United Nations Development Programme
India

2009 ANNUAL WORK PLAN

Project Title: Achieving Reduction in GHG Emissions Through Advanced Energy Efficiency Technology in Electric Motors

UNDAF Outcome(s): Communities are aware of the vulnerabilities and climate change threats, with particular focus on disaster and environmental-related risks.

Expected CP Outcome(s): Progress Towards Meeting the National Commitment under multilateral environmental agreements.

Expected Outcome(s): National development efforts with co-benefits of mitigating climate change supported.

Implementing Partner: Bureau of Energy Efficiency, Ministry of Power

Responsible Party: International Copper Promotion Council (India)

Brief Description:
As reviewed by DEA in the meeting held on 7 November 2008, the project aims to introduce Copper Motor Rotor technology for high pressure copper die casting to manufacturers of copper cast rotors and electric motors in order to achieve energy savings and reduction in greenhouse gas (GHG) emissions associated with the use of electric motors by industry.

During 2009, the project will make the Enabling Technology Center (ETC) functional for die casting rotors with an acceptable quality. It will also work to re-design motors with copper die cast rotors for 3 applications. Further it would ensure the centre is competent to offer consultancy on technology as well as motor design. This will facilitate industry partnerships. The project would target transfer of the technology to at least one manufacturer or cluster.

<table>
<thead>
<tr>
<th>Key Result Area (Strategic Plan): Mainstreaming Energy and environment.</th>
<th>2009 AWIP budget: US $ 65,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlas Award ID: 00047661</td>
<td>Total resources required US $1,364,000</td>
</tr>
<tr>
<td>Start date: 1 January 2009</td>
<td>Total allocated resources:</td>
</tr>
<tr>
<td>End Date: 31 December 2009</td>
<td>- Regular - GEF US $ 250,000</td>
</tr>
<tr>
<td>PAC Meeting Date: 7 November 2003</td>
<td>- Other:</td>
</tr>
<tr>
<td>Management Arrangements: National Execution</td>
<td>- CFC US $ 604,000</td>
</tr>
<tr>
<td></td>
<td>- ICA US $ 300,000</td>
</tr>
<tr>
<td></td>
<td>- NFTDC US $ 210,000</td>
</tr>
<tr>
<td></td>
<td>- Government</td>
</tr>
</tbody>
</table>

Unfunded budget: Nil

In-kind Contributions: -

Agreed by (Implementing Partner): Bureau of Energy Efficiency, Ministry of Power

Agreed by: UNDP Deputy Country Director

1. PROJECT OVERVIEW:
   Pieter Bult

   UNDP Deputy, Country Director

(Saurabh Kumar) Secretary/Bureau of Energy Efficiency

(नैराम सुभाष) सचिव/नई दिल्ली नई दिल्ली
1.1 Situation Analysis:

India faces chronic electricity shortage (of about 10%) and up to 20% during peak periods. At the same time, the actual per capita consumption has grown from 140 kWh in 1980 to 500 kWh in 2003 and expected to grow to around 800 kWh by 2012. Of the total electricity consumption in India, motors consume almost 35%. Motors are used mainly in industrial and agricultural sectors. Most of the energy is consumed by low-voltage motors of up to 37.5 kW size which offer maximum potential for energy savings. One of the ways to address the problem of energy shortage is to reduce demand mainly by increasing end use efficiency.

1.2 Rationale for the Project:

In order to improve the market penetration of energy efficient motors, the Bureau of Energy Efficiency (BEE) is developing a labelling program for motors under the Energy Conservation Act 2001. As per the Bureau of Indian Standards (BIS) product specifications IS 12615 – 2004, an energy efficient motor is defined similar to European standards and therefore, currently, only a select group of manufacturers produce energy efficient (EE) motors. To meet the high efficiency (rated Eff1) standard, manufacturers generally employ a range of improvements in materials, design & manufacturing methods and quality control that collectively reduce the motor’s losses and boost its operating efficiency to the required standard. As per the manufacturers’ feedback, a sale of these EFF1 motors is only approximately 2% of the total sales. The major reason identified for low sales is higher initial cost. Hence there is a need to develop technology which can reduce the initial cost of EFF1 motors.

As per the motor design experts, the initial cost of energy efficient induction motors can be reduced by using the copper die-casting technology for the rotors instead of Aluminum die-cast rotors. This will also help reduce the size of the motors for the same output and thus the active material and material cost.

While the stator windings in an induction motor are normally of copper, the rotors are invariably made of die-cast aluminum (ease of die casting aluminum due its lower melting temperature (660 °C), as well as challenging task of die casting copper at its high melting temperature (1083 °C)]. Die casting copper poses problems such as shorter die life resulting from higher melting temperature of copper. After considerable research and technology development efforts, the International Copper Association (ICA) has developed a technology for manufacture of cast Copper Motor Rotors called CMR Technology. There is a need to transfer, adapt, and improve this technology to suit developing countries like India, as a means to reduce the manufacturing cost of EFF1 motors.
However, at present there is a lack of skilled and trained manpower available in India in this field. At the same time, technology transfer cost for a single user would make the technology uneconomical and costly.

1.3 Project Strategy:

The project envisages adoption of high pressure copper die casting technology (also known as CMR Technology), most suitable for manufacture of rotors of high efficiency motors. This technology will be transferred mainly to manufacturers of rotors, motors pumps and motor systems (including small and medium scale manufacturers) in India to achieve a quantum jump in efficiency levels of motors of almost up to 5%. Cast copper rotor technology would contribute to cost-effective manufacture of high efficiency motors. To coordinate all the technology assimilation and transfer activities, the project envisages establishing an “Enabling Technology Centre” (ETC). This Centre would primarily conduct copper die-casting trials to demonstrate efficacy of the process to interested manufacturers, produce pilot production quantities of copper rotors and instruct motor manufacturers how to re-design motors to best take advantage of the substantial total motor cost reductions made possible by the incorporation of these copper rotors. Successful commercialization of the CMR Technology would be driven by cost effective manufacture of copper die-cast rotors and motors utilizing such parts. Energy efficient motors with copper die-cast rotors would result in better performance (lower operating temperature, increased insulation life and hence better reliability). The incremental efficiency gain would lead to saving electricity consumption in almost all the sectors of end use. The main environmental benefit would be reduction in CO₂ and other emissions associated with the energy savings achieved in end use in India (ultimately almost 40 TWh/year).

This ETC would also serve as CMR Technology demonstration centre. Over the next decade, the project would greatly facilitate introduction of ambitious minimum energy performance standards for motor drives as planned by the national authorities through the Bureau of Energy Efficiency.
## 2. ANNUAL WORK PLAN AND BUDGET SHEET

### Year: 2009 (January to December 2009)

<table>
<thead>
<tr>
<th>EXPECTED OUTPUTS and indicators including annual targets</th>
<th>PLANNED ACTIVITIES</th>
<th>TIMEFRAME</th>
<th>RESPONSIBLE PARTY</th>
<th>PLANNED BUDGET</th>
</tr>
</thead>
</table>
| **Output 1:** Enabling Technology Centre (ETC) has been set up and is fully functional.  
**Baseline:** ETC is not functional to its capacity  
**Indicators:** Capacities of ETC developed to transfer technology of Copper rotors to motor manufacturers & other stake holders  
**Target 1:** An optimised manufacturing process for Copper rotors is developed by ETC.  
**Target 2:** Design capabilities of the centre are enhanced through optimization of selected motor applications  
**Related CP Outcome:** Progress towards meeting the National | **Activity Result:** Process optimization to ensure consistent output with desired quality for 5 HP motor.  
**Action:** Engage consultants and conduct trials; Install software for training and development of ETC staff.  
**Activity Result:** Optimization of design of two new applications.  
**Action:** Appoint consultant to conduct tests on new prototype motors/rotors. Appoint technical consultant | Q1 Q2 Q3 Q4 | NFTDC | GEF 71200 | 10,000 |
| | | | | GEF 71300 | 2,000 |
| | | | | GEF 71600 | 3,000 |
| | | | | GEF 74500 | 500 |
| | | | | GEF 72500 | 4,000 |
| | | | | GEF 72105 | 500 |
| | | | | | Total: | 20,000 |
**Output 2:**
CMR technology has been assimilated and upgraded.

**Baseline:** Aluminium die casting is being used at present; No commercial die casting facility of copper motor rotors is available in India 0 (2008)

**Indicators:**
2.1 # of rotor sizes on which successful trials have been conducted on pilot batches for CMR.
2.2. # of enquiries generated from interested manufacturers
2.3. # of alliances established with manufacturers for further adoption.

**Target:**
2.1- 2
2.2- 5.
2.3 - 2

**Related CP Outcome:**
Progress towards meeting the National commitment under multilateral environmental agreements.

<table>
<thead>
<tr>
<th>Activity result:</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>ICPCI/ NFTDC</th>
<th>72105</th>
<th>1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test the rotors for consistent quality on 50 and 250 ton press and to formally announce about the Centre to different stakeholders.</td>
<td>X</td>
<td>X</td>
<td>NFTDC</td>
<td>71600</td>
<td>4,500</td>
<td></td>
</tr>
<tr>
<td>Dissemination workshops and seminars in 4 clusters.</td>
<td>X</td>
<td>X</td>
<td>NFTDC / ICPCI</td>
<td>74500</td>
<td>11,000</td>
<td></td>
</tr>
<tr>
<td>Awareness activities through in-house visits by manufacturers and media coverage.</td>
<td>X</td>
<td>X</td>
<td>ICPCI/ NFTDC</td>
<td>72500</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25,000</td>
</tr>
</tbody>
</table>
Output 3:
Technology has been transferred & commercialized

Baseline:
No knowledge about the technology & finances not available even though some willingness is seen among motor manufacturers.

0 (2008)

Indicators:
# of agreements signed with motor manufacturers & rotor die casters

Target:
2

Related CP Outcome:
Progress towards meeting the National commitment under multilateral environmental agreements.

<table>
<thead>
<tr>
<th>Activity Result:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology transfer and its commercialization operationalized.</td>
<td>X</td>
<td>X</td>
<td>ICPCI/ NFTDC 71200 1,500</td>
</tr>
<tr>
<td>Action:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrange visits of prospective manufacturers to the Centre.</td>
<td>X</td>
<td>X</td>
<td>ICPCI/ NFTDC 71600 5,000</td>
</tr>
<tr>
<td>Training to shop floor personnel and designers.</td>
<td></td>
<td></td>
<td>ICPCI 74500 5,000</td>
</tr>
</tbody>
</table>

Total: 12,000
3. MANAGEMENT ARRANGEMENTS:

3.1 Implementation Arrangements–Institutional Mechanisms & Monitoring:

3.1.1 Programme Management Board (PMB):

A Programme Management Board will be set up and co-chaired by the BEE and UNDP. The PMB will oversee the delivery and achievement of results for all the initiatives under the Energy & Environment Programme Outcome and provide strategic direction for future programmes in this Outcome area. The PMB will also appraise the new programme initiatives prior to sign off with the Implementing Partners (IPs). The PMB will comprise of ministries relevant to the Programme Outcome and relevant stakeholders identified in consultation with UNDP and IPs. It will meet twice a year, in the 2nd and 4th quarter, to take stock of the physical and financial progress.

3.1.2 The Implementing Partner:

The project will be nationally implemented by the Bureau of Energy Efficiency (BEE). The BEE will be responsible for overall management, including achievement of planned results, and for the use of UNDP funds through effective process management and well established project review and oversight mechanisms. The BEE has designated a National Project Director for this purpose. He will be assisted by a Project Manager for the day-to-day management of the project.

The Implementing Partner will also sign a budgeted Annual Work Plan with UNDP on an annual basis, as per UNDP rules and regulations.

3.1.3 Responsible Party:

a) International Copper Promotion Council (India) (ICPCI):

ICPCI is the Indian Chapter of ICA. They will work in conjunction with BEE. ICPCI is the extended arm of BEE to implement the Government of India policies relating to the Copper sector. On behalf of BEE, the ICPCI will provide day-to-day implementation support in achievement of the overall project objectives in accordance with the policies of the Government of India. ICPCI will work in close cooperation with BEE and will have direct linkages to other initiatives of BEE.

ICPCI would set up a Project Management Unit and all project activities will be carried out from the PMU which will be headed by a Project Manager. The PMU will also coordinate the project activities including the preparation of Annual and
Quarterly Work Plans, Budget, Financial Reports, etc. and will interface on project management issues.

3.1.4 Project Steering Committee:

The PSC has been constituted at the apex level with the participation of representatives from the Common Fund for Commodities, UNDP-GEF, NFTDC, ICA, International Copper Study Group (ICSG – an intergovernmental organization and project supervisory commodity body), and a nominee of BEE (ex officio – Director General, BEE). The PSC will review the progress and provide direction and guidelines for implementation of the project.

The PSC will carry out the following functions:

Ensure that the project goals and objectives are achieved in a defined timeframe;
Review the project progress and suggest implementation strategies periodically;
Review the project expenditures against activities and outcomes; and
Approve Annual and Quarterly Work Plans.
Mobilize cost-sharing and follow-up financing;
Ensure all stakeholders are appropriately involved in the project planning and management;
Facilitate linkages with high-level decision-making.

The PSC will be the group responsible for making, by consensus, management decisions for the project and holding periodic reviews. In order to ensure UNDP’s ultimate accountability, final decision making rests with UNDP in accordance with its applicable regulations, rules, policies and procedures. Project review will be carried out with regular periodicity established by the PSC during the running of a project, or as necessary when raised by the Project Manager.

3.1.5 National Project Director:

The NPD will coordinate project implementation on behalf of BEE and ensure its proper implementation.

3.1.6 Project Manager:

A Project Manager will be designated by BEE and the PSC for the day-to-day management and decision making of the project and will be accountable to the NPD and PSC. S/he will prepare the detailed activity and monitoring plan based on the Annual Work Plan (AWP) and Budget and submit it to the PSC for approval. The Project Manager will ensure that the project produces the results specified in the project document, to the required standards of quality and within the specified constraints of time and cost.
The Project Manager will provide overall direction to the project. As head of the PMU, s/he will coordinate the project in close coordination with the team located at NFTDC. This local team will be lead by NFTDC supported by a technical and a support team. NFTDC and the Project Manager would constantly liaise with the Director of Technology of ICA for inputs and technical guidance. The Project Manager will prepare and submit to UNDP the following reports/documents:

Annual and Quarterly Work Plans, Quarterly and Annual Progress Reports (substantive and financial), Issue Log, Risk Log, Quality Log, Lessons Learnt Log, Communications and Monitoring Plan using standard reporting format to be provided by UNDP.

The Project Manager will head the PMU and will work in close collaboration with BEE and Responsible Party and other partner organizations and undertake periodic monitoring and review of the project activities.

3.1.7 Project Management Unit (PMU):

For day-to-day management of the project, a Project Management Unit has been set up and all project activities will be carried out from the PMU which will be headed by the Project Manager and comprise of the required professional and other support staff. The Project Manager and the technical team would work in close coordination for project implementation. PMU would be responsible for implementation of the whole project and for achieving the project goals successfully. PMU would have technical and market development skills. In addition, ICA and ICPCI would provide need based support on the market development aspects. The technical team would have specialists to support the project.

The PMU will also coordinate the project activities including the preparation of Annual and Quarterly Work Plans, Budget, Financial Reports, etc. and will interface on project management issues.

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF-supported project publications, including among others, project hardware, if any, purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgement to GEF. The UNDP logo should be prominent – and separated from the GEF logo.

3.1.8 Project Assurance:

Project Assurance will be the responsibility of UNDP. The Project Assurance role will support the PSC by carrying out objective and independent project oversight
and monitoring functions. This role ensures that the appropriate project management milestones are managed and completed.

3.2 Funds Flow Arrangements and Financial Management:

Funds will be released to ICPCI as per the approved AWP and QWPs. ICPCI will account for funds received from UNDP on a quarterly basis through the standard Fund Authorization and Certificate of Expenditures (FACE) Report. The funds will be released to ICPCI at the request and approval of the Implementing Partner. No funds shall be released by UNDP without prior submission of a duly filled and signed FACE report. The Project Manager will be responsible for compilation and collation of these Financial Reports. Unspent funds from the approved AWPs will be reviewed in the early part of the last quarter of the calendar year and funds reallocated accordingly. The detailed UNDP financial guidelines have been provided to all project partners.

ICPCI may enter into an agreement with UNDP for the provision of support services, if provided by UNDP, in the form of procurement of goods and services. UNDP rules and regulations as well as charges will apply in such cases. Also the cost for the implementation support services provided by UNDP will be charged as per UNDP rules and regulations. The details of UNDP's support services will be outlined while finalizing the Annual Work Plan and Budgets for each year.

A separate Savings Bank Account for the project will be maintained to track and report the utilisation on UNDP funds. This will be opened/operated in the name of the project and any interest accrued on the project funds during the project cycle will be ploughed back into the project in consultation with UNDP. If there is no scope for ploughing back accordingly the project budget will stand reduced by the corresponding amount.

3.3 Audit:

The project shall be subject to audit in accordance with UNDP procedures and as per the annual audit plan drawn up in consultation with DEA. The project shall be informed of the audit requirements by January of the following year. The audit covering annual calendar year expenditure will focus on the following parameters – (a) financial accounting, documenting and reporting; (b) monitoring, valuation and reporting; (c) use and control of non-extendable reporting; (d) UNDP Country Office support. In line with the UN Audit Board requirements for submitting the final audit reports by 30 April, the auditors will carry out field visits during February/March. Detailed instructions on audit will be circulated by UNDP separately and on signature.
4. MONITORING FRAMEWORK AND EVALUATION:

Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures. The details of Monitoring and Evaluation Plan have been enumerated in the GEF-approved proposal. This Plan will be presented and finalized at the next Project Steering Committee meeting with clearly defined indicators, means of verification, and the full definition of project staff M&E responsibilities.

In addition to normal Government monitoring, UNDP will have the monitoring and reporting obligation for the programme, in accordance with GEF Monitoring and Evaluation (M&E) guidelines. In this connection, additional M&E missions will be undertaken by UNDP when this is judged to be required, as for example when there is a need for an intermediate assessment of progress or impact before a decision is made as to the continuation of any given activity. This will be done in collaboration with the BEE as well as with the other relevant stakeholders.

IP will be responsible for regularly monitoring progress in project implementation. In this, it will be supported by the National Project Director, and the PMU, as above. Progress will be measured against the targets set out in the work plan and project logical framework. PMU will be required to report relevant progress to the NPD and UNDP on a quarterly basis. Regular monitoring of the project will occur through these reporting mechanisms as well as through site visits, as required.

Annual review meetings with the participation of IP, project team, stakeholders and UNDP, will be held to review progress, identify problems, and agree on solutions to maintain timely provision of inputs/achievement of results. The PSC will review annual work plans as well as provide strategic advice on the most effective ways and means of implementation. Reporting to GEF will be accomplished through annual project implementation review.

Specifically the project will be monitored through the following:

An M&E system within the overall results framework outlined in the project document will be established. The Project Management Team should use a variety of formal and informal monitoring tools and mechanisms. This would include field visits as well as reports such as progress reports, annual reports and annual reviews in standard UNDP formats and as per UNDP's web-based project management system (ATLAS). Within the annual cycle, the Project Manager in consultation with the NPD and UNDP will ensure the following:

Quarterly Basis:

On a quarterly basis, a quality assessment shall record progress as per established quality criteria and methods towards the completion of key results. It should also capture feedback from the beneficiary perspective as well as information related to timeliness and resources usage.
An Issue Log shall be activated in Atlas and updated by the Project Manager to facilitate tracking and resolution of potential problems or requests for change.

Based on the initial risk analysis, a risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.

Based on the above information recorded in Atlas, a Project Progress Report (PPR) shall be submitted by the Project Manager to the PSC through Project Assurance, using the standard UNDP report format.

A project Lessons-learned log will be activated and regularly updated to ensure ongoing learning and adaptation within the Implementing Partner, and to facilitate the preparation of the Lessons-learned Report at the end of the project.

A Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events.

Annual Basis:

1. Annual Review Report: As per UNDP requirement, an Annual Review Report will be prepared by the Project Manager and shared with the PSC and the Project Board. As minimum requirement, the Annual Review Report shall consist of the Atlas standard format for the PPR covering the whole year with updated information for each above element of the PPR as well as a summary of results achieved against pre-defined annual targets at the output level.

2. Annual Project Report (APR)/Project Implementation Review (PIR): The APR/PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed. The PIR can be prepared any time during the year (July-June) and ideally prior to the Annual Project Review. The PIR should then be discussed in the Annual Review so that the result would be a PIR that has been agreed upon by the project, the executing agency, and the UNDP CO.

3. Annual Project Review: Based on the above reports, an annual project review with Implementing Partner and Responsible Party will be conducted during the fourth quarter of the year or soon after, to assess the performance of the project and appraise the Annual Work Plan (AWP) for the following year. In the last year, this review will be a final assessment. This review is driven by the PSC and may involve other
stakeholders as required. It will focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes.

4. Field visits: A representative from the UNDP office will visit each project periodically. Field visits serve the purpose of results validation, especially when undertaken in the first half of the year. If undertaken in the latter part of the year, the field visit should provide latest information on progress for annual reporting preparation. Field visits will be documented through brief and action-oriented reports, submitted within the week of return to the office.

In addition, a mid-term and a terminal evaluation of the project will be commissioned based on approval of the PSC. It will be conducted by external agencies/experts.

US $45,000 have been set aside for Monitoring and Evaluation, out of which GEF will contribute US $25,000 which mainly will be used to contract independent evaluators for the mid-term and final evaluations.

A detailed Communication and Advocacy Plan will be prepared and approved by PSC that describes which activities and outputs will be monitored, reviewed and evaluated, how and by whom. The Plan will articulate the types of communication and associated scheduling required during the project, as well as methods of communicating project results to stakeholders shall be activated in Atlas and updated to track key management actions/events.

Up to 0.5% of the total project budget will be allocated for communication and advocacy activities undertaken by UNDP.

Quality Management for Project Activity Results

| OUTPUT 1: Enabling Technology Centre has been set up & is fully functional |
|-----------------------------|---------------------------------|--------------------------|
| Activity Result 1 (Atlas Activity ID) | Process trials, Design optimisations & competence building | Start Date: Jan 2009  
End Date: Mar end 2009 |
<p>| Purpose | Get consistently good quality of die cast rotors so that the process is established. Designs of identified applications are optimised Competency of the centre is built to transfer technology to the industries |
| Description | Trials &amp; process parameter settings with the expert guidance &amp; |</p>
<table>
<thead>
<tr>
<th>Quality Criteria</th>
<th>Quality Method</th>
<th>Date of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>How / with what indicators the quality of the activity result will be measured?</td>
<td>Means of verification. What method will be used to determine if quality criteria has been met?</td>
<td>When will the assessment of quality be performed?</td>
</tr>
<tr>
<td>The centre is ready &amp; rotors can be die cast with copper</td>
<td>Die casting process parameters are optimised</td>
<td>Quarter 1 end</td>
</tr>
<tr>
<td>Design of 5HP industrial motor is ready</td>
<td>Design is verified from motor experts / Validated with software</td>
<td>Quarter 1 end</td>
</tr>
</tbody>
</table>

**OUTPUT 2: CMR technology has been assimilated and upgraded**

| Activity Result 2 (Atlas Activity ID) | Consistency in manufacturing process & design validation | Start Date: Jan 2009  
End Date: June end 2009 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To ensure that the manufacturing process &amp; design capabilities are ready to be offered to the industry</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Successful trials, design validation &amp; documentation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality Criteria</th>
<th>Quality Method</th>
<th>Date of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>how/with what indicators the quality of the activity result will be measured?</td>
<td>Means of verification. What method will be used to determine if quality criteria has been met?</td>
<td>When will the assessment of quality be performed?</td>
</tr>
<tr>
<td>At least two rotor sizes are die cast with copper consistently &amp; continuously</td>
<td>At least 10 to 15 rotors are die cast continuously</td>
<td>Quarter 2 end</td>
</tr>
<tr>
<td>5HP design is validated after testing of motor</td>
<td></td>
<td>Quarter 2 end</td>
</tr>
</tbody>
</table>

**OUTPUT 3: Technology has been transferred and commercialised**

| Activity Result 3 (Atlas Activity ID) | Market promotion of CMR technology | Start Date: Jan 2009  
End Date: Mar end 2009 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To enter into industry partnerships to make the centre self sustainable by CMR technology commercialisation</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Quality Criteria: how/with what indicators the quality of the activity result will be measured?</td>
<td>Quality Method: Means of verification. What method will be used to determine if quality criteria has been met?</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>No. of enquiries received: At least 5 enquiries are received</td>
<td>Quarter 3 end</td>
</tr>
<tr>
<td></td>
<td>No. of agreements made: At least one agreement is made</td>
<td>End 2009</td>
</tr>
</tbody>
</table>

5. LEGAL CONTEXT:

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together the instrument envisaged in the Supplemental Provisions to the Project Document. Consistent with the above Supplemental Provisions, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP’s property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.