



Government of Indonesia

United Nations Development Programme

The Agency for Technology Assessment and Application (BPPT)

Microturbine Cogeneration Technology Application (MCTAP)

Indonesia intends to request for GEF financial assistance for a full scale project on the promotion of Microturbine Co-generation Technology (MCT) in the country's industrial and commercial sectors. In line with the climate change strategic priority on low Green House Gases (GHG)-emitting energy technologies, this project is intended to reduce the long-term cost of MCT within the Indonesian market. Through this project, MCT application demonstrations will provide critical knowledge and commercial reference to the market players in implementing MCT projects in industrial facilities, as well as high-rise residential and commercial buildings. However, before the planned MCT full scale project could be implemented, the Government of Indonesia is requesting for a project preparation grant from the GEF to finance the needed activities to adequately define the full project objectives, deliverables and implementation plan. The proposed project preparation exercise will ensure a successful and replicable GEF-supported full project on MCT promotion and market development in Indonesia.



**PROJECT DEVELOPMENT AND PREPARATION
REQUEST FOR PROJECT PREPARATION GRANT (PPG)
UNDER THE GEF Trust Fund**

GEFSEC PROJECT ID: 2935
IA/ExA PROJECT ID: 3471
PROJECT TYPE: Full-sized Project
COUNTRY: Indonesia
PROJECT TITLE: Microturbine Cogeneration Technology Application (MCTAP)
GEF IA/ExA: United Nations Development Programme (UNDP)
OTHER PROJECT EXECUTING AGENCY(IES): None
DURATION (PROJECT PREPARATION): 6 months
GEF FOCAL AREA: Climate Change
GEF FOCAL AREA STRATEGIC OBJECTIVES: (SO-6) - Supporting the deployment of new, low GHG emitting energy technologies (Primary); and, (SO-2) - Promotion of industrial energy efficiency (Secondary)
GEF OPERATIONAL PROGRAM: OP-7: Reducing the long-term costs of low GHG emitting energy technologies
PIF APPROVAL DATE: 6 November 2006
EXPECTED STARTING DATE (PPG):
EXPECTED PPG COMPLETION DATE:
EXPECTED WP APPROVAL DATE: December 2007
EXPECTED DATE FOR CEO ENDORSEMENT:
ESTIMATED STARTING DATE (PROJECT):

*For multi-focal area projects, indicate agreed split

FINANCING PLAN (\$)			
	PPG	Project	Total
GEF	140,000	2,860,000	3,000,000
Co-financing:	(details provided in Section C : Table d) co-financing)		
GEF IA/ExA	75,000		75,000
Government		6,553,000	6,553,000
Others		5,828,000	5,828,000
Co-financing Subtotal	75,000	12,381,000	12,456,000
Total	215,000	15,241,000	15,456,000

between focal area allocations:

RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT:

Mr. Agus Purnomo
 Special Assistant to the Minister for International Environmental Issues and Partnership/GEF OFP for Indonesia

Date: 19 September 2006

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for Project Preparation Grant.

Yannick Glemarec
 UNDP-GEF Deputy Executive Coordinator
 Date: (Month, Day, Year)

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PART I - PROJECT INFORMATION

A - PROJECT SUMMARY

Indonesia's new national energy policy encourages the increased use of the country's natural gas resource. This is to reduce the use of oil for industrial processes and power generation. To facilitate this, the development of the country's natural gas infrastructure has to be accelerated, also as part of the country's strategy to counter the trend of depleting oil reserve and increase in the price of crude oil that recently reached around US\$ 70/bbl.

One possible option for this is decentralized power generation using microturbine cogeneration technology (MCT). Such technology, which can utilize relatively clean natural gas as fuel, is an important greenhouse gas (GHG) mitigation option for Indonesia. However, the capital investment required to install MCT systems in Indonesia is still very high, and with the present economic conditions is not economically feasible. While the industrial and commercial sectors in the country recognizes the energy saving and environmental benefits of utilizing MCT, the high first cost of the technology is clearly preventing them from employing this low GHG emitting energy technology. Foreign-based and local-based equipment and technology distributors/suppliers in the country also support MCT, but are not able to market the technology because of the uncertainty in its economic viability and lack of willing buyers. Presently, a "wait-and-see" attitude prevails among the technology suppliers and the potential users.

For these reasons, Indonesia intends to request for GEF financial assistance for a full scale OP-7 project on the promotion of MCT in the country's industrial and commercial sectors. In line with the OP-7 objectives, and the climate change strategic priority on low GHG-emitting energy technologies, this project is intended to reduce the long-term cost of MCT within the Indonesian market. Through this project, MCT application demonstrations will provide critical knowledge and commercial reference to the market players in implementing MCT projects in industrial facilities, as well as high-rise residential and commercial buildings. However, before the planned MCT full scale OP-7 project could be implemented, the Government of Indonesia (GoI) is requesting for a project preparation grant from the Global Environment Facility (GEF) to finance the needed activities to adequately define the full project objectives, deliverables and implementation plan. The proposed project preparation exercise will ensure a successful and replicable GEF-supported full project on MCT promotion and market development in Indonesia.

B - COUNTRY OWNERSHIP

1. COUNTRY ELIGIBILITY

The GoI is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and has ratified the Convention in August 1994.

2. COUNTRY DRIVENNESS

Global warming, which is largely caused by changes in the atmospheric CO₂ concentrations is likely to have significant impacts on Indonesia. As a tropical archipelagic country with one of the world's longest coastlines, it is vulnerable to sea level rise. Changing climate patterns will definitely affect the country's agricultural sector. The energy-demand sectors are among the major contributors to GHG emissions in the country, and are responsible for most of the increase in GHG emissions over the next

two decades. A huge proportion of the captive power capacity in Indonesia is comprised of diesel power generation systems, which account for part of the CO₂ emissions from the country's power sector. Captive on grid-connected coal fired power generations are also contributing high amounts of CO₂ emissions. In this regard, Indonesia has a great interest in the mitigation of climate change. In addition to ratifying the UNFCCC, on 28 June 2004, the General Assembly of the People Representative of Indonesia has agreed to plan the bill for ratification of the Kyoto Protocol. In 2001, the Indonesia State Ministry of Environment issued the "National Strategy Study on the Clean Development Mechanism" (NSS). The NSS developed a strategy for attracting Clean Development Mechanism (CDM) investment and implementing climate change mitigation projects in Indonesia. It emphasized technical potential and cost of greenhouse gas (GHG) emission reduction options; and estimated the magnitude of the potential mitigation options.

Despite the NSS, the GoI to date has not yet fixed formal policies and national criteria, nor has it prioritized sectors for CDM. There are prospects for CDM-funded energy projects in Indonesia. However, these can only materialize if the problem of lack of institutional and technical capacity in the GoI, specifically in the area of CDM, will not persist. Many of the potential applicants do not have clear understanding of CDM and the CDM process. The national CDM set-up would have to wait until controversial issues surrounding the CDM are resolved, including governance issues. In this regard, it is not expected that energy project developers and owners venturing into CDM during the next 5 years.

Regarding climate change mitigation, a number of projects and studies have been undertaken; some are currently underway. The GoI, non governmental institutions as well as the private sector have also carried out (and are still carrying out) several activities to promote energy conservation practices. However, the progress in developing and implementing all possible EC&EE measures has been slow and is still far beyond expectation. Several constraints that prevent widespread implementation of energy conservation and energy efficiency (EC&EE) have been identified, and these include: (i) lack of sustainable financing schemes for EC&EE projects; (ii) lack of awareness on EC&EE among the energy end-users; (iii) lack of skilled human resources for designing, implementing, and managing EC&EE projects; (iv) lack of accessibility of EC&EE technologies; and, (v) cheap subsidized price of conventional fossil fuels.

The application of cogeneration technology has been identified as one of the cost-effective climate change mitigation measure in the Technology Needs Assessment that Indonesia carried out during the top-up phase of its Climate Change Enabling Activity Project. This is based on the mitigation measures that call for promoting public adoption of energy conservation & efficiency; and promoting clean and efficient energy use in the industrial and commercial sectors. MCT is among the technologies that were cited as among those that should be promoted by the Government of Indonesia (GOI) in these sectors.

As mentioned in the Initial Communication to the UNFCCC, the measures selected in each sector are expected to reflect both the interest to mitigate greenhouse gases, and to sustain and further increase Indonesia's economic growth. As such, the country has documented the following initiatives for energy sector to accommodate both goals:

- Gradual removal of energy market distortions, such as fuel and electricity subsidy.
- Promote use and development of renewable energy, through incentives such as tax breaks for investors on the technology, encouraging research and so on.

- Encourage public adoption of energy conservation & efficiency, by adopting techniques such as public campaigns, while at the same time using economic incentives to further promote energy efficiency products and energy conservation practices.
- Promote clean and efficient energy use for industry and commercial sectors. Various technologies, for example, clean production, are available to help the industry and commercial sectors become more efficient. Such technologies will be promoted by the government.
- Restructure the price for various energy sources according to the emission and externalities that the energy source emits.

The GoI, through the Agency for Assessment & Application of Technology (BPPT) is committed to implement the proposed Microturbine Cogeneration Technology Application Project (MCTAP) with the financial support from the GEF in order to realize the long-term MCT market penetration in Indonesia. Through the National Energy Policy, the following action plans promoted by the GoI, which can stimulate private sector to implement MCT project to reduce the use of oil/coal for electricity generation and industrial process heating. These action plans are:

- a) Support the development of small scale of natural gas transportation and natural gas storage technology.
- b) Increase the use of natural gas as fuel or raw material in industry by accelerating the expansion of natural gas technology infrastructure.
- c) To support research and development of natural gas conversion technology to substitute oil base technology.
- d) Increase the number of deployment of cogeneration and fuel cell technology, because these technologies can reduce the cost of power generation and increase efficiency.
- e) Encourage the industry to develop cogeneration technology for self generation of electricity, heating and cooling application and reduce the use of energy and energy cost.

c - Financing

- a) **ESTIMATED PROJECT COST** (for all tables, expand or narrow table line items as necessary)

Project Components/Outcomes	Co-financing (\$)	GEF (\$)	Total (\$)
1. Technology Assessment & MCT Application Development	391,000	332,000	723,000
2. MCT Demonstrations & Market Development	8,330,000	912,000	9,242,000
3. Technical Support to MCT Financing	357,000	388,000	745,000
4. Policy & Institutional Support	935,000	260,000	1,195,000
5. MCT Promotion Program	1,343,000	388,000	1,731,000
6. Technical Support for Local MCT Industry	867,000	174,000	1,041,000
7. Project Management budget/cost*	158,000	406,000	564,000
Total project costs	12,381,000	2,860,000	15,241,000

*This item is the aggregate cost of project management; breakdown of the aggregate amount is presented in the table in b) below:

b) **CO-FINANCING** (provide details of all the co-financing sources for the entire project)

Name of Co-financier (source)	Classification	Type	Amount	
			Confirmed (\$)	Unconfirmed (\$)
Agency for Assessment & Application of Technology (BPPT)	National Government	In Cash & In-kind	440,000	
State Gas Company (PGN)	National Government	In Cash		3,619,000
Ministry of Energy, Minerals & Resources (MEMR)	National Government	In Cash & In-kind		2,494,000
Solusi Mitra Integrasi Teknologi (SMIT)	Private Sector	In Cash	20,000	
Private Companies	Private Sector	In Cash		5,808,000
Total co-financing			460,000	11,921,000

D - TIMETABLE FOR THE PROJECT AND PREPARATION ACTIVITIES

	Starting Date	Completion Date
Project Preparation Activities	June 2007	November 2007
Project Implementation	January 2008	December 2012

E - INSTITUTIONAL COORDINATION AND SUPPORT

1. CORE COMMITMENTS AND LINKAGES

The proposed project is in line with the GoI's aim to restructure the energy sector in order to anticipate the countries decreasing oil reserve and maintaining the environmental balance. The GoI has introduced two policies to restructure the energy sector development. The two policies are the: (1) National Energy Policy (Kebijakan Energi), introduced in February 2004; and, (2) Policy on Renewable Energy Development and Energy Conservation (Kebijakan Pengembangan Energi Terbarukan dan Energy Konservasi), introduced in December 2003.

Among the actions that are promoted at the governmental level to support both policies are: (1) Energy conservation/energy efficiency; and, (2) Technical, technological and professional development in energy sector. Under its electricity generation policy, the following are among those that are being promoted: (1) Development of small natural gas fuelled electricity power plant; and, (2) Increased deployment of energy efficient technology such as cogeneration and fuel cell. In the industrial sector, the GoI is promoting the use of natural gas in industrial process by accelerating the development of natural gas infrastructure; encourages the industry to develop cogeneration plant to provide self generation power and increase the energy efficiency; and promotes the implementation of on site electricity and thermal power self generation in remote location. The proposed MCTAP is in line with all of these actions being promoted by the GoI.

2. CONSULTATION, COORDINATION AND COLLABORATION BETWEEN AND AMONG IMPLEMENTING AGENCIES, EXECUTING AGENCIES, AND THE GEF SECRETARIAT, IF APPROPRIATE.

In developing this project, the project development team will consult and involve all ongoing energy efficiency projects/programs in the country in the design and development of the project. The project will also establish relationship with other projects on energy efficiency that the private sector (particularly those that have indicated interest in hosting the demonstration schemes under this project) are currently implementing and/or planning. It will also coordinate with the Research and Development Center of Energy and Electricity Technology (EERDC) of the Ministry of Energy and Mineral Resources on the relevant activities that may have to be included in the project.

The team will also consult implementors of ongoing MCT application projects in other countries to share information and successful experience with them. The establishment of links with these ongoing projects/programs is expected to help in identifying the relevant activities that will build on their respective achievements. The project will be developed in close cooperation with its stakeholders as well as with the UNDP-GEF Regional Coordination Unit for Asia-Pacific in Bangkok (UNDP-GEF A&P RCU). The UNDP country office in Indonesia will be fully involved in the project development through its participation in the various stakeholder and co-financing consultation meetings and technical workshops during the project development phase, and in the multipartite review meetings. Consultations will also be done with UNDP-GEF, New York during the project development phase.

3. IMPLEMENTATION/EXECUTION ARRANGEMENTS

BPPT is the designated project Implementing Partner of the project. It will execute the project on behalf of the GoI under the National Execution (NEX) modality of the UNDP. It will be responsible for ensuring active cooperation of, and coordination with, the relevant project stakeholders, and for ensuring that all activities are executed accordingly and as per the approved Project Document and inline with the UNDP's rules and regulations on project management, financial management and procurement policies, as stated in the **NEX guidelines**. The guidelines also determine the policy on project closure, in which it also covers the procedure for transfer of asset to the implementing partner.

As an Implementing Partner, BPPT will appoint a national project director (NPD) in consultation with UNDP. The NPD will be in charge of overall responsibilities, including planning, coordination, administration and financial management of the project with support by UNDP-Jakarta. He/She will be responsible for the achievement of the project objectives, for all projects' reporting, including the submission of Annual Work Plans (AWP) and financial reports. He/She will ensure the delivery of the project outputs and the judicious use of project resources. This will ensure that the expected project outputs are delivered using the most efficient and cost effective implementation strategies and procedures.

A project management Unit (PMU), headed by the National Project Manager (NPM) will take charge of the project daily management. The NPM will be recruited by UNDP and appointed by the NPD. The PMU will be responsible for coordinating and implementing the activities of the project.

A Project Board will be established and will comprise of the representatives of the project stakeholders, BPPT, MEMR and UNDP-Jakarta. The Project Board will play the role of an advisory committee, and will be headed by MEMR. The NPM will serve as the Executive of the Project Board.

UNDP-Jakarta, together with the UNDP-GEF Regional Technical Advisor for Climate Change in the Asia-Pacific region will carry out the GEF oversight that is referred to as project assurance. Working

in conjunction with the various project partners, UNDP-Jakarta will be responsible for monitoring and evaluation (M&E), including organizing project reviews, project audits, approving annual implementation work plans and budget revisions, monitoring progress, identifying problems, suggesting actions to improve project performance, facilitating timely delivery of project inputs, and provide linkages to the other sub-regional, Asia-Pacific regional and global initiatives. All M&E functions will be carried out in line with standard UNDP and UNDP-GEF procedures. UNDP-Jakarta will also provide country office support for all the activities of the project as agreed with the BPPT.

Details of the management arrangements of the project will be discussed further in PART III on page 17.

PART II - PROJECT PREPARATION GRANT (PPG)

A - JUSTIFICATION

GoI and private sectors have limited success to date in tackling the issues of EC&EE and pollution reduction in a concerted manner. Among the many efforts that can be considered to tackle these issues includes an extensive EC&EE program. Part of such program is what is being proposed here as an OP-7 project focusing on MCT technology promotion and application. In the case of MCT promotion, the relevant efforts can include demonstration of MCT technology as an economically viable option that can be adopted by the industry sector; ensuring a continuity of informational dissemination activities; improving the manner where the market can access the investment/financing loan to finance MCT projects from lending institutions; and finally, the promulgation of a regulatory environment that are supportive of MCT implementations. Considering the growth of energy demand, especially in power generation in the industry sector in Indonesia, a well designed MCT project will provide valuable assistance to GoI and the industry in meeting its commitment to reduce GHG emissions and blaze a path for other countries in the region to replicate the MCT project. However, before an effective full project can be designed and implemented, studies and detailed consultations with stakeholders are required to strengthen baseline knowledge. The requested project preparation grant (PPG) would finance the needed activities and collection of information necessary to produce the effective design and facilitate start-up of a successful and replicable MCT project.

The proposed project preparation activities would enable preparation of an effective and functional organizational structure for the full project that includes stakeholders of the project. The targeted data and information collection activities and technology assessments of MCT will also address critical needs for a well-designed and feasible project. This includes confirmation of the economic, technical and environmental viability of various MCT applications that appears to be a favored and appropriate option for the industry to implement EC&EE project and for GoI in order to tackle environment challenges. The initiative is definitely country-driven and has close relevance and linkage with national development goals of sustainability.

B – DESCRIPTION OF PROPOSED PREPARATION ACTIVITIES

The project development activities that will be carried out utilizing the requested PPG, and other funding sources, will come up with the design of the components the envisioned OP-7 full size project. These activities will also address the design of appropriate mechanisms to facilitate the smooth coordination, implementation, monitoring, and management of the project components.

A Project Management Unit (PMU) will be established to execute and manage all project preparatory activities. The PMU will provide technical and management support to the designated executing agency – BPPT (specifically its Energy Technology Centre - BBTE) in ensuring the timely execution of planned project development activities and close coordination with all stakeholders. BBTE will provide office facilities for the PMU; create a Project Board chaired by a National Project Director (NPD) as appointed by the BPPT, and other necessary support personnel as GOI counterpart. Generally, the PMU will be responsible for monitoring and endorsing the planning, objectives, implementations, and results of the project development exercise and subsequently the full size project proposal (including the Executive Summary). The PMU members should be able to contribute and provide significant influence towards MCT technology development in the Indonesian market. The following describe the proposed project development activities (PDAs):

PDA No. 1: Review of Experiences in the Application of Cogeneration Technology in Indonesia

This activity will involve the establishment of the relevant data about baseline applications, performance and market for all types of cogeneration systems in Indonesia in the industrial, commercial and power generation sectors. These data will be used in determining priority areas and activities, estimation of potential energy savings and GHG emission reductions, as well as in gauging quantitatively the progress achieved in the expected market uptake of the microturbine cogeneration technology (MCT), which the project will promote. Data will be collected and collated in each sector, and come up with derived information such as overall energy consumption, projected growth, energy savings potential, and targets. This activity will involve a thorough review of recent MCT application projects and studies carried out in the developed (and where available also in developing) countries particularly on the MCT system cost. A reasonable estimate of the potentials for energy savings and market for MCT in the country is expected to be established under this PDA.

A sub-activity under this PDA is the conduct of a gap analysis concerning the market and application of EE technologies in the commercial, industrial and power generation sectors in Indonesia. The gap analysis that would be conducted would include, but not limited to, the following:

- Evaluation of existing policies and policy support activities concerning support for the introduction/employment of energy efficiency (EE) technologies;
- Evaluation of the impacts of representative policy and project implementations relevant to the promotion and application of EE;
- Assessment of barriers to the market and application of EE technologies, in general, and MCT, in particular; and,
- Analysis of reasons behind the existence of the barriers identified, including explanations for the lack of success or non-implementation of relevant activities and policies.

PDA-2: Logical Framework Analysis

The findings and recommendations from PDA-1 will be the bases for the project framework design (PFD) for the proposed OP-7 project. This project development activity will involve the holding of a logical framework analysis (LFA) workshop among the project stakeholders. Following the presentation of the various issues/problems/barriers to the key stakeholders, the workshop will complete a logical framework analysis (LFA) to determine the inter-relationship of the identified issues/problems (problem tree analysis) and determination of the desirable outcomes that would result from appropriate interventions (objectives tree analysis). An official consensus regarding the key issues/problems and the intended objectives of the project, as well as the interventions to be included to achieve these objectives, should be established among key stakeholders.

The LFA results (particularly the objective tree analysis), the gap analysis results, and the agreed priority objectives and interventions will serve as key inputs in the design of the project framework and the specification of the various project components. Based on the priority objectives and interventions, activities or groups of activities will be identified. The workshop will also delineate the responsibilities of the group(s) that will implement each relevant activity. The development of the PFD will include the definition of the following objective and activity descriptors:

- Objectively verifiable indicators (OVI), which are the parameters that will be monitored to gauge the progress or success in achieving, desired objectives;
- Means of verifications (MOV), which refer to the evidence to be used to verify the achievement of the desired objectives, or the means by which the relevant OVIs, are checked; and,
- Assumptions, which are the conditions that are required to support achievement of the desired objectives

The resulting PFD (or log frame), the ways in which the success indicators are monitored and evaluated, and the key players who will be responsible for the implementation of the program components should be the result of a consensus among key stakeholders. Among the important parameters that can be set for the project (at project end, and 10 years after project completion) to achieve are the following:

- Number of established and enforced policies, regulations, incentive structures, in support of MCT applications in the commercial, industrial and power generation sectors;
- Market share of MCT;
- % Reduction of MCT cost; and,
- Potential energy savings from the application of MCT in the commercial, industrial and power generation sectors, and corresponding GHG emission reduction from the application of MCT

Moreover, plans for resource mobilization activities/consultation meetings with other co-funders/donors for the proposed OP-7 project to leverage GEF funding will be drawn during the workshop. The LFA workshop will build consensus among the key stakeholders on the above, including the delineation of responsibilities for the implementation of the identified project activities.

PDA-3: MCT Application Assessments

This activity is very important in acquiring further information crucial to a successful design of the full size MCT project. Further collection of data and information to be carried out would be based on the identified activities in the LFA workshop and would narrow the wide divergence of data available on the BBTE and other organizations in Indonesia. These data and information would allow for complete analysis that would be directly related and critical in implementing the full project components. The services of an international consultant from a developed MCT country would be engaged for assessing potential MCT application in Indonesia base on the MCT specification, and the climate conditions and fuel specification available in Indonesia.

Part of the project development work is preparatory work for the pilot demonstrations that are envisioned in the full size project to ensure their smooth and effective implementation. This would include the identification, evaluation and selection of demo sites and the type of MCT applications that would be demonstrated at each site. The evaluation process would involve pre-feasibility (technical and economic/financial) assessments of the MCT application, the expected magnitude of

GHG emissions reduction, and the resulting economics. Obtaining the commitments from the host demo companies will also be worked out.

In addition, a market survey will be conducted to collect the information that will be used to establish the extent of the potential market for MCT applications. This market survey will evaluate the market potential for MCT application in the commercial, industrial and power generation sectors. The survey will also include determining the perceptions from the public, local authority, utility and industry regarding MCT technology application. Based on the data and information gathered, the: (1) complete baseline study; (2) incremental cost analysis; (3) market evaluation on MCT technology application; (4) pre-feasibility analyses of MCT demonstration sites; and, (5) the estimation of CO₂ emission reduction estimates, could be prepared.

PDA-4: Detailed Design of Project Components & Activities

This major activity will involve the design of an action plan detailing how the proposed activities in the PDF (log frame) will be carried out to achieve the set outputs, and ensure that the outputs contribute to the achievement of the project outcomes. The incremental activities will be designed in line with the set objective to be achieved and considering the identified baseline activities. The design of each activity will also include estimating the implementation budget as well as the monitoring of the specific project parameters and the realization of the set success indicators.

Based on the PFD (log frame), the action plan will specify the roles of the relevant stakeholders and will be designed so as to ensure the realization of the planned outputs, as well as to facilitate smooth implementation of the project activities. A proposed project implementation arrangement will be prepared based on the agreed delineation of roles and responsibilities among the project proponents and stakeholders.

PDA-5: Coordination Mechanisms and Other Institutional Work

This activity will involve the development of practical and realistic mechanisms that will enable an effective coordination of the project implementation; ensuring effective consultation and cooperation between executing agency (BPPT), relevant government agencies, interested private sector entities (particularly in the commercial, industrial, and power generation sectors), financial institutions, industry associations, donors, as well as local equipment suppliers and distributors. This activity will also address the challenges of managing a market development project by designing a management structure that will result in effective project implementation.

The coordination work will be in 2 aspects: (1) coordination of responsibilities in project implementation; and, (2) coordination of co-funding. In order to draw active and effective involvement of all major parties, the key potential stakeholders and government agencies (MEMR, DGEED, DGEEU, BPPT, MOI, Bappenas, etc.), as well as the partners in the private sector will be invited to participate in the designing of the mechanism. Based on the delineation of responsibilities that would be agreed upon during the LFA workshop, appropriate structures and mechanisms would be designed for the coordination of full project implementation. In regards to, co-funding coordination, this will involve agreements on the arrangements needed for involving potential project funding partners (e.g., relevant government agencies, international and local donor organizations, and local/international funding/financing institutions). The PDT will establish a system for updating project partners on project activities and progress. Potential partner banks/financing institutions will be evaluated as to their suitability to finance the project. Regular contacts will be established with international and national institutions, in order to mobilize co-financing for the full project. The

commitment letters for the provision of co-financing will be secured from the various co-funders that agreed to support the proposed MCTAP.

PDA-6: Preparation of GEF Project Document & Executive Summary

The components of the proposed MCTAP will be finalized after consolidating all the designed activities and the proposed project implementation arrangements. A consultant that is well versed in GEF procedures and SO-6 (Supporting the deployment of emerging, low-GHG emitting electricity generating technologies) project design/formulation will be contracted to prepare the Executive Summary and Project Brief following the format required by UNDP/GEF.

The draft Executive Summary and Project Document will be distributed for comments and recommendation to the project stakeholders. The Project Document will then be finalized, incorporating the pertinent comments and recommendations of the stakeholders. The State Ministry for the Environment (GEF Operational Focal Point) will endorse the Project Document before it is submitted to the GEF, through UNDP, for consideration for funding.

PDA-7: Finalization of Project Document for GEF CEO Approval

The GEFSec-endorsed Project Document will be finalized to: (1) incorporate any adjustments in response to any comments/recommendations from the GEF Council, (2) and, (2) come up with the TORs for all major management and technical requirements for project implementation. The final Project Document will be presented by the PMU to the project stakeholders in a meeting/workshop. The meeting/workshop will be the final consultation on the Project Document, prior to project document signing and actual project implementation.

C – OUTPUTS FROM PREPARATION ACTIVITIES

The main output of the project development activities will be the GEF Project Document and Executive Summary of the proposed OP-7 project – MCTAP - incorporating the results and conclusions of the activities discussed above. As a part of that, the following key activities and the associated intermediate outputs will be delivered:

Data Collection and Analysis

Output 1: Review of Experiences in the Application of Cogeneration Technology in Indonesia

- Documentation of the baseline applications, performance and market for all types of cogeneration systems in Indonesia in the commercial, industrial and power generation sectors
- Documentation of gap analysis results concerning the market and application of EE technologies in the commercial, industrial and power generation sectors in Indonesia, which include, among others existing policies and policy support activities concerning support for the introduction/employment of EE technologies; barriers to the market and application of EE technologies, in general, and MCT, in particular; and, reasons behind the existence of the identified barriers.

Output 2: Logical Framework Analysis

The main output is the Proceedings of the LFA Workshop - The proceedings will document the results of the LFA including the following:

- Project Framework Design (Project Planning Matrix) showing the project goal, purpose, outcomes and activities, and their corresponding descriptors (i.e., OVIs, MOVs, and assumptions)
- Problem Tree Analysis
- Objective Tree Analysis
- Proposed delineation of responsibilities among the stakeholders

PDA-3: MCT Application Assessments

- Documentation of the pre-feasibility analyses of MCT demonstrations (including commitments from the host demo companies)
- Documentation of the results of the market survey and market evaluation of MCT applications
- Documentation of the incremental cost analysis
- Documentation of the estimation of CO2 emission reduction

Project Design

Output 4: Detailed Project Component Design

- Documentation of the design of specific activities in line with the set objective to be achieved and considering the identified baseline activities, including implementation budget estimates as well as the monitoring of the specific project parameters and the realization of the set success indicators.
- Documentation of the incremental cost analysis

Output 5: Project Coordination Mechanisms and Implementation Arrangements

- Coordination Mechanisms for Full Project Implementation – This is the agreed appropriate structure and mechanism for the coordination of full project implementation.
- Co-funding Coordination – The commitment letters for the provision of co-financing will be secured from the various co-funders that agreed to support the project.

Project Document Formulation

Output No. 6: GEF Project Document & Executive Summary

- Executive Summary – This will be prepared following the official GEF format, and submitted to the GEF for funding consideration.
- Project Document – This will be prepared using the official UNDP Project Document format, and submitted to the GEF together with the Executive Summary. It will include a total work plan and budget and a table of annual targets for project implementation review (PIR) purposes.

Output 7: GEF Project Document

Final version of the Project Document, which will also contain the TORs for the major managerial and technical requirements for the project implementation, and a framework for monitoring and evaluation of the project implementation

Project Development Activities Management

Output 8: Learning, Evaluation and Adaptive Management achieved

D – IMPLEMENTATION PLAN FOR PREPARATION ACTIVITIES (expand tables as necessary)

Activities	PPG-Months					
	1	2	3	4	5	6
1. Review of Experiences in the Application of Cogeneration Technology in Indonesia	XXXX					
2. Logical Framework Analysis	X					
3. MCT Application Assessments		XXXX	XXXX			
4. Detailed Design of Project Components & Activities			XXXX	XXXX	XX	
5. Coordination Mechanisms and Other Institutional Work				XXXX	XXXX	
6. Preparation of GEF Project Document & Executive Summary				XX	XXXX	
7. Finalization of Project Document for GEF CEO Endorsement						XXXX

E – BUDGET

a) **Total Project Preparation Budget** (no IA/ExA staff cost to be funded out of PPGs)

Activities	Co-financing (\$)	GEF (\$)	Total (\$)
1. Review of Experiences in the Application of Cogeneration Technology in Indonesia		17,500	17,500
2. Logical Framework Analysis		17,500	17,500
3. MCT Application Assessments		60,000	60,000
4. Detailed Design of Project Components & Activities		30,000	30,000
5. Coordination Mechanisms and Other Institutional Work		15,000	15,000
6. Preparation of GEF Project Document & Executive Summary	17,500		17,500
7. Finalization of Project Document for GEF CEO Endorsement	7,000		7,000
8. PPG management cost*	50,500		50,500
Total PDF budget/cost (in cash)	75,000	140,000	215,000

*This item is the aggregate cost of project management; breakdown of the aggregate amount should be presented in the table in b) below:

b) **PREPARATION MANAGEMENT BUDGET/COST¹**

Component	Estimated Staff weeks	GEF (\$)	Other Sources (\$)	Project Total (\$)
Personnel*				
Local consultants*	30	30,000		30,000
International consultants*				
Training				
Office Equipment				
Workshops		2,500	5,000	7,500
Travel		5,000	10,000	15,000
Miscellaneous			5,500	5,500
Total		37,500	20,500	58,000

* Local and international consultants in this table are those who are hired for functions related to the management of project. For those consultants who are hired to do a special task, they would be referred to as consultants providing technical assistance. For these consultants, please provide details of their services in c) below:

c) **CONSULTANTS WORKING ON TECHNICAL ASSISTANCE COMPONENTS:**

Component	Estimated Staff Weeks	GEF (\$)	Other Sources (\$)	Project Total (\$)
Local Support Personnel	61	13,000	2,250	15,250
Local consultants	71	34,500	36,250	70,750
International consultants	17	55,000	16,000	71,000
Total	149	102,500	54,500	187,000

d) **DETAILED PPG CO-FINANCING** (as part of total budget)

Co-financing Sources for Project Preparation Grant (PPG)				
Name of Co-financier (source)	Classification	Type	Amount	
			Confirmed (\$)	Unconfirmed (\$)
United Nations Development Programme (UNDP)	Implementing Agency	In Cash	75,000	
Subtotal co-financing			75,000	

F – RESPONSE TO REVIEWS

- 1) Convention Secretariat
- 2) Other Implementing Agencies/Executing Agencies

¹ For all consultants hired to manage project or provide technical assistance, please attach a description in terms of their staff weeks, roles and functions in the project, and their position titles in the organization, such as project officer, supervisor, assistants or secretaries.

PART III – MANAGEMENT ARRANGEMENT

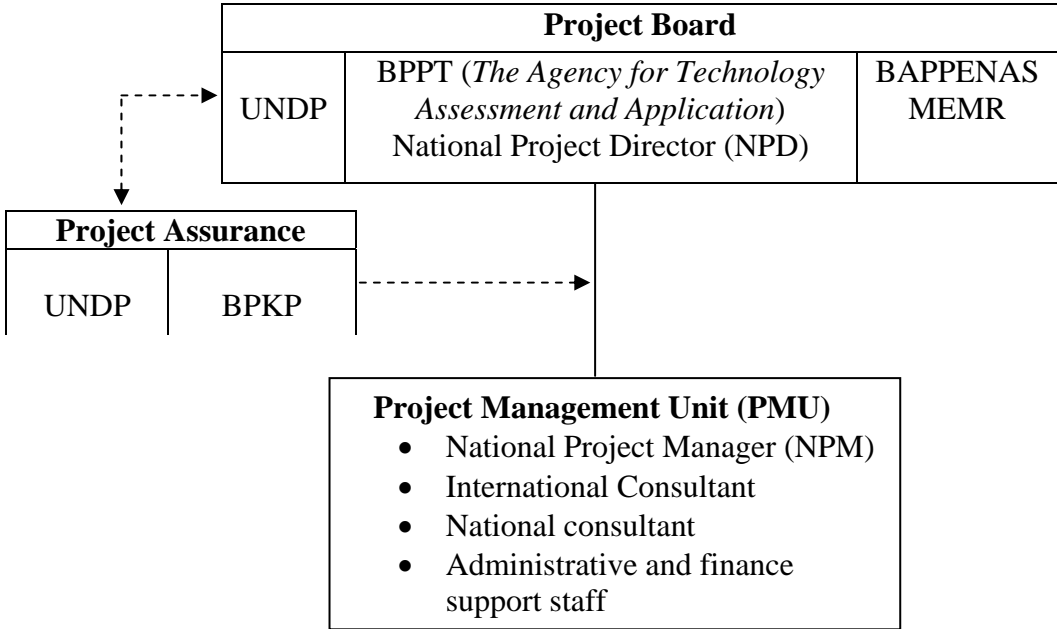
The proposed management arrangement of the Project Preparation Grant (PPG) implementation is in compliance to the Prince 2 format. Overall responsibility of the project oversee will rest with the Project Board which will consist of UNDP, BPPT (The Agency of Technology Assessment and Application) the proposed Implementing Partner, the Ministry of Energy and Mineral Resources (MEMR) and BAPPENAS. Hierarchically the Project Board delegates the responsibility to direct the project to the National Project Director (NPD) that is nominated from the Implementing Partner’s Agency.

It is the responsibility of Project Board to approve the proposed work plans and associated budget forwarded by the NPD on quarterly bases. The approval of project Board is subject to satisfactory review of the progress report and financial reports from the previous quarter. This process normally occurs in a Project Board Meeting in which Board Members could also give strategic direction to the Project or discuss specific matters related to the course of the project through the NPD.

The responsibility of day to day management of the project rests with the National Project Manager (NPM) and supported by the project management team. He or she is responsible to produce work plan and the associated budget; coordinate the implementation of the work plan; monitor and evaluate; and develop reporting for the progress and use of fund on quarterly bases. He or she is also responsible for producing the annual and final report for the Project and attend to the inquiries of Project Board on project matters and on audit requirements.

In this Hierarchy UNDP has an additional function as the project assurance to perform oversight and facilitate audit process which normally performed by BPKP (The government Financial Inspection Body)

Management Structure of the Project



PART IV – MONITORING AND EVALUATION

The National Project Director and the National Project Manager will ensure monitoring of results through the regular reporting of technical progress and financial situation of the project. It is advised to perform regular independent monitoring of the results based on the indicators used for the Results and Resources Framework. In addition, two in-depth evaluations are recommended at mid-term and end-of-project. An independent team selected by the Project Board and the donors/partners will carry out these activities. The purpose is constructive. They are intended to strengthen the capacity of the PMU to perform its tasks in accordance to the strategy and objectives, and also to help further discuss implementation and, if needed, to advise the Project Board on their revision.

Since the involvement of key stakeholders is crucial in this project, and to some extent considered as an objective in itself, monitoring criteria should be based on what stakeholders consider should be improved that will be identified in the preliminary assessment prior to the initiation of the activities. However, in general the following principle applies:

- **Results-Orientation**: Ensure appropriate measurement and assessment of programme performance in order to more effectively improve performance and achieve results.
- **Quality Assurance**: Ensure quality in project activities to ensure best possible benefit for beneficiaries, through monitoring programme delivery and identifying issues that need corrective action and ensure that additional assistance is provided early.
- **Accountability**: Ensure accountability in the use of programme resources through heavy emphasis on financial reviews to make sure that funds are being appropriately used to achieve project outputs, and that the implementing agents have sufficient controls in place to demonstrate that funds are being used appropriately.
- **Transparency**: Ensure transparency in programme activities, finances, and results to all stakeholders.
- **Learning**: Ensure that the programme has mechanisms to ensure learning for purposes of improving ongoing implementation and guiding new initiatives, and to identify key lessons learned and successes stories from programme implementation to feedback into planning and implementation processes of UNDP, the Government and development partners;

In addition, monitoring should not only deal with technical activities or economic impact but also with institutional development aspects and capacity-building (such as rules, participation, involvement, enforcement, and commitment). It is crucial for instance to monitor the actual participation and involvement of the different key stakeholders in order to assess how much they feel concerned, they have the ability to get involved, their concerns are taken into account and why. Since many studies have contributed to the description and analysis of the situation before the start of the project, it will not be necessary to develop a baseline study.

Audit :

The programme will be audited in line with the Government of Indonesia & UNDP rules and regulations. Audit is normally performed by the BPKP (The government Financial Inspection Body).

Monitoring Plan

No	Event	Description	Schedule
1	Quarterly Reviews	Quarterly Meetings of the Project Board to review progress, address issues, and provide programme and policy guidance	Quarterly
2	Mid-Term Evaluation	Mid-term evaluation to assess progress towards programme results articulated in the Results Framework and provide recommendations.	50% project completion.
3	Final Project Evaluation	Final project evaluation to assess achievement of programme results articulated in the Results Framework and document lessons learned.	100% project completion.
4	Audit	Annual audit in line with UNDP rules and regulations.	As per UNDP CO internal and external audit schedule.

PART V – 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, attached hereto.

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). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP.

The UNDP Resident Representative is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

PART VI – ASSUMPTIONS AND RISK ASSESSMENT

Developing assumptions for the projects for assessing the risks and managing it is part of a good project management practice. A straight forward risk logging system is applied as such that every potential risk to the project is documented and assigned to an individual to keep track and manage and document it in a risk log table that will be continuously updated throughout the life of the project as presented below. As a start the following are assumptions and potential risks that the project that have been identified at the PPG formulations stage.

Assumption 1. (identified as the formulation stage): GEF and the key stakeholders are committed to continuously support the objectives of MCTAP. This assumption is key for the success of the proposal. The proposed project will succeed only if the Implementing Partner and the key stakeholders such as BAPPENAS, UNDP and GEF, continue to support it. Further development is expected to happen through more commitment from the key stakeholders including GEF for supporting the Full Scale Project. With the declared interest and commitment of BPPT, BAPPENAS and UNDP the risk of the Project Preparation Grant (PPG) implementation failing is relatively low. Greater risks will be faced by the project as it enters the full scale.

Assumption 2. (identified as the formulation stage): The Project may potentially face, and should manage internal risks which could compromise the achievement of its objectives. These risks could range from varying degrees of inefficiencies in coordination or use of project resources to deviations of project activities from its workplan or misuse of funds. The project has to manage the potential risks by increasing the PMU's management capacities and employing the appropriate project management tools.

Risk Log Table:

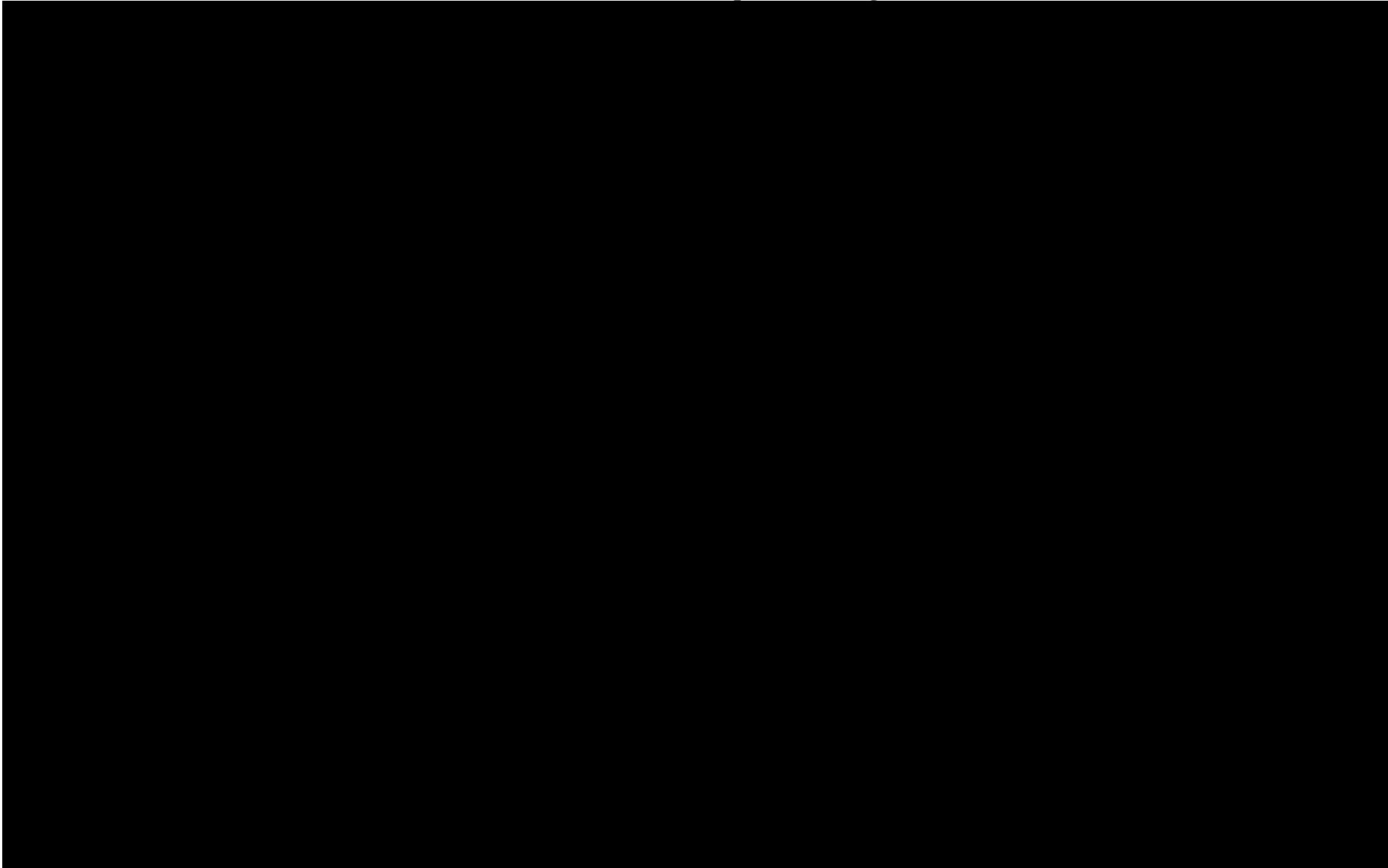
No	Type	Date Identified / Author	Description	Comments	Status	Status Change Date	Owner
1	Strategic	at programme formulation, by Prodoc Author	PPG exercise fails to secure the support of key stakeholder of GEF	The Project Board shall make an executive decision on whether to continue the initiative and where to find other financial support.	Will be determined at the completion of the PPG exercise.	N/A	Project Board
2	Organizational/ Management	at programme formulation, by Prodoc Author	transparency and accountability of use of project funds.	The project's financial resources will be managed and controlled through application of UNDP's internal control framework, which serves a reverence for developing the Project's detailed Standard Operation Procedure . All financial transactions are monitored, recorded, analyzed and reported through UNDP's newly introduced ATLAS system.	Noted as a key criteria for formulating project standard operating procedure and subjected to both internal and external audit process	N/A	Project Manager
3	Organizational/ Management	at programme formulation, by Prodoc Author	The course of the project's activities deviating from its Goal and Objectives	The project's monitoring evaluation instruments and the assurance functions of UNDP will closely track the progress the project activities.	Noted as a key criteria for formulating project standard operating procedure and subjected to both internal and external M&E process	N/A	Project Manager
5	Strategic	at programme formulation, by Prodoc Author	Coordination Between Board Members, Implementing Partners, Responsible Parties, and Local stakeholders is less then effective	The project is designed to facilitate closer coordination among National and Local Government agencies, donors and other stakeholders, in order to prevent overlap and maximize synergy between projects and activities.	Noted in the Inception Workshop and Project Board Meetings	N/A	Project Board

Section II - Results and Resources Framework

Intended Outcome as stated in the Country Programme Results and Resource Framework: By 2010, improved environmental living conditions and sustainable use of energy in Indonesia and establishment of sustainable living conditions in the targeted provinces in Indonesia					
Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets. National MDGs analyses on overall reduction of environmental degradation rate across various indicators utilized in MDGR					
Applicable MYFF Service Line: 3.3 Access to sustainable energy services					
Partnership Strategy The introduction and commercialization of MCT in Indonesia is in line to the long term strategy of the Government of Indonesia on renewable energy development which translates to the work programme of BPPT that provide an overarching programmatic umbrella or the implementation of MCTAP. Economy of scale of the technology in the Indonesian market will be achieved through active participation of private sector to invent under the framework of MCTAP to further commercialize the product in various strategic sectors.					
Project title and ID (ATLAS Award ID):					
Intended Outputs	Output Targets for (years)	Indicative Activities	Responsible parties	Inputs	
				TRAC	GEF
Full Scale MCTAP Project Document that fits for GEF submission process.	1. Review of Experiences in the Application of Cogeneration Technology in Indonesia	Desk reviews, Stakeholders consultations and analysis	BPPT		17,500
	2. Logical Framework Analysis	Logical Framework Workshop and analysis	BPPT		17,500
	3. MCT Application Assessments	Desk reviews, Filed Observations, Stakeholders consultations and analysis	BPPT		60,000
	4. Detailed Design of Project Components & Activities	Analysis and write up	BPPT		30,000
	5. Coordination Mechanisms and Other Institutional Work	Stakeholders consultations and consensus building	BPPT		15,000
	6. Preparation of GEF Project Document & Executive Summary	Project document write up and development of detail workplan and associated budget	BPPT	17,500	

	7. Finalization of Project Document for GEF CEO Endorsement	Obtain endorsement from GEF OFP and GoI, communication with UNDP GEF and GEF Secretariat, project document revisions	BPPT	7,000	
	8. PPG management cost*	Project implementation, financial and operational management, and reporting	BPPT	50,500	
			Sub Total	75,000	140,000
			Grand Total	215.000	

Section III—The total workplan and budget



Section IV—other agreements

SIGNATURE PAGE

Country: Indonesia

UNDAF Outcome(s)/Indicator(s): By 2010, improve life chances and livelihood opportunities for all through enhanced Government commitment to the MDGs, institutional support for MDG implementation and empowered community engagement in the achievement of the MDGs with a special focus on HIV/AIDS.

Expected Outcome(s)/Indicator (s): By 2010, improved environmental living conditions and sustainable use of energy in Indonesia and establishment of sustainable living conditions in the targeted provinces in Indonesia

Expected Output(s)/Annual Targets: Policy, regulatory, economic, market, technological and information barriers to the effective use of renewable energy and energy efficiency measures are removed, and resulted in optimized use of local energy resources; delivery of basic energy services to poor and remote communities, vitalized local economic activities, and reduced national greenhouse gases emission.

Implementing partner: The Agency for Technology Assessment and Applications (BPPT)

Responsible parties: _____

Programme Period: 2006-2010
 Programme Component: Energy and Environment
 Project Title: Microturbine CO-generation Technology Application Project (MCTAP)
 Project ID: _____
 Project Duration: 6 Months
 Management Arrangement: NEX Modality

Budget (Full Scale): USD 3,115,000
 General Management Support Fee _____
 Total budget (PPG): USD 3,115,000
 Allocated resources: USD 215,000

- Government _____
- Regular USD 75,000
- Other:
 - GEF USD 140,000
 - Donor _____
 - Donor _____
- In kind contributions _____

Unfunded budget: USD 2,900,000

Agreed by (Government): _____

Agreed by (Implementing partner): _____

Agreed by (UNDP): _____