen (2011a) report gives an interesting assessment of introducing low-carbon practices during the CWG 2010:

The Organising Committee for the Commonwealth Games 2010 was constituted in February 2005 after New Delhi was successful in its bid to host the Games. The OC CWG Delhi 2010 is organised into 34 distinct Functional Areas (FAs), each related to an aspect critical to the successful delivery of the Games. The Sustainability and Environment (S&E) FA has primarily been the driving force behind the planning of sustainability measures to ensure a 'Green Games' and was responsible for:

- Developing an Environment Management Programme incorporating environmental best practices and ensuring a holistic approach to sustainability and environment services;
- Conducting comprehensive environmental impact assessment of the Games;
- Developing an appropriate response plan for potential emergencies and for the prevention and mitigation of environmental impacts that may arise; and
- Creating awareness through promotion material and training workshops.

As part of its mandate to conduct the Games in an environmentally sustainable manner, the S&E FA, along with their external consultants, provided guidelines and a list of initiatives relevant to each FA. The sustainability initiatives included those pertaining to energy, material usage, water management, air quality, waste management, land, transport and awareness. The guidelines were issued to responsible FAs and agencies for implementation between Feb 2009 and March 2010. It is not clear how this time period synchronized with the plans of each FA or responsible agency. In many cases, particularly those relating to construction, renovation and retrofits, where lead times for implementation are significantly long, it appears that the time available for incorporating or implementing the guidelines was inadequate.

The measures to improve the environmental performance of the Games developed by the S&E FA, although comprehensive in coverage, are generic and not directly implementable in many cases. This is especially relevant for the energy aspect where retrofit measures would depend on the financial viability of that intervention, for example, replacing an air-cooled chiller with a water-cooled chiller at a competition venue would require substantial capital investment and would only be feasible if the energy savings, which are dependent on several factors such as operation schedules, cost of electricity, etc., are significant. Similar decisions on LED, CFL, or TL5 fixtures for lighting would depend on the incremental capital costs and energy savings. Even if the Games' objective of sustainable venues takes precedence over financial viability, it is still necessary to demonstrate that these large public investments in energy efficiency are viable and similar efforts need to be replicated in other contexts. Moreover, the approach to developing guidelines has to be goal-based with clear energy saving targets drawn up and guidelines for each venue based on an evaluation of various measures that achieve these targets with the least investment. In order to do so, it then becomes necessary to establish baselines against which the interventions can be compared and evaluated. The lack of documentation on baselines is a serious limitation of CWG 2010, which does not allow for reliable estimates of savings resulting from initiatives undertaken. Such efforts to identify specific measures for energy efficiency would require considerable manpower and resources.

A study of reports and publications has been carried out to understand the approach used to calculate the carbon foot prints of similar large gaming events like the Beijing Olympics, FIFA World Cup South Africa 2010, the upcoming London Olympics in 2012, etc. This review was also used to develop project boundaries / indicators for CWG 2010. The methodologies adopted for the carbon assessments vary for each of the sporting events making it difficult to compare the carbon emissions of one event with another. The differences arise from inconsistent boundary definitions (organizational as well as operational), time frames, as well as with the individual methodologies to estimate emissions from a particular activity.

Source: Enzen (2011a)

- Building environmentally sound infrastructure to support an influx of millions people in the host cities that will continue to use the infrastructure and an environmentally sound practice even after the event is over.

On the first bullet point, mega sport events are well suited for promotion of energy-efficient and low carbon emission practices and lifestyles before and during the event as a platform for a number of awareness-raising activities that inform decision-makers, spectators and the general public on how to reduce their environmental footprint.

Regarding the second bullet point, construction and infrastructure improvements taking place in preparation of the sports event as well as implementation of energy savings measures during the event, present a substantial opportunity for energy savings and related carbon emission reduction. However, Box 1 illustrates some difficulties in implementing environmental sustainability measures at the CWG 2010. The issues highlighted form important learning that needs to be addressed in the planning of future large scale sporting events, such as the 'Greening Strategy and Action Plan', which is supported by GEF for the 2014 Winter Olympics in Sochi, Russia. Regarding technical 'best practices', these are summarised in Annex C.

ANNEX A. TERMS OF REFERENCE (TOR)

The original text of the ToR has been amended by adding yellow-highlighted numbered items to be able to refer to the corresponding part in the main body of the text in this report, but otherwise the original text has not been altered.

TERMS OF REFERENCE

TERMINAL EVALUATION

Low Carbon Campaign for Commonwealth Games 2010 Delhi

I. INTRODUCTION:

a) Overview:

- The XIX Commonwealth Games was held in New Delhi from 3-14 October 2010. Creating awareness on 'low carbon practices' was one of the major objectives of these Commonwealth Games.
- In the business-as-usual scenario, the projected GHG emissions resulting from the 2010 Commonwealth Games would amount to 101,636 tonnes of CO₂, mainly due to international and domestic travel and electricity consumption at the Games venues. The CWG Organizing Committee has taken steps to reduce emissions by organizing a special bus fleet of CNG fuelled buses to transport spectators to and from different Games venues, thereby reducing BAU emissions by about 16% or 16,172 tonnes of CO₂. Thus, the baseline emissions for the proposed GEF-UNDP project stand at 85,464 tonnes of CO₂.
- This project was to support and strengthen the CWG Organizing Committee's initiatives on low carbon practices before, during and after (legacy) the Games. The direct global environmental benefits stem from the afforestation activities that will be introduced by the project. A total of approximately 15,000 tonnes of CO₂ will be sequestered by the project over a 10 year period, representing an 18% carbon dioxide reduction compared to the baseline of 85,464 tonnes.
- The XIX 2010 CWG were the largest multi-sport event held in India to date. The Games were expected to attract 100,000 tourists and a much larger number of spectators. To commemorate this special occasion and leave behind a positive and sustainable legacy, the CWG Organizing Committee (CWG OC) decided to promote low carbon practices for the Games. Although state-of-the-art, energy efficient venues have been constructed; there is a need to increase awareness about low carbon practices among facility managers, volunteers, athletes, visitors, media, and other participants.
- By targeting such a major sporting event, the outreach programs promoted under the project are expected to raise the awareness of athletes, visitors, media, and other participants of the CWG and the general public about low carbon issues and options to reduce the human impact on the environment. The main outcome of the project will be the promotion of low carbon practices through citizen empowerment to induce behavioral change towards low carbon practices.

The CWG OC's aim was to make the Games green and instill an 'ecological consciousness' among all CWG stakeholders. The GEF increment is to instill a 'global ecological consciousness' by augmenting awareness of the global benefits of afforestation, building energy efficiency and sustainable urban transport. Another important contribution that GEF will make is to draw lessons and best practices for greening future sporting events at the national and international level.

b) UNDP/GEF Monitoring and Evaluation (M&E) policy:

The M & E policy at the project level in UNDP/GEF has four objectives: (i) to monitor and evaluate results and impacts; (ii) to provide a basis for decision making on necessary amendments and improvements; (iii) to promote accountability for resource use; and (iv) to document, provide feedback on, and disseminate lessons learned. A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project, e.g., periodic monitoring of indicators, or as specific time-bound exercises such as mid-term reviews, audit reports and final evaluations.

II. OBJECTIVES OF THE EVALUATION:

The GEF expects to ensure that its projects are monitored and evaluated regularly. By this exercise, GEF aims to promote accountability for achievement of GEF objectives through the assessment of results, effectiveness, processes, and performance of the partners involved in GEF activities. The results need to be monitored and evaluated for their contribution to global environmental benefits.

The project in the title is a medium-size project, of a total duration of 9 months, and is operational from April 2010 and was to be completed as of December 2010. The project activities have been completed as scheduled. The project is however extended upto March 2011 for administrative closure. In accordance with UNDP/GEF M&E policies and procedures, all regular projects supported by the GEF undergo a final evaluation. The terminal evaluations are intended to assess the relevance, performance and success of the project. It looks at 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 learned and provide recommendations that might improve design and implementation of UNDP/GEF projects.

III. SCOPE OF THE EVALUATION – SPECIFIC ISSUES TO BE ADDRESSED:

In addition to elaborating on the Terminal Evaluation Report Outline listed in Item IV, the evaluation team should also comment upon the following specific issues:

- 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.
- ii. Comment on how the GEF's overall objective of Greenhouse Gases Emission reduction has been met with – (1) during the life of the project; and (2) for the replication potential;
- iii. Appropriateness of the institutional arrangement and whether there was adequate commitment to the project.
- iv. The effectiveness of the monitoring and overseeing systems such as Project Steering Committee and suggestion on improvements, if any.
- v. Utilization of resources (including human and financial) towards producing the outputs and adjustments made to the project strategies and scope.
- vi. Comments on Information dissemination activities undertaken.
- vii. Comments on the awareness programmes, trainings undertaken and the quality of awareness material,

At its discretion, the team is free to include any other additional comments that are felt worth reporting. Annex 1 contains guidance on the GEF Project review criteria and explanation of terminology provided in the GEF Guidelines to Evaluations.

IV. PRODUCTS EXPECTED FROM THE EVALUATION:

The total duration of the review and the finalization of report are 30 days, including a four to six days visit to the field. The consultant will provide/present the draft versions of the terminal evaluation report to relevant implementing agencies including UNDP. After incorporating the comments, the team leader will submit the final report (5 nos. of hard copy) to UNDP, New Delhi (including an electronic copy). The length of the report should not exceed 50 pages, in total. While the contract for emolument purposes will be for 20 days, incorporating the comments, reviewing the draft report/its finalization and formal submission, will happen in 5 days from the date of the draft submission.

If there are discrepancies between the impressions and findings of the evaluation team and the aforesaid parties, these should be explained in a separate sheet to be attached to the final report.

The Evaluation 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. Recommendations
6. Lessons learned
7. Annexes

Timelines [tentative]

The assignment has to be completed on tight timelines since the project is expected to close in March 2011.

1. Field visit for 5 days: [February 15th, 2011]
2. Draft version of report: [February 28th, 2011]
3. Review and comments from UNDP/others: [March 7th, 2011]
4. Final report: [March 15th, 2011]

V. METHODOLOGY OR EVALUATION APPROACH:

The evaluation 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. 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;
- Interviews;
- Field visits;
- Questionnaires, if any;
- Participatory techniques and other approaches for gathering and analysis of data; and
- Participation of stakeholders and/or partners.

VI. EVALUATION TEAM:

The evaluation team will comprise of an international and a local consultant. 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. The team should have:

International consultant:

1. Professional background in development field, related to climate change, with expertise in carbon mitigation initiatives. A minimum of 10 years of working experience is required; Knowledge on campaign as media of interventions is desirable.
2. Highly knowledgeable of participatory monitoring and evaluation processes, and experience in evaluation of technical assistance projects with major donor agencies;
3. Understanding of CO₂ emission reduction calculations, that contribute to global benefits;
4. Familiar with GEF rules, regulations and project evaluations;
5. Demonstrated ability to assess complex situations, succinctly, distil critical issues, and draw forward-looking conclusions and recommendations;
6. Ability and experience to lead multi-disciplinary and national teams, and deliver quality reports within the given time.
7. 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.

Local consultant:

1. Professional background in development field, with climate change mitigation expertise with a minimum of 8 years of relevant experience; Knowledge on campaign as media of interventions is desirable.
2. Demonstrated skills and knowledge in participatory monitoring and evaluation processes;
3. Extensive experience in monitoring and evaluation of development projects, supported by major donor agencies;

4. Proficient in writing and communicating in English. The consultant to bring his/her own computer/laptop and related equipment.

VII. IMPLEMENTATION ARRANGEMENTS:

Management arrangements:

Throughout the period of the evaluation, the evaluation team will liaise closely with the UNDP Country Director, the concerned agencies of the Government [OC-CWG], the counterpart staff of the PMU assigned to the project. The team can raise or discuss any issue or topic it deems necessary to fulfil 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:

This visit will include meetings with the officials of the Implementing Agency, State Nodal Agencies and any other stakeholder related to the project.

After the initial briefing by UNDP Country Director, the evaluation team will meet with the National Project Director, and the staff of the PMU established for the project.

Logistical Support:

All travel will be provided by Economy Class (if travelled by air) and by Executive/Ist Class wherever travel by train is involved. The consultants should arrange their own travel and logistics. In case of any difficulty, the PMU-CWG/UNDP could also facilitate hotel bookings of the team. While the consultants could pay for their ticketing and claim, UNDP could also facilitate their travel bookings. However, the schedule of travel needs to be provided well in advance.

VIII. LIST OF ANNEXES

- Annex I: Guidance on the GEF Project review criteria and explanation of terminology provided in the GEF Guidelines to Evaluations;
- Annex 2: List of Documents to be reviewed by the evaluators;

Annex 1

GUIDANCE ON GEF PROJECT REVIEW CRITERIA AND EXPLANATION OF TERMINOLOGY

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 evaluation
- Main conclusions, recommendations and lessons learned

2. Introduction

- Purpose of the evaluation
- Key issues addressed
- Methodology of the evaluation
- Structure of the 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/Drivenness. 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 M and 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 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 evaluations have been held and whether action has been taken on the results of this monitoring oversight and evaluation reports.

§ 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' 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^[1]

§ 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 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.

5. Recommendations

§ Corrective actions for the design, implementation, monitoring and 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. Evaluation report Annexes

§ 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/Drivenness 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/drivenness 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/drivenness 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 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^[2].
- § 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.

Monitoring & 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 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 EVALUATORS

INTERNAL:

1. Project Document;
2. Minutes of Project Steering Committee/Executive Steering Committee meetings;
3. Quarterly Reports;
4. Annual Work Plan for the year 2010;
5. Back-to-Office Reports of UNDP staff;
6. Terminology in the GEF Guidelines to Terminal Evaluation and the Project Review Criteria – part II, Annex 1 of this TOR.
7. Any other documents the evaluators feel necessary for conducting the evaluation.

EXTERNAL:

1. Relevant reports and publications of carbon assessments for international sporting events
2. GEF guidelines on GHG emission reduction calculations;
3. Any other documents essential for the successful conduct of the above evaluation.

ANNEX B. ITINERARY AND LIST OF DOCUMENTS

B.1 Mission schedule and list of people met

Mon 21/02/11	Meetings with: • CMS Environment (Ms. Alka Tomar) • PMU-CEE (Ms. Manisha Sanghani; Mr. Sharad Gaur), Mr. Ashwin Sabapathy (Enzen), Mr. Shiv Dhawan (senior consultant; OC CWG) and Dr. S. N. Srinivas (UNDP) at UNDP Office)
Tue 22/02	Revision of project documentation and reports
Wed 23/02	Meetings with: • NFD (Ms. Chitali Kapoor) • UNDP/GEF Small Grants Programme (Mr. Prabhjot Sodhi) • MIRAN (Ms. Sujata Bali)
Thu 24/02	Meetings with: • MoEF (Ms. Nayanika Singh) • Forbes (Mr. J.K. Jain) • All Time Production (Ms. Nutan Manmohan)
Fri 25/02	Meetings with: • Wrap-up discussion at UNDP with PMU-CEE and UNDP staff • National Project Director (Mr. Sudhir Mital)

B.2 List of documents reviewed by the Evaluation Team

All Time Productions (ATP; 2011)

The Green Promos Developed under GEF/ UNDP project on Low Carbon Campaign for Commonwealth Games 2010

CMS Environment (CMS; 2010)

Commonwealth Games 2010: Low Carbon Fairs, Report

Enzen (2011a)

Assessment of Low Carbon Practices followed during Commonwealth Games 2010 and Guidelines and Best Practices for Greening Sporting Events in India

Enzen (2011b)

Assessment of Low Carbon Practices followed during Commonwealth Games 2010 and Guidelines and Best Practices for Greening Sporting Events in India, PowerPoint presentation

Forbes Technosys Ltd. (FTL; 2010a)

Carbon Footprint Kiosk Operation & Training Manual

- Forbes Technosys Ltd. (FTL, 2010b)
Carbon Footprint Kiosk Technical & Installation Manual
- Forbes Technosys Ltd. (FTL, 2011c)
Report for the Project for Designing, Development, Implementation and Maintenance of Carbon Calculator Footprint Kiosk.
- Forbes Technosys Ltd (TFL, 2011d)
Project for Designing, Development, Implementation and Maintenance of Carbon Calculator Footprint Kiosk, PowerPoint presentation
- Miran (2010)
A Project Submitted to Project Management Unit (PMU) on Commonwealth Games Green Concert (May 2010 – December 2010)
- Nehru Foundation for Development (NFD; 2011a)
Creating 'Green Citizens' to link with the Low Carbon Campaign for the Commonwealth Games 2010, New Delhi, PowerPoint presentation
- Nehru Foundation for Development (NFD; 2010)
Low Carbon Lifestyles Toolkit Report
Low Carbon Lifestyles Toolkit Promotion and Dissemination Workshop
- Project documentation
- UNDP Project Document
 - GEF Proposal for Review

ANNEX C. GUIDELINES FOR GREENING SPORTING EVENTS

Adapted from Enzen (2011a)

Large scale sporting events are responsible for significant carbon emissions in addition to other environmental impacts. A commitment to reduce the environmental impact right at the inception or bidding stage of the event is necessary to highlight the importance of implementing sustainable practices to all stakeholders involved in the planning and organization of the event.

The establishment of a team at the inception stage of the event dedicated towards developing clear targets of environmental performance for each of the activities/components that go into the planning conduct of the event is required. The team should be provided with the mandate to establish environmental reference baselines at the inception stage for both 'Owned' and 'Associated' emissions and for time frames before, during and after the event. The boundaries could be defined by the actual scope of the event and on the availability of any future international protocols for sporting events. An audit of these reference baselines by an external agency would provide credibility to the exercise.

The reference baselines would establish the Business-As-Usual scenario and serve to help set targets for emission reductions and for environmental performance. The targets should be viable and based on a realistic assessment of measures that could be adopted to achieve them. General measures for improving environmental performance are provided in these guidelines. However, these guidelines need to be developed into specific, implementable action plans for each of the responsible actors to follow. The action plans are to be based on the techno-economic feasibility of each of the measures, which are contextual and site specific. The team therefore needs to develop these action plans in collaboration with appropriate stakeholders in order to obtain their buy in and support. It is necessary that the action plans for environmental performance are integrated into the planning and execution of the activities and are agreed upon by the responsible actors.

A clear cut and measurable monitoring plan is also to be incorporated in order to track implementation. A monitoring plan to collect data on the actual environmental performance at appropriate time intervals is also required to be developed and agreed upon. Protocols for these data to be communicated to the Environment Team need to be established and agreed upon by each of the responsible stakeholders.

Best practices

1 Infrastructure development

The bulk of the carbon emissions result from embodied emissions in the development of venues followed by emissions in the operation of these venues after the event. The following are best practices that can be adopted for future large-scale sporting events in India to minimize emissions and resource consumption from infrastructure development:

- I. Emphasis on the usage of existing venue and training infrastructure.
- II. Maximal use of existing facilities, adaptive reuse of existing sporting venues, and consideration of multi-use centres to reduce the requirement of construction of new facilities.

III. Where construction is required for renovating existing facilities or for new facilities, a primary goal of the design process should be to minimise embodied energy content of materials used. Low embodied energy materials should be identified and given priority over other equivalent materials with higher embodied energy content. Guidelines on embodied energy specific to the geographic location of the event need to be prepared and circulated among appropriate stakeholders like architects, contractors and suppliers. These guidelines would also apply to development of city level infrastructure. The guidelines need to specify:

- Use of natural materials like stone, stabilised mud blocks, timber, etc, as these tend to have lower embodied energy.
- Use of recycled aluminium and steel since virgin metal has a significantly higher embodied energy content. Recycled material used should be certified by the supplier as having a specified minimum recycled content; use of fly ash bricks, if available within a reasonable distance, can also be maximised in place of burnt clay bricks.
- Minimum use of high embodied energy materials like plastics, glass, concrete and virgin metals that require large quantities of process energy for their manufacture.
- Maximum use of locally produced materials to minimise transport energy; bulky materials, including mineral aggregates (gravel, sand, crushed rock), cement, brick and wood, are energy-intensive to move and are often moved large distances, increasing their embodied energy still further. Maximum lead distances may be specified in the guidelines appropriate for that location of the event.
- Use of rail for transportation of construction material wherever possible.

IV. Energy consumption of competition venues, training venues and the sports accommodation result insignificant carbon emissions during the event. Since these facilities would continue to be used after the event, the emissions due to their use over their lifetime are among the largest. In the development of the venues before the event, either through retrofits for existing facilities or for new facilities, decisions on energy efficiency and environmental performance are therefore of critical importance if these emissions are to be minimised. Best practices to do so are:

Venue Envelope

- Building envelope improvements are relevant to indoor enclosed venues that are air-conditioned. Window-wall ratios, thermal properties of glazing (in terms of Solar Heat Gain Coefficient (SHGC), Visual Light Transmittance (VLT) and U-value), roofing/walling material (in terms of U-values), and air leakage, are to achieve or exceed the minimum specifications. Each venue should be simulated using appropriate software to arrive at the best specifications of envelope elements suitable for that venue and climate to maximise the thermal performance of the building. The energy simulation should also guide in the use and specification of insulation material.

Lighting Efficiency

- Using efficient lighting systems are the best way to ensure lighting energy efficiency
 - A modern electronically ballasted T-5/T-8 system of fluorescent lighting can provide the same quantity of light as older fluorescent lighting while consuming as little as 2/3 of the energy needed, and a compact fluorescent lamp (CFL) is three to four times more efficient than a traditional incandescent lamp they are designed to replace.
 - Low wattage LED fixtures have higher energy saving potential and can be considered for building illumination.
 - An alternative to the higher rated metal halide lamps typically used for external lighting, peripheral lighting is High Pressure Sodium Vapour lamps that provide significant energy savings due to their significantly higher system efficacies (Lumens/Watt).

- Exit signs that use incandescent lamps can be replaced with CFL or LED based exit signs.
- LED exit signs can use built-in batteries for back up due to their low power consumption and require fewer lamp replacements with their estimated life of 10 years.
- Best practices for lighting control are:
 - *Automatic lighting shutoff:* Automatic control devices using wall and ceiling occupancy sensors can be used for small office spaces, meeting rooms, conference rooms and restrooms of venues if there are no specified operating hours. For other areas that operate at regular schedules, a time scheduling device to control lighting can be installed.
 - *Control in day lighted areas:* In areas that are day lighted, controls to reduce the light output of luminaires by at least 50% can be installed.
 - *Exterior lighting control:* Exterior lighting can be controlled by a photo sensor that is capable of automatically turning off the exterior lighting when daylight is available or the lighting is not required.

HVAC Systems

- Heating, Ventilation and Air Conditioning (HVAC): The energy required for the operation of VAC systems typically account for a major proportion of the total energy required and measures to reduce the energy intensity of these systems can dramatically alter the performance of the facility. Water cooled chillers for centralized HVAC systems incorporate the use of cooling towers, which improve heat rejection more efficiently at the condenser than air-cooled chillers. Screw or centrifugal compressors are quiet and reliable and more efficient than reciprocating chillers. Centrifugal fans in favour of lower energy axial fans can reduce horsepower by 50% or more for the same capacity. Proper site selection and sizing of the tower can reduce fan speed and capacity and thereby conserve energy.
- Variable fluid flow, automatic isolation valves and Variable Speed Drives (VSD) can enable the system to reduce pump energy by controlling chilled water and condenser water systems during low load periods. This can increase the efficiency of the system. Variable Refrigerant Volume (VRV) units constantly adjust flow rates of the refrigerant by an electronic expansion valve in response to load variations. This can effect significant energy savings at venues where loads due to occupancy can vary.
- Controls are critical elements and determine how HVAC systems should operate to meet design goals of comfort, efficiency, and cost-effective operation. Best practices for controls are:
 - *Controls for cooling towers and closed circuit fluid coolers:* A Variable Speed Drive (VSD) is an electronic device that controls the rotational speed of motor-driven equipment such as a blower, compressor, fan or pump. Speed control is obtained by adjusting the frequency of the voltage applied to the motor. This approach is highly efficient for varying load applications. Fan control through two-speed motors or pony motors can also save energy for varying load conditions.
 - *Time clock control:* Control devices that can start and stop the system under different schedules for different day-types per week can be used for other areas that operate at regular schedules.
- High-efficiency air distribution systems can substantially reduce fan power required by a HVAC system resulting in dramatic energy savings. Design options for improving air distribution efficiency include Variable-Air-Volume (VAV) systems, VAV diffusers, low pressure-drop duct design, Low-face-velocity air handlers, fan sizing and Variable-Frequency-Drive (VFD) motors and Displacement ventilation systems.
- Economisers allow the use of outdoor air to cool the building when the outside temperature is cooler than that inside. An economiser consists of dampers, sensors,

actuators, and logic devices that together decide how much outside air to bring into a building. Under the right conditions, sensors and controls shut down the compressor and bring in the outside air through the economiser louvers. A properly designed economizer can cut energy consumption by as much as 10% depending mostly on local climate and internal cooling loads. Economisers are viable options in climates with relatively long mild or cold periods. Economisers can be used for providing partial cooling (using the building's thermal mass to reduce peak cooling loads by circulating cool night-time air to pre-cool the building prior to daily occupancy in the cooling season) if night time humidity is low.

- Non-refrigerative options in HVAC systems such as evaporative cooling, desiccant heat recovery, ground source heat pump, and absorption cooling in appropriate climatic contexts can offer significant energy savings:
 - *Evaporative cooling:* Common types of evaporative coolers use water pumped over a cellulose fibre pad through which air passes and loses heat. This cooled air is then supplied to spaces that require cooling. This technique has the potential to increase energy efficiency, reduce peak demand, improve indoor air quality and provide non-CFC cooling. Evaporative cooling typically uses less than one-fourth the energy of vapour-compression air conditioning systems. The additional capital investment is paid back through energy savings over 1-5 years depending on the climate.
 - *Desiccant heat recovery:* A conventional cooling system dehumidifies supply air bypassing the air over a cooling coil that is cold enough to condense water vapour and is then sometimes reheated for comfortable supply, which requires added energy. The use of a desiccant wheel or, through the properties of the desiccant to absorb water independent of sensible cooling, can reduce HVAC electricity use by 30-60% in large facilities. This improves chiller efficiency and provides improved indoor air quality. In combination with evaporative cooling, desiccant cooling can eliminate refrigerative air-conditioning in many climates. Heat Recovery Wheels with desiccant cooling are capable of recovering 80% of the heating or cooling energy that is exhausted from the building and thus reduces the energy cost of the fresh air.
 - *Ground Source Heat Pump:* Ground coupled systems provide passive heating and cooling by using the ground as a heat source or a heat sink and have good potential in India. Groundwater-source heat pumps (GWHP) draw water from wells, lakes, or other reservoirs of groundwater, pass the water through an open loop, and discharge it back to the environment. Ground-source closed loop heat pumps (GSHP) use a pump and ground-coupled heat exchanges to provide a heat source and heat sink for multiple GSHPs within the building.
 - *Absorption cooling:* Absorption chillers rely on a thermo chemical 'compressor' instead of mechanically compression as with a traditional vapour compression system. These systems are usually viable in situations where electric demand charges or electricity rate are high and where natural gas prices are favourable. Waste heat recovery system scan vastly improve the economics of an absorption cooling system.
- Before replacing HVAC system components to improve energy efficiency in existing facilities, the possibility of re-commissioning should be explored. This involves a detailed assessment of existing equipment performance and maintenance procedures compared to intended or design performance and procedures, in order to identify and fix problem areas that might be hampering building energy efficiency. This can be a cost-effective retrofit in itself, sometimes generating more savings than the cost of the retrofit measure. A step-wise approach is usually adopted in which, first, lighting and supplemental loads are assessed followed then by the building envelope, controls, testing, adjusting and balancing, heat exchange equipment and finally heating and cooling systems.
- *Building Management Systems:* An energy monitoring and control system supports the efficient operation of HVAC equipment by continuously managing and optimizing HVAC system energy consumption while also providing valuable diagnostic data for

tracking energy consumption and identifying potential HVAC system problems. Automation can help in programmed Start and Stop of HVAC machines, ventilation systems, chillers, run time equalisation and auto adjustment of set points. The automation and the Building Management System (BMS) build in intelligence for instant communication between sensors and machines providing instant control and can be software driven to avoid overloading, downtime and wastage of energy.

Renewable Energy

- Solar water heating can provide enormous energy savings to provide hot water in shower rooms at venues and at residential facilities for sportspersons. The long term energy saving potential at post event residential facilities, such as at the Games Village, can be significant.
 - For street lighting at venue precincts, solar PV based LED lighting can be considered.
 - Large rooftop areas of stadia can be used for the installation of grid connected solar PV systems. The emissions from energy use of venues during events can be offset by the energy generated over the lifetime of the PV system.
- V. Water consumption of competition venues, training venues and the Games accommodations can result in indirect carbon emissions due to energy use associated with water pumping. Best practices to minimize water consumption over the life of facilities are:
- Water efficient faucets and fixtures such as sensor controlled water taps and urinals; use of low capacity cisterns.
 - Where feasible, onsite wastewater treatment can be considered and treated effluent can be used for landscaping, HVAC make-up water and/or flushing purposes.
 - Rainwater harvesting can augment available water sources. Rooftop rainwater can be stored and used for landscaping or even for other uses such as in toilets, with certain level of treatment. Overflow from the water storage can be used to recharge groundwater using percolation pits or by recharging existing tube wells. For venues with substantial surface area, measures for groundwater percolation using appropriate measures can be implemented.

2 Planning and organization

Large scale sporting events involve significant resource use in their planning and organization before the event. The main activities responsible for carbon emissions are in energy use of facilities occupied by the agency involved in the organization of the event, international and domestic air travel, hotel accommodation during travel, and emissions from vehicular fleet. Measures to reduce carbon emissions from these activities are:

VI. Facilities:

- Wherever possible, office facilities that are leased to house the agency involved in the
- organizing of the event should be certified by competent institutions;
- If this is not possible, an energy audit of the facilities should be carried out and retrofitted to lower the Energy Performance Index (EPI) and meet benchmark level before occupying the facility.
- Any HVAC retrofits should ensure that the refrigerants used are non-CFC based.

VII. **Vehicular fleet:** Organising a large scale sporting event typically entails the use of a fleet of vehicles, either owned or leased, for the transportation needs of officials. During the sporting event, the emissions resulting from the transportation of athletes, officials and other groups can be quite significant.

- These emissions can be minimized by optimizing the usage of vehicles to increase the occupancy and reduce the number of trips.
- Specifications for vehicles that are owned or hired should prioritize alternative fuelled vehicles like CNG, hybrid or electric vehicles. Wherever possible, the vehicles should be run on a mix of bio-fuels and conventional fossil fuel.
- Vehicles should meet the latest mass emission standards (presently Bharat Stage-IV) to ensure maximum fuel efficiency. In addition, a vehicle maintenance programme should be in place to ensure that the vehicles are operated at their optimum levels. Where conventional transportation is used, a higher engine torque rating, lower gear ratio and low profile radial tyres help in increasing fuel economy.
- A driver training module should be implemented to focus on driving characteristics such as avoiding idling, or progressive shifting to improve fuel economy.

VIII. Air travel and accommodation: The option of minimizing international travel of officials during the planning stage of any event through video conferencing should be considered. Where video conferencing is not feasible, actions that reduce emissions and options for offsetting of carbon emissions could be explored:

- In choosing hotel accommodation during travel, hotels that are committed to environmental protection and which are 'green certified' (if such certification is available). If such hotels are not available, hotels that comply with or exceed national energy efficiency guidelines are to be given preference. Such hotels can be empanelled for official stays before and during the event.
- Carbon offsets available for purchase from airlines to reduce their carbon footprint can be purchased where air travel cannot be avoided. It is necessary to ensure that these carbon offsets are validated and certified by an external agency before purchasing credits. Initiatives for mitigation and offsetting of air travel emissions can also be taken by the agency organising the event by setting up kiosks at the venues during the event where carbon offsets can be purchased. The kiosks could also be used by international visitors who would like to offset their emissions in order to reduce the indirect or 'associated' emissions of the event. Funds collected from these purchases could be used for direct carbon sequestration, renewable energy and energy efficiency projects. A third party evaluation to quantify and validate the offset measures is necessary to offer credibility to the exercise.

IX. Waste management: The main sources of waste are from the facilities housing the organizing agency during the planning and staging of the event; and domestic waste from the residential facilities of athletes as well as at the venues during the event. The general '3-R' circular economy principles of 'reduce, reuse, and recycle' are to drive waste management. A comprehensive waste management plan has to be developed and specific targets need to be set for waste reuse and recycling.

- For the facilities occupied by the organizing agency, it is necessary to ensure that segregation of waste is implemented at source by providing separate and appropriately labelled bins for biodegradable waste (for food, leaves, etc., for composting), recyclable waste (metals, glass, paper, etc.) and non-recyclable waste (polythenes and plastics that cannot be treated for reuse). Separate bins for hazardous wastes may also be provided for batteries, CFLs and fluorescent tubes, etc.). The labels should indicate the classification of waste to ensure that the appropriate bin is used for a particular type of waste. Where space is available, organic waste may be treated onsite through composting or vermi-composting.
- At venues, where food and beverages are available for spectators, athletes and officials, the use of biodegradable products could be identified and procured in place of non-

biodegradable Styrofoam dishes. Reusable packaging should be considered. Waste segregation should be encouraged by providing labelled bins for biodegradable waste, recyclable waste and non-recyclable waste.

- Agencies responsible for recycling waste and waste treatment should be identified and protocols for tracking the waste from generation, storage, transportation to treatment should be developed to ensure the proper disposal of waste. Quarterly reports which detail waste production and disposal should be generated for carbon accounting purposes.

X. Procurement: The agency involved in the organization of large-scale sporting events would typically require equipment and supplies over the planning period as well as during the event. It is necessary to ensure that the emissions from the supply chain of these procured materials are minimized by following the guidelines below:

- A procurement guideline which emphasizes on adoption of environment friendly practices and usage of low impact material by vendors has to be developed and communicated effectively among all stakeholders organising the event and responsible for procurement of goods and services. Eco friendly and sustainable materials must be specified for packaging, building materials, food containers and other goods.
- Screening and selection of vendors plays an important role in ensuring sustainable procurement; a standard process for vendor short listing and selection and a procurement policy is essential. Preference is to be given to vendors certified under appropriate standards such as ISO 14001. Environmental considerations are to be included within tender criteria, such as the nature of materials or the environmental footprint of the bidder. These criteria are to be included at the tender pre-qualification stage for selection of contractors. All bidders must specify the nature of material, energy use, carbon footprint, type of waste generated and transport related to delivery of goods, which will help in evaluation of suppliers.
- Construction contracts are to detail out sustainability requirements such as sustainable and renewable construction systems and materials with low embodied energy. Eco-labelling & adherence to recognised standards should be specified to ensure quality. The vendors should be provided with guidelines to collect energy & fuel use data in order to quantify 'associated' emissions due to procurement of materials for the event.
- Vendors should provide supporting documents/certificates of recycled/biodegradable materials supplied.

XI. Awareness: Large scale sporting events present a major opportunity to raise environmental awareness among various stakeholders including the larger public on environmental issues relevant to that context as well as global issues such as climate change. This could be seen as a means of inducing behavioural change and promoting sustainable practices amongst citizens, athletes and visitors. This can have wide ranging and significant impacts on reducing the environmental impact of actions that go beyond the event itself. The primary purpose of awareness campaigns must be to increase awareness of an environmental issue and to provide educational information on management of that issue through individual action. Broad guidelines for developing awareness campaigns are detailed below:

- Campaigns should target the workforce of the organizing agency to inculcate sustainable practices such as the use of public transport, car-pooling, waste minimization and disposal of waste in appropriate bins, resource conservation practices such as turning off computer monitors and lights when not in use, etc. The campaigns could be carried out through periodic in-house workshops and by taking assistance from external consultants right from the beginning of the planning period. Successive workshops should continually evaluate whether the campaigns have had any impact and take measures to improve upon the content and/or the technique of delivery. The measures taken to ensure that the planning of the event has the least possible environmental impact and how every individual contributes towards meeting this objective has to be conveyed strongly.

- The athletes and officials could be targeted separately through campaigns to promote eco-conscious behaviour at the residential facilities. Inducing behavioural change to switch of lighting and other equipment when not required, minimizing waste, disposal of waste in appropriate bins, etc., could be carried out through visual media such as banners, posters and electronic media throughout the duration of the event.
- Public awareness and participation is important not only for creating an understanding of basic environmental issues, but also for fostering a sense of responsibility and proactive environmental citizenship. Newspapers, television, radio, magazines, and other media can be used to quickly reach a large number of people. Public awareness and education can be effectively generated among specific targeted groups by providing information tailored to the activities, needs and challenges of the group. The information provided should be on individual duties and responsibilities, as well as about the social, environmental and economic consequences of inaction. Specific campaigns targeting school children, schoolteachers, youth, community and traditional leaders, non-governmental organizations, the private sector and industrial and trade association, could be designed and implemented in the run-up to the event. This could take the form of concerts, competitions, posters, hand-outs, audio-visuais, teacher-training workshops, exhibitions, film screenings, fairs, etc. The involvement of people that are well-known and respected public figures can be a potent way of promoting responsible action. Specific campaigns that promote waste reduction, disposal of waste in appropriate bins, use of public transport, and other sustainable practices during the event should be conducted.

ANNEX D. PROJECT BUDGET AND FINANCING

I. Project Identification

GEF Project ID: [Assigned by the GEF Secretariat at pipeline entry.]

GEF Agency Project ID:

Countries:

Project Title: [As per the project appraisal document submitted to the GEF.]

GEF Agency (or Agencies):

II. Dates

Milestone	Expected date	
CEO endorsement/approval		14 June 2010
Agency approval date	01 June 2010	1 July 2010
Implementation start		7 July 2010
Midterm evaluation	N/A	N/A
Project completion	31 December 2010	31 December 2010
Terminal evaluation completion		April 2011
Project closing		June 2011

III. Project Framework

Project component	Activity type	GEF financing (in \$)			Co-financing (in \$)	
		Approved	Actual		Promised	Actual
1.	TA	890,000	490,000	499,170	2,500,000	3,341,481
2.	TA		173,750	77,466		
3.	TA		120,000	68,638		
4.	TA		100,000	25,360		
M&E			6,250	38,750		
Project management			60,000	65,765	150,000	150,000
Total			943,750	943,750	2,650,000	3,491,481

Note:: (a) left column: approved GEF financing at the point of CEO endorsement/approval; b) right column: at the point of project inception

IV. Co financing

Sources of Cofinancing	Type	Project preparation		Project implementation		Total	
		Expected	Actual	Expected	Actual	Expected	Actual
Government / Foundation:							
CWG OC	In-kind			900,000	900,000		
MoEF	Cash/in-kind			1,100,000	517,582		
BEE	In-kind			200,000	439,560		
CMS	In-kind			244,778	244,778		
MNRE	In-kind				439,560		
Beneficiaries	In-kind			205,222			
UNDP	Cash/in-kind	5,000	5,000				
Total cofinancing		5,000	5,000	2,650,000	3,491,481		

Notes:

- Expected amounts are those submitted by the GEF Agencies in the original project appraisal document (PIF)
- The Evaluation Team observes that while CWG OC co-fin is clearly in-kind; the contributions by MoEF, BEE, MNRE should better be labeled 'cash', since this consisted of buying air time for AVs and contribution to holding the Green Concerts
- Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.
- UNDP provided the project preparation grant of 5,000 USD.