United Nations Development Programme – INDIA
CPAP 2013-17
Annual Work Plan 2017

Project Title: Improving Energy Efficiency in the Indian Railways System
Implementing Partner: Indian Railways

UNDPSP Outcome(s): Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded and development are inclusive and sustainable, incorporating productive capacities

UNDP SP Output(s): Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)

UNDP SP Indicators: Extent of change in: a) energy efficiency, and/or b) modern energy coverage by users and specific sectors

UNDAF Outcome(s): Government, industry and other relevant stakeholders actively promote environmental sustainability and enhanced resilience of communities in the face of challenges of climate change, disaster risk and natural resource depletion

Brief Description

The project aims at improving energy efficiency in the Indian Railways system (and thereby reducing GHG emissions) by removing some of the key barriers that prevent the wide adoption of energy efficiency technologies and measures in the IR system.

This is the last year of the project and therefore the project envisages to complete few last ongoing activities and showcase successful results.

More specifically the project will undertake following activities this year
- Complete one last pilot project on Building Management Intelligent System, document and disseminate cost benefit.
- Document and disseminate outcomes of all demonstration projects to Indian Railways staff in application of energy efficient technologies and solutions.
- Ensure systems are in place for adoption of successful energy efficiency measures by Indian Railways in future.
- Information exchange with center of excellence from national and international institutions.

A detail evaluation will be undertaken at the end of this year to assess the success of the project in achieving the desired results.

Programme Period: 2011-2017
Key Result Area (Strategic Plan): 00060440
Award ID: 00076108
Project ID:
Project Start Date: Sep 2011
Project End Date: March 2017
PAC Meeting Date: 7 November 2008
Management Arrangements: NIM

2017 AWP budget: USD 282,544
- **Non-core: (GEF) $**

**Please specify donors and contribution.

Project Expenditure

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<tr>
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</thead>
<tbody>
<tr>
<td>$2,200,000</td>
<td>492,071</td>
<td>44,199</td>
<td>1,711,849</td>
<td>1,777,158</td>
<td>892,179</td>
<td>282,544</td>
</tr>
</tbody>
</table>

Agreed by (Implementing Partner): [Signature]

Agreed by UNDP: Jaco Cilliers [Signature]

[Stamp]
## I. Annual Work Plan

**Year: 2017**

<table>
<thead>
<tr>
<th>Annual Outputs</th>
<th>PLANNED ACTIVITIES</th>
<th>TIMEFRAME</th>
<th>PLANNED BUDGET</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td>Project Outcome 1: Strengthened institutional capacities and technical training</td>
<td></td>
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</tr>
<tr>
<td>1.1 Documenting Energy Efficiency Best practices (Measures and Technology) and define Benchmarks</td>
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<tr>
<td><strong>Baseline: 1</strong></td>
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<tr>
<td><strong>Indicators: Exposure visits organized and interaction report of each of the 8 groups</strong></td>
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<tr>
<td><strong>Targets: 2 visits &amp; 2 interaction reports</strong></td>
<td></td>
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</tr>
<tr>
<td>1.1.3 Interaction with industrialized countries (such as Spain, Germany, France, UK), including visits to their 'units of excellence', to assess the efficacy of their EE technologies and measures and define benchmarks</td>
<td>✔</td>
<td>GEF</td>
<td>71200</td>
<td> </td>
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<tr>
<td>Sub-total</td>
<td> </td>
<td> </td>
<td>38,000</td>
<td> </td>
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<tr>
<td>Project Outcome 2 – Implementation of Proven energy efficiency technologies and measures</td>
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<tr>
<td>2.3 Completed implementation of proven energy efficiency technologies projects</td>
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</tr>
<tr>
<td>2.3.2 Implementation of proven energy efficiency technologies and good housekeeping measures as identified during project preparation and under the audits to build</td>
<td>✔</td>
<td>GEF</td>
<td>74100</td>
<td>189,294</td>
</tr>
<tr>
<td>Targets: 1</td>
<td>Implementation of BMIS project in Rail Bhawan for demonstration as pilot project.</td>
<td>74500</td>
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<td>---</td>
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<tr>
<td>Baseline: 0</td>
<td></td>
<td>71300</td>
<td></td>
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<tr>
<td>Indicators: BMIS implementation at Rail Bhawan</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sub-total</td>
<td></td>
<td>189,294</td>
<td></td>
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</tr>
</tbody>
</table>

**Project Outcome 4: Information and knowledge Sharing**

| Baseline: 0 |  | 71300 |
| 4: Information and knowledge on EE technologies and measures are widely available and accessible for IRS divisions and their affiliates |  |  |
| Indicators: Annual report at the Zonal level | 4 1 4 Conduct of awareness campaigns at divisional level | √ |
| Targets: 68 | GEF | 10,647 |
| Sub-total in USD | IR | 10,647 |

**Subtotal for Project Outcome 4:**

| Project staff salaries, Project Management expenses | 9,283 |
| Annual Audit, Evaluations, Communication expenses | 35,320 |

**AWP Grand Total in USD:**

| 282,544 |
II. Monitoring and Evaluation

A. Framework

*(Include all monitoring and evaluation activities/events)*

**Project ID: 0076108  Project Title: Improving Energy Efficiency in the Indian Railways System**

<table>
<thead>
<tr>
<th>Expected Results (Outcomes &amp; Outputs)</th>
<th>Indicators</th>
<th>Baseline</th>
<th>Targets</th>
<th>Data Collection Plan</th>
<th>Risks and Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Obtained from the CPAP and project Results Frameworks</td>
<td>Obtained from the CPAP and project Results Frameworks</td>
<td>At the project start date</td>
<td>At the project end date</td>
<td>Specific publication, evaluation, survey, field observation, interviews, etc</td>
<td>Monthly, quarterly, annually, etc</td>
</tr>
</tbody>
</table>

**CPAP Outcome**

Government, industry and other relevant stakeholders actively promote environmental sustainability and enhanced resilience of communities in the face of challenges of climate change, disaster risk and natural resource depletion.

- **Cumulative emission reductions achieved in the IRS by End of Project EOP (million t CO2)**
  - Baseline: 0
  - Target: 0.117
  - **M&E reports of the pilot/model projects and documents available with IRS**
  - **Indian Railways**

**CPAP Output**

Removal of key barriers that prevent the wide adoption of energy efficiency technologies and measures in the IRS.

- **Total direct energy savings by End of Project (billion kWh)**
  - Baseline: 0
  - Target: 0.142
  - **Rail saver data**
  - **Energy bills verified by IR and technical reports**
  - **Annually**
  - **Indian Railways**

**Project Output 1**

Strengthened IR institutional capacity.

- **Interaction with industrialized countries (such as Spain, Germany, France, UK), including visits to their units of excellence, to assess the efficacy of their EE technologies and measures and define benchmarks**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 2**

Improved EE management & technical capacity of IR staff.

- **Implementation of BtMIS project in Rail Bhavan for demonstration as pilot project**
  - Baseline: 0
  - Target: **BMIS in Rail Bhavan is complete**
  - **Final report on BMIS**
  - **EOP**
  - **Indian Railways**

**Project Output 3**

Enhanced participation of Indian Railways in international networks.

- **Enhanced participation in international networks**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

- **Enhanced participation in international networks**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 4**

Increased awareness and capacity of IR staff.

- **Increased awareness and capacity of IR staff**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 5**

Increased adoption of energy efficiency technologies and measures in the IRS.

- **Increased adoption of energy efficiency technologies and measures in the IRS**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 6**

Increased cooperation and coordination among stakeholders.

- **Increased cooperation and coordination among stakeholders**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 7**

Enhanced capacity of IR staff to implement energy efficiency technologies and measures.

- **Enhanced capacity of IR staff to implement energy efficiency technologies and measures**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**

**Project Output 8**

Increased capacity of IR staff to monitor and evaluate energy efficiency technologies and measures.

- **Increased capacity of IR staff to monitor and evaluate energy efficiency technologies and measures**
  - Baseline: 6
  - Target: 8
  - **Tour report**
  - **End of Project (EOP)**
  - **Indian Railways**
Project Output 4
Information and knowledge on EE technologies and measures are widely available and accessible for IRS divisions and their affiliates

<table>
<thead>
<tr>
<th>Average number of visitors visiting the web portal each year starting year 2</th>
<th>NA</th>
<th>24000</th>
<th>Web portal counter</th>
<th>Annual</th>
<th>Indian Railways</th>
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<tbody>
<tr>
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</table>

- Captured all the information, updated knowledge and documented the results
- The web portal is created and operational
- TIRFAD is created and operational

B. Monitoring and Evaluation Plan

Monitoring Plan

<table>
<thead>
<tr>
<th>Monitoring Visit</th>
<th>Time Frame</th>
<th>By whom</th>
<th>Place</th>
<th>Purpose</th>
<th>Expected Outcome</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Visit 1</td>
<td>Q1</td>
<td>National Project Director, National Project Coordinator, Research Design and Standards Organisation</td>
<td>Delhi</td>
<td>Evaluation of pilot projects in Delhi Division (NR)</td>
<td>Saving achieved and replication potential</td>
<td>100</td>
</tr>
<tr>
<td>Evaluations/Assessments/Reviews Planned for this year</td>
<td>Time Frame</td>
<td>By whom (External or Internal)</td>
<td>Purpose and how the evaluation/assessment/reviews results &amp; Recommendation will be utilized</td>
<td>Resources</td>
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<td>-----------------------------------------------------</td>
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</tr>
<tr>
<td>Railsaver portal and AMR meter pilot project</td>
<td>Q1 Q2 Q3 Q4</td>
<td>External</td>
<td>Purpose: Evaluation of the railsaver portal and AMR meter pilot project will ascertain that the developed application meets the project requirement and energy savings are well captured for different zones for both traction and non-traction. This will quantify the annual energy saving of the railways as a result of this programme. With proper AMR system in place exact project specific saving can be monitored in real time which will encourage wider implementation of proven energy efficiency pilot project at an early stage.</td>
<td>USD 20,000</td>
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<tr>
<td>BMIS installation at Rail Bhawan</td>
<td></td>
<td>External</td>
<td>Purpose: To ascertain the effectiveness of the installed BMIS system. The finding on the energy saved and the automated control on energy consumption shall become the basis for development of similar projects at other offices and railway stations.</td>
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<tr>
<td>Pilot projects implemented at Delhi Division</td>
<td></td>
<td>Internal</td>
<td>Purpose: RDSO &amp; IRIEEN officials to inspect the pilot projects implemented at Delhi Division under IR-UNDP project. Subsequently, RDSO will develop the specific formats for all such projects for assessing &amp; expanding to other Railways.</td>
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<tr>
<td>i. Optimal light control system over DLI Division</td>
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<td>ii. Smart sense &amp; smart Gnd system at Baroda House New Delhi</td>
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<td>iii. Provision of automated light &amp; fan control for New Delhi Railway Station</td>
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<tr>
<td>iv. Implementation of SCADA on New Delhi Railway Station</td>
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<tr>
<td>v. Supply, fixing, testing &amp; commissioning of retro-fitment of LED lights in 150 non AC GSCN coaches of TL Depot in DLI Division</td>
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<tr>
<td>vi. Automation of pumping arrangement at Ghaziabad</td>
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<tr>
<td>Project</td>
<td>Organization</td>
<td>Purpose</td>
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<td>--------------------------------------------------------------------------</td>
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<tr>
<td>Pilot Project implementation at NWR</td>
<td>Internal</td>
<td>To study the pilot project of &quot;Energy efficient automation system for pumping station&quot; developed at Jaipur NWR and to train the concerned officials of NWR for effective usage of above system</td>
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<tr>
<td>Central Railway</td>
<td>Internal</td>
<td>Evaluation of pilot projects and training</td>
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<tr>
<td>Provision of building management system for stations &amp; railway offices for implementing energy efficiency measures at Dadar Station</td>
<td>Internal</td>
<td>Evaluation of pilot projects and training</td>
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</tbody>
</table>
III. Recruitment Plan 2017
(Include all the recruitments envisaged by the project in AWP 2017 - including national and international staff positions that are vacant or newly created)

Project ID: __________  Project Title: ______________________________________________________________________________________

To be provided by HR
IV. Procurement Plan 2017
(Include all local and international procurements valued at or above $5000 envisaged in AWP 2017 – including goods, assets, services and works)

Project ID: 0078108  Project Title: Improving Energy Efficiency in the Indian Railways System

<table>
<thead>
<tr>
<th>Requesting Unit</th>
<th>Project Name (acronym or brief name)</th>
<th>Type of Supply</th>
<th>Category</th>
<th>Description of goods, services or works required</th>
<th>Unit of Measure</th>
<th>Quantity</th>
<th>Estimated Unit Price in USD</th>
<th>Estimated Total Price in USD</th>
<th>Requested delivery date (goods, works) or start of services</th>
<th>Finalization of service(s) date</th>
<th>End user of goods, services or works</th>
<th>Procurement Process Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEU</td>
<td>Station lighting system</td>
<td>Institution al Contract</td>
<td>Consultancy service for station lighting system</td>
<td>Number</td>
<td>1</td>
<td>50,000</td>
<td>50,000</td>
<td>Feb</td>
<td>March</td>
<td>Indian Railways</td>
<td>Not started</td>
<td></td>
</tr>
</tbody>
</table>

Total Estimated 2017 Procurement Plan (USD) 50,000
V. Management Arrangements

The management arrangements will remain same as specified in approved project document except the following changes

At the programme level, coordination and oversight will be provided by Project Management Board established for Environmental Sustainability programme outcome area. The Project Management Board will meet twice a year

Oversight of project level activities will be provided by the Project Steering Committee (PSC). National Project Director will be responsible for approving the Annual Work Plans and providing overall guidance and oversight. The PSC will meet at least once a year although efforts will be made to convene quarterly meetings to ensure regular follow-up. The PSC will delegate day to day management of the AWPs and related decisions to a working group comprising UNDP, Implementing Partner (PMU) and other stakeholders, as appropriate.
Fund Flow Arrangements and Financial Management:

At the request of the Implementing Partner (Indian Railways), UNDP will reimburse funds to CAAA. The request from the Implementing Partner will come through CAAA in the Standard Fund Authorization and Certificate of Expenditures (FACE) Report duly signed by the National Project Director or person assigned/delegated by the Implementing Partner. Only after 80% of last advance and 100% of all the previous advances are spent will the next advance be released. The Funding has since been included in the IR Budget.

Funds can also be transferred as a) direct payment to vendors or third parties for obligations incurred by the Implementing Partners (Indian Railways) based on requests signed by the designated official of the Implementing Partner, and b) direct payments to vendors or third parties for obligations incurred by UN agencies in support of activities agreed with Implementing Partners. Advance fund transfers shall be requested and released for programme implementation periods not exceeding three months. UNDP shall not be obligated to reimburse expenditure made by the Implementing Partner over and above the authorized amounts. Also, Partner needs to report interest earned immediately to UNDP through next submitted FACE Form.

The Implementing Partner may request UNDP to provide support services for project implementation. These services may include procurement, recruitment, purchase of goods and services, and organization of training activities and workshops. UNDP recruitment and procurement rules and regulations will apply for the services provided. All direct costs which are attributable to the provision of these services (direct project costs) will be charged to the project in accordance with in accordance with the policies decided by UNDP decided by UNDP’s Executive Board.

Books of account shall be maintained to ensure accurate reporting of expenditure and providing a clear audit trail. Any interest accrued on the project funds during the project cycle will be ploughed back into the project in consultation with Implementing partner and UNDP and project budgets will stand revised to this extent. If there is no scope for ploughing back the interest will be refunded to UNDP.

**Audit:** A Harmonized Approach to Cash Transfers (HACT) Framework, is a common operational (harmonized) structure for transferring cash to both government and non-government Implementing Partners (IPs). HACT changed the management of cash transfers from a system of rigid controls to a risk management approach aimed at reducing transaction costs, simplifying and harmonizing rules and procedures, while strengthening the capacity of implementing partners to effectively manage resources. Under the revised approach, the NIM audits are no longer required. The implementing partner (IP) is micro-assessed for determining the cash transfer modality under the project. An assurance plan is developed for the IP which includes spot checks, internal control audits and financial audits. The frequency of these will depend on the risk rating of the IP determined in the micro-assessment. In the case of Country Office Support to NIM Micro Assessment is not required.

**Project Closure:** Project Closure The project will be closed as per UNDP norms and assets (if any) will be disposed of or transferred to IP in consultation with them during the life cycle or at end of the project.
VI. Planning, Monitoring and Reporting

The project will follow the following planning, monitoring and reporting cycle during the year:

<table>
<thead>
<tr>
<th>Timeline / Target Date</th>
<th>Activity</th>
<th>Primary Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 Feb 2017</td>
<td>Submit final Annual Progress Report 2016 to UNDP</td>
<td>Project Director/Project Manager</td>
</tr>
<tr>
<td>1 Feb-15 Mar 2017</td>
<td>Annual audit of the project</td>
<td>RPU-Program Unit</td>
</tr>
<tr>
<td>07 April 2017</td>
<td>Quarterly Progress Reports, including a) Report on project progress and financial delivery (FACE forms)</td>
<td>Project Manager, M&amp;E</td>
</tr>
<tr>
<td>31 March 2017</td>
<td>Organise Project Steering Committee as agreed in the Prodoc (Mid-year review of project progress and, if needed, revision of the AWP)</td>
<td>Project Director/Project Manager/Project Manager/Program Manager</td>
</tr>
<tr>
<td>15 March 2017</td>
<td>IRRF, IWP and ROAR updates</td>
<td>M&amp;E and Program Units</td>
</tr>
</tbody>
</table>
ANNEXES

Annex 1  Cost sharing agreements signed with donors/government (if any)
Annex 2  Project cooperation agreement signed with NGOs (if any)
Annex 3  Agreements between the Implementing Partner and Responsible Parties (}