



## UNDP Project Document

Governments of Guatemala, El Salvador, Honduras, Nicaragua,  
Costa Rica and Panama

United Nations Development Programme

Global Environment Facility

### **Accelerating renewable energy investments through CABEI in Central America** PIMS 2042

*Brief Description* - The overall objective of the Project is to accelerate small and medium size renewable energy investments (under 10 MW) by strengthening the ability of the Central American Bank for Economic Integration (CABEI) to play a catalytic role in this important sector. The project is based on a regional approach, involving Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama, and aims to reduce greenhouse gas emissions by promoting the use of renewable energy systems for electricity generation in both grid connected and decentralized applications, thereby contributing to the economic development of Central America.

The specific objective of this Project is the removal of financial barriers that currently impede the large-scale development of renewable energy projects in Central America, particularly at the smaller end of the project range. Barrier removal requires the design of specific activities in the following areas:

- Integration of small-scale renewable energy project development and lending strategies internally at CABEI;
- Development of a small-scale renewable energy pipeline to be included in the lending portfolio of CABEI;
- Development of appropriate risk mitigation mechanisms, specifically a US\$ 5 million GEF-funded Partial Risk Guarantee (PRG) facility, to increase the availability of investment capital and bank financing for renewable energy projects of less than 10 MW;
- CABEI will enhance the participation of selected national lenders in the financing of such projects, by promoting more advanced project evaluation techniques and deploying the PRG mechanism for their benefit;
- Capacity building in the area of renewable energy project evaluation and the design of appropriate financial packages to address the specific risks of small and medium size renewable energy projects;
- Increase in available information relating to the renewable energy market in Central America;
- Development of collaborative arrangements between CABEI, the Intermediary Financial Institutions and other financial players in the Central American renewable energy market; and,
- Support for increased market penetration through expanded financing opportunities.

The project aims to directly support the implementation of at least 12 small and medium sized renewable energy projects in the region. CABEI will participate in the financing of specific projects, through the US\$ 25 million of direct lending which it has committed to support this initiative and US\$ 600,000 for technical assistance. Additionally, it is expected that CABEI's partner Intermediary Financial Institutions will provide US\$ 32 million in financing and project developers \$24.5 million in equity for such projects, partly covered by the PRG mechanism. These combined activities are intended to promote a better response from RE project developers, based on their perception that the major financial players are now better placed to address their specific concerns.

It is expected that a combination of CABEI's new project development role in the small and medium renewable energy sector and direct participation in the financing of the identified projects, backed up with Intermediary Financial Institutions co-financing, will:

- contribute significantly to reducing existing barriers that have prevented the development of RE projects in the region;
- mobilize a total of approximately US\$ 80 million of new investment in RE projects, corresponding to an anticipated installed capacity of 30 – 40 MW;
- improve the quality of life of beneficiary remote populations; and,
- reduce carbon dioxide emissions by an estimated average of 172,000 tons per year after the commissioning of this volume of installed capacity from renewable energy sources.

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## Acronyms

ALIDES	Central American Alliance for Sustainable Development
BOT	Build, Operate, Transfer
BUN-CA	Biomass Users Network for Central America
CABEI	Central American Bank for Economic Integration
CACM	Central American Common Market
CAMBio	Central American Markets for Biodiversity UNDP-GEF project
CCAD	Central American Commission for Environment and Development
CEPAL	Economic Commission for Latin America
CIRR	Commercial Interest Reference Rate
COEX	Department for External Cooperation Programmes (at CABEI)
CO <sub>2</sub>	Carbon Dioxide
CRIE	Comisión Regional de Interconexión Eléctrica (Regional Electric Interconnection Commission)
EOR	Entidad Operativa Regional (Regional Operating Agency)
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
GW	Gigawatt
GWh	Gigawatt-hours
HYDRO	Hydroelectricity
CA	Central America
IADB / BID	Interamerican Development Bank
IFI	Intermediary Financial Institutions
kW	kilowatt
kWh	kilowatt-hours
LIBOR	London Inter Bank Rate
MER	Mercado Eléctrico Regional (Regional Electricity Market)
MIF	Multilateral Investment Fund (IDB private sector window)
MW	Megawatts
MWh	Megawatt-hours
OFP	Operational Focal Point
OP	GEF Operational Program
PDF B	Preparation Development Facility, block B
PIM	Project Implementation Meeting
PPA	Power Purchase Agreement
PRG	Partial Risk Guarantee
PSC	Project Steering Committee
RE	Renewable Energy
RAAN	Nicaragua North Atlantic Region
RAAS	Nicaragua South Atlantic Region
RO	Regional Office
SIEPAC	Sistema de Interconexión Eléctrica para América Central (Interconnected Central American Electricity Grid)
SIN	National Grid
SMME	Small, micro- and medium-sized enterprise
SMREP	Small and medium sized renewable energy project
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US\$	US Dollar
WB	World Bank
Wp	Peak Watts (photovoltaic)

## SECTION I      Elaboration of the Narrative

### PART 1:            Situation Analysis

#### 1.1      Introduction

1.      The energy sector development strategies of the multi-lateral and bi-lateral development agencies have traditionally supported large-scale investments in incremental power generation, transmission and distribution. This supply-based approach is increasingly constrained by the social and environmental consequences of large-scale power projects. These constraints, together with the sharply accelerating energy demand and corresponding growth in capacity requirements, have heightened interest in renewable energy (RE) options and particularly in projects with smaller installed capacity, which could be executed by private investors. On-grid RE-based electricity replaces fossil fuels and hence reduces carbon dioxide (CO<sub>2</sub>) emissions of the energy sector. RE options, in particular projects of less than 10 MW, are often the most cost-effective energy service delivery alternatives for rural areas, thereby contributing to economic development and simultaneously reducing the emissions of CO<sub>2</sub>.

2.      In Central America, restructuring of the power sector has unique characteristics in every country and, in countries where the process is more advanced such as in Panama and El Salvador, the results are also remarkably different in each country. Energy consumption in the region is very uneven. Costa Rica and Panama are the highest consumers of energy per inhabitant, but El Salvador, Guatemala, Honduras and Nicaragua, have low energy consumption per capita which represents a fraction of the Costa Rican consumption (20 to 34%).

**Table 1. Energy consumption per capita in Central American countries**

<b>Countries</b>	<b>Energy consumption (KWh/inhabitant per year)</b>	<b>Base 100</b>
Costa Rica	1,737	100
El Salvador	594	34
Guatemala	387	22
Honduras	550	32
Nicaragua (2)	347	20
Panama	1,464	84

*Source: International Energy Agency*

3.      Against this background, irrespective of the way the power sector is managed in the participating Central American countries, power and energy production capacities in the region will need to almost double over the next 8 years, requiring the addition of over 6,000 MW of installed power capacity. The installed capacity and current electricity demand in Central America are in the order of 9,000 MW and 58,000 GWh, respectively.

4.      Power generation from RE sources has competitive advantages. There is abundant RE potential identified for the region at the pre-feasibility stage, exceeding by far the anticipated additional capacity requirements in the short term. There is an aggregated potential of about 31,000 MW of hydro, 2,500 MW of geothermal and at least 2,000 MW from wind power plants, with a significant share to be derived from small to medium-scale projects. There is also a significant potential for bagasse-based co-generation, with a conservatively estimated regional capacity of at least 500 MW to be exploited in the short term. The table below presents the potential of RE in the region.

**Table 2. Technical potential for renewable energy**

Country	Hydro (MW)	Geothermal (MW)	Wind (MW)	Bagasse-Based Cogeneration (MW)	Total (MW)
Guatemala	10,900	800	400	250	12,350
Honduras	5,900	120	200	110	6,330
El Salvador	2,165	330	0	33	2,528
Nicaragua	1,740	1,000	600	100	3,440
Costa Rica	8,277	240	600	24	9,141
Panama	2,340	40	400	20	2,800
<b>TOTAL</b>	<b>31,349</b>	<b>2,530</b>	<b>2,220</b>	<b>557</b>	<b>36,656</b>

Source: Information collected by CEPAL 20061 and BUN-CA from the national energy authorities, 2003.

5. In addition, over 20% of Central Americans have no access to electricity services<sup>2</sup>, a situation which is unlikely substantially to change by connecting RE-based electricity to the grid. Extensive efforts have to be made to develop RE systems that will provide the most cost-effective electricity services for the region, with particular emphasis on off-grid solutions.

6. By way of example, in Nicaragua the public utility ENEL currently operates 32 diesel plants located outside the privatized concession area (19 in North Atlantic Region, 6 in South Atlantic Region, 6 in the Northern area, 1 in the Southern area) generating some 2,738 GWh per year of electricity. These plants have extremely high maintenance and operation costs that are unsustainable in the long term for the public utilities that operate them at a loss, with the high cost of energy a barrier to the economic and social development of local populations. Having access to a more reliable and lower cost source of energy supplied by isolated RE systems, such as mini-hydro plants, would allow the implementation of more productive applications, improve the quality of life of local populations and reduce CO<sub>2</sub> emissions.

7. In the proposed ARECA project, only RE projects of less than 10 MW will be contemplated. Such projects are generally considered to be small in the wider context of the electric power requirements of the region. Currently, the combined total of installed generating capacity of the seven Central American countries (including Belize and Panama) is more than 9,000 MW, with 40 to 50 percent of the current total supplied by fossil fuel burning plants. The expected annual demand growth rate is estimated to be 7 to 10% over at least the next half decade.

8. Indeed, since 1985 the Central American region has shown a continuous growth of energy consumption in the frame of favorable political, economical and social conditions, stimulated by the end of regional conflicts in Nicaragua, Honduras and El Salvador and the efforts carried out by the governments to modernize and reinforce local economies.

**Table 3. Average annual energy consumption increase rates in Central America**

Period	El Salvador	Guatemala	Honduras	Nicaragua
1985-1990	5.6%	9.2%	9.6%	3.3%
1990-1995	8.4%	8.3%	7.5%	4.0%
1995-2000	5.1%	8.1%	10.9%	5.9%
Prediction 2000-2010	7% annual in average in C.A.			

(Source: CEPAL)

<sup>1</sup> CEPAL (Sep 12, 2006). ISTMO CENTROAMERICANO: ESTADÍSTICAS DEL SUBSECTOR ELÉCTRICO (Datos actualizados a 2005 ) [Electronic Version]. Retrieved January 31, 2007, from CEPAL Website: <http://www.eclac.org/publicaciones/xml/5/26675/L747.pdf>

<sup>2</sup> Electrification statistics are uneven in the area and show big differences between urban and rural areas (in Nicaragua for example, 46% of the overall population has no access to electricity, whereas this figure reaches 74% amongst rural population).

## 1.2 Context and global significance

9. The Central American countries entered into a severe and prolonged economic depression in the early 1980s. Per capita GDP for the five countries of the Central American Common Market (CACM) fell by a weighted average 18% between 1979 and 1986. In most countries, recovery was barely perceptible until the 1990s, when gross domestic product (GDP) for the region, including Belize and Panama, grew at a weighted average annual rate of 4.3%, or 1.8% per capita, through 1997.

10. This pattern of moderate recovery was facilitated by the adoption of significant economic policy reforms and a strong U.S. economy. El Salvador joined the ranks of the reformers in 1989, Honduras in 1990, and Nicaragua in 1991. Panama, whose modest reforms in the mid 1980s were unsustainable, began a major reform process only in 1994. Despite this vulnerability to external events, the economic depression experienced by the Central American countries in the 1980s led to a widespread consensus on the desirability of economic openness to external trade in the face of a radically changed international economic environment.<sup>3</sup>

11. In the last ten years, Central America has recovered much of the ground lost during the 1980s. The outstanding features of the last decade have been the ending of civil wars in El Salvador, Guatemala and Nicaragua, the establishment of democratic rule in Panama and respect for the electoral process in all countries of the region. Central America has known significant economic, social and political progress over the last decade. Macroeconomic stability has once again become the norm and regional economic growth in the 1990s and early 2000s has been positive. Exports, both inside and outside the region, have expanded and diversified. The transfer of power through the electoral process is now commonplace and demilitarization has been occurring throughout the region.

12. The countries of the region have developed and diversified their exports in recent times. The traditional dependence on five primary products - coffee, bananas, sugar, cotton and beef - has declined significantly as new exports have emerged. These non-traditional exports include the output of *maquila* plants in export-processing zones (mainly textiles and clothing), as well as new, natural resource-intensive agro-industrial products. Service exports, mainly tourism, have also expanded rapidly in the 1990s, with all countries except El Salvador at least doubling their foreign exchange earnings between 1990 and 1997.

13. However, despite significant advances in some areas, Central America still lags far behind the rest of Latin America on most development indicators. This gap was reinforced in late 1998 by Hurricane Mitch, which reminded Central Americans of the vulnerability and fragility of their region. The hurricane temporarily disrupted the development process and devastated Central America with particularly severe effects in Honduras and Nicaragua.

14. Furthermore, some countries - Guatemala, Honduras and Nicaragua - have not yet overtaken the level of GDP per head recorded before the regional crisis. This is a striking indication of the challenges that face many of the countries in Central America.

15. Poverty is still widespread, health and education systems in some countries remain deficient and under-funded, the environment is extremely fragile (deforestation continues at a pace that threatens both human development and biodiversity), and public security remains an issue. Globalization is presenting Central America with a new set of challenges. The liberalization of trade and capital flows throughout the world poses special problems for small countries. These problems can most effectively be addressed through a regional response. Yet, despite efforts in the 1990s to revive the Central American Common Market, regional cooperation falls far short of what is required for the region to speak as one voice.

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<sup>3</sup> see Zuvekas 1992: 137-142.

16. Historically, Central American countries include Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica. However, Panama and Belize are often also included in this group of countries because of their geographic proximity and comparable socio-economic context. All countries are member countries of the Central American Bank for Economic Integration (CABEI).

### **1.3 Institutional, sectoral and policy context**

17. All seven Central American countries rely heavily on imported petroleum and indigenous hydropower to meet domestic energy demand. Imported petroleum comes primarily from Venezuela and Mexico under the terms of the San Jose Pact and the Caracas Energy Accord. The region consumes small amounts of natural gas and a very small quantity of coal.

18. Historically, hydroelectric power has dominated Central America's electricity sector. However, since opening the market up to foreign investors beginning in the late 1990s, the privatization of energy markets allowed the development of numerous new thermal (mainly oil) generation plants. As a result, the thermal generation proportion has grown rapidly in spite of hydropower. As a share of regional electricity consumption, the hydropower contribution has fallen from 80% in 1980 to approximately 50 - 55% in 2005.

19. Hydropower has been a reliable energy source thanks to the richness of the rainfall and the accessibility of sizeable hydro resources in the region. Most of the oil used in Central America is imported, thereby increasing the dependence on oil for the supply of energy. This is not the best economic situation for Central America, considering international oil price volatility and the uncertainty associated with the final cost of electricity.

20. In 2005, the total installed capacity in the region was near 9,000 MW, with 43% hydroelectricity, 46% fossil fuel and Geothermal 5% (wind energy and biomass representing around 1%). Oil is the main fossil fuel in Central America and there is still no large power plant using natural gas at this stage.

21. Based on the energy demand growth prediction of 7 to 10% annual in average for the region, it is foreseen that the energy mix will maintain the same growth characteristics as in the past two decades, characterized by a big increase of the fossil fuel share of generation.

22. The Interamerican Development Bank considers that over US\$ 7 billion is required until the end of 2008 to meet to this growth. RE projects could be one of the main sources of energy able contribute to meeting this demand, given of the abundant and diversified natural resources available in the region (hydroelectric, wind, geothermal, biomass, solar).

23. However, in spite of these favorable natural conditions, private sector participation in the sector remains modest, particularly in the small RE project sector. A number of institutional, technical and financial barriers need to be removed for small RE projects to be able to play their full role in the energy mix of the region.

#### ***1.3.1 Deregulation and access to electricity***

24. The regional electrical context transformation began in the 1990s and major new electricity legislation and regulation was approved between 1996 and 1997. The institutional environment of the energy sector in Central America varies according to the country. Honduras and Costa Rica's public utilities still play a monopolistic role in the different electrical industry sectors and some legal reforms still remain to be enacted in these two countries to complete the transformation from public ownership to private sector operation.



25. In deregulated markets, private sector operators tend to concentrate their efforts on urban areas for distribution and grid-connected thermal investment in generation. These are the easiest and most profitable market segments to serve, with lower risk and shorter payback. Rural electrification, under conventional approaches (electricity distribution via interconnected grid), requires heavy investments and is not economically justified, given the low energy consumption of poor rural populations and their high degree of territorial dispersion..

26. In consequence, rural electrification rates remain very low in most countries of the region with limited hope for rural and isolated populations to be connected to the conventional privatized grid in the foreseeable future. Except for Costa Rica, which has an electrification rate of 98.6%, in all other countries of the region between 45 % and 14 % of the population has no access to electricity services. Nicaragua (45% unattended) and Honduras (31% unattended) are the least advanced in this regard. On average more than 21% of the Central American population, or 7,3 Million people, have no access to electricity (see table below).

**Table 4. Rural electrification balance in Central America**

Concept	CA Region	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Electrification rate (%)	78.9	98.6	82.3	83.2	69.2	54.1	85.7
Population (inhabitants)	35,951,000	4,023,000	6,276,000	11,237,000	6,485,000	5,074,000	2,856,000
Population without electricity (inhabitants)	7,789,744	56,322	1,110,852	1,887,816	1,997,380	2,328,966	408,408
Households without electricity (houses)	1,557,949	11,264	222,170	377,563	399,476	465,793	81,682

Source: Statistics of CEPAL 2005 and BUN-CA (2002), assuming on average of 5 habitants per household

27. For energy generation companies, the urgent need to increase capacity has often led to the almost systematic use of the quickest and least expensive energy generation source, i.e. thermal generation using fossil fuels. As a consequence, the proportion of thermal generation in the energy mix of the region has grown from 20 % in the eighties to 45-50 % in 2005.

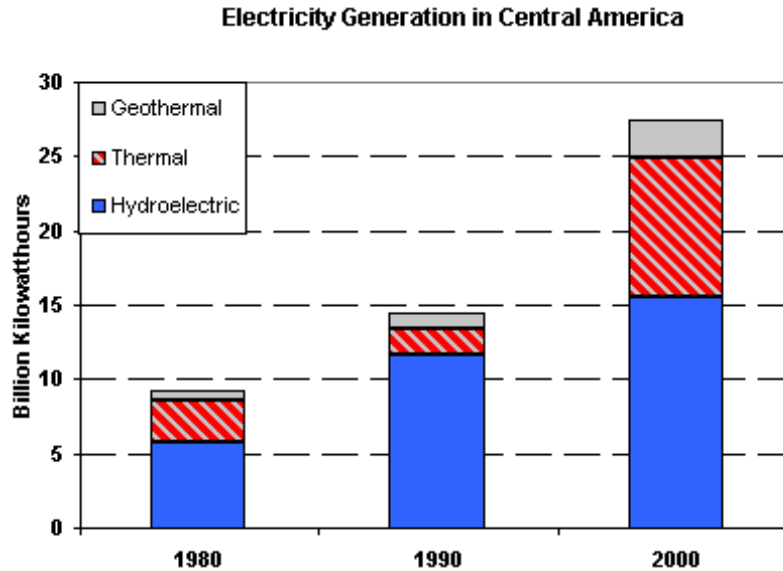


Figure 1. Electricity generation in Central America

### 1.3.2 Regional integration and Regional electricity market

28. The different governments of the region are working on a regional energy project which aims at unifying six of the seven Central American countries. El Salvador, Panama, Costa Rica, Guatemala, Nicaragua and Honduras recently signed a framework agreement to set up a unique competitive market in the region (*Mercado Eléctrico Regional*), considering different principles of reciprocity such as:

- Competition in the production market, by opening it up to new power producers;
- Vertical disintegration of the electricity industry;
- Free access to the transmission grid, with no discrimination related to the provenance or the destination of energy, and on its public or private character; and
- Free circulation of energy in the region (under the rules established by the Framework Agreement).

29. Central American countries have been discussing plans to link the region's electricity grids via an interconnected system (*Sistema de Interconexión Eléctrica para América Central* or SIEPAC). This project was formally approved by the participating governments in 1996. It entails the construction of 1,800 km of transmission lines connecting 36 million people in Panama, Costa Rica, Honduras, Nicaragua, El Salvador, and Guatemala (see Figure below). The estimated cost of the project is as high as US\$ 320 M, and is scheduled for completion by 2008.



**Figure 2. Transmission lines in Central America**

30. In April 2002, a transmission line between Honduras and El Salvador was opened, marking the complete interconnection of all six SIEPAC countries. Prior to the Honduras-El Salvador link, Guatemala and El Salvador were not connected to the Honduras-Nicaragua-Costa Rica-Panama network of bilateral linkages. SIEPAC is currently planning a high-voltage, 230 kV, 1,140-mile transmission line that will extend from Guatemala to Panama with connections to the grids and substations of all of the member countries. This overarching power line is designed to mitigate the poor quality of existing interconnections, making regional transactions possible.

31. In the margin of the regional transmission grid construction, SIEPAC will consider the creation of a Central American energy market (*Mercado Eléctrico Regional - MER*). The project will be governed by two new regional institutions, the Regional Electric Interconnection Commission (CRIE) which will regulate the wholesale market, and the Regional Operating Agency (EOR), which acts as administrator of regional power transactions.

32. SIEPAC will allow its member countries to trade electricity regionally. It will also allow countries with severe electricity deficits to purchase power from their neighbors, as well as enabling countries dependent on thermal power to have access to Central America's abundant hydropower. Interconnecting the country's electricity grids might also make possible the introduction of natural gas into the regional fuel mix, capitalizing upon the proximity of neighboring natural gas producers such as Mexico, Colombia, and Venezuela.

## **1.4 Barriers preventing the development of RE projects**

### ***1.4.1 Summary of renewable energy projects characteristics***

33. RE projects to be considered by CABI under this Project will include electricity generation from hydroelectric, wind, and biomass resources. Biomass projects can include direct use of renewable natural substances (such as sugar cane bagasse, forestry by-products, etc.) as fuel, or the recovery and combustion of methane gas produced by the bio-digestion of substances (such as at solid waste landfill sites).

34. Each type of RE technology has physical and technical differences and constraints, particularly with regard to reliability or physical characteristics of fuel source. For example:

- in wind projects, wind patterns and strengths can fluctuate significantly from year to year;
- rivers rarely flow at the same rate throughout the annual cycle or even year to year;
- methane is only produced by a landfill where undigested material remains and, therefore, reserves are difficult to establish over time;
- bagasse is difficult to store and is only produced during the sugar cane harvest; and,
- many appropriate locations for hydroelectric or wind installations are in very remote locations.

Fossil fuel plants can generally be sited where interconnection is most advantageous, subject to fuel supply considerations. RE projects, however, are most often site-specific and must be built where the resource exists, regardless of pre-existing access infrastructure, geo-technical conditions, location of appropriate interconnection points, and a multitude of other factors that can introduce added cost and risk to the project's development.

35. The different types of RE technologies are not on a common footing with respect to technological advancement, cost, or market acceptance. For instance, hydroelectric and wind technologies are well advanced and there is a highly competitive international market for equipment and technical services in this area. Solar energy, however, is at an earlier stage in terms of its commercial application on any significant scale, and costs are still relatively high. While it is anticipated that costs associated with solar applications will continue to decline over time, costs associated with hydroelectric, wind and biomass projects have probably stabilized.

**Table 5. Average investment cost generally observed per technology**

Energy source	Average investment cost (US\$/kW)	Time required for construction and commissioning
Photovoltaic	6,000 – 10,000	Months
Wind farm	1,500 – 2,000	Months
Geothermal	2,000 – 2,500	Three years
Hydroelectricity	1,750 – 2,250	Three up to five years
Coal	1,200 – 1500	Three years
Thermal diesel	750 –1,300	One to Two years
Natural gas	750 – 1,250	Two years
Biomass	2000-3000	One to two Years

Source: Transénergie consulting

36. It is almost always the case that electricity from renewable resources is more expensive, in terms of initial capital investment, than energy produced by fossil fuel burning thermal plants. The benefits to be derived from RE generation facilities are often concentrated on their reduced life-cycle costs, since fuel or energy source costs are often zero or negligible, and also on their lower environmental impacts, such as lowered greenhouse gas emissions. RE projects are often characterized by long investment payback periods (often in excess of 10 years) and such projects therefore require financing maturities which cater to this. Recent analyses have shown that stretched maturities have a significantly more beneficial impact on a RE project's financial viability than lower interest costs. Though often marked by acceptable internal rates of return over the project cycle, revenue predictability is perceived as a major uncertainty in RE project evaluation.

37. RE projects very often exhibit extreme financial sensitivity to variations between assumed and actual conditions. Cost over-runs due to poor construction cost estimation or unanticipated physical site conditions, over-optimistic fuel source, energy price, as well as usage estimations, are among the factors that can drastically impact the financial reality of a project. The quality of the feasibility study and pre-

commitment due diligence relating to the project's engineering and design work is crucial to the bankability of such projects. The environmental impact of such projects also requires careful analysis and may lead to unforeseen delays if not properly addressed in the project's development stage.

38. While RE projects, if properly designed and managed, are usually technically, environmentally, socially and economically sustainable and highly appropriate, it is essential to bear in mind that each project represents a unique situation and must be analyzed accordingly. Implementation costs, potential revenue, and the project-specific matrix of risks will vary from project to project, which is a major source of complexity and additional transaction costs in structuring the financial package.

39. Small and medium RE resources often accumulate a disproportionate burden of obstacles and additional implementation costs, the impact of which is exacerbated by the smaller size of the projected investment. The more common barriers to entry in the Central American context, as discussed in the section below, are directly linked with economical or financial criteria of the projects. It is the aim of this Project that CABEI, a major source of project funding and development promotion in the region, now seeking to play a new catalytic role in the financing of such projects, should cost-effectively address many of these barriers to facilitate private sector financial involvement in this growth sector.

#### ***1.4.2 Barriers addressed through the ARECA Project***

##### ***Lack of appropriate financing structures***

40. One of the major barriers to RE project implementation is the shortage of appropriate financing, characterized by debt maturities, interest rates, and equity and guarantee requirements that match the financial parameters of the small – medium RE marketplace, characterized by long investment payback periods and short-term market drivers.

41. This Project attributes a pivotal role of the region's leading development finance institution, CABEI, with this Bank taking a leading role in the following critical and interlinked areas:

- the more sophisticated financial and technical evaluation of RE project proposals;
- the design of project-specific financial packages;
- integrating a specifically designed Partial Risk Guarantee facility to secure better financing conditions from Intermediary Financial Institutions; and,
- a direct targeted lending programme of US\$ 25 million.

The combination of these activities is expected to promote a better understanding of the real financial requirements of RE projects of this type and the design of appropriate solutions to meet this challenge.

##### ***Equity requirements***

42. The high level of committed and collateral investor "equity" required, being a combination of equity actually invested in the project (estimated at typically 30 % of total investment), reinforced by lender demands for up to 150 % of collateral to cover debt, currently represent an unacceptable financial burden on such projects, often leading to premature project termination. Many RE project proponents or site owners lack the financial "muscle" and sophistication required to meet the requirements of a bankable project under these conditions.

43. In addition to the activities listed above, CABEI will seek to facilitate the capital-raising efforts of project developers via its connections in the local business community and with international equity funds. Several RE equity funds have approached CABEI for financial assistance. CABEI's due diligence on these funds has resulted in an in-depth knowledge their operations. This knowledge will be shared with project developers.

***Small projects are not attractive to large energy market participants***

44. Total installed generating capacity in Central America is in excess of 9,000 MW. The regional electricity generating and distribution marketplace is dominated by large multinational and public sector energy corporations. Growth in energy demand is expected to be 9 to 10% per annum for the foreseeable future, but energy generators and distributors generally prefer to invest in a few larger projects rather than many smaller ones, owing to the disproportionate transactions costs, uncertain revenue profiles and overall complexity associated with the latter.

45. The situation is similar for organizations that finance such projects, as they see the fixed costs of analyzing and investing in smaller projects as prohibitive and have generally established minimum investment requirements that preclude many small projects.

46. CABI will work in close coordination with Governments and existing project developers to promote and disseminate appropriate experience and best practice associated with small and medium RE projects (SMREPs). The Project foresees workshops and capacity building aimed directly at lending institutions and RE project promoters.

***High cost of preliminary studies***

47. High quality feasibility and environmental impact assessment studies are crucial to the success of all RE projects. In the case of SMREPs, the costs and time consumed by such studies are rarely proportional to the potential energy output, and preliminary studies for a 2 MW facility can cost as much as for a 10 MW facility.

48. Individual site owners are often reluctant to spend such amounts or do not have access to adequate financial resources for this type of preliminary investment, so that many potentially good projects are never properly evaluated. Conversely, many marginal projects are studied and promoted simply because the site owner can afford to do so.

49. The Project foresees that full feasibility studies will be undertaken as part of the project evaluation process and due diligence conducted by CABI and the IFIs on candidate SMREPs. Specifically, CABI will set aside US\$ 600,000 to fund this type of study, part of which could be made available to promising candidate projects.

***Lack of sector knowledge by local banks***

50. The local banking sector in the different countries of the Central American region often lacks adequate knowledge of the RE industry and market from a technical, institutional and commercial point of view, and in most cases there is no or limited credit history in the region that would enable to validate financial experience of the sector. The absence of any pressure to lend to such SMREPs is the prime explanation: the major move to promote SMREP financing which this Project represents will provide the necessary context for this state of affairs to change.

51. CABI and the Project will play a major role in providing assistance to local banks to improve their knowledge of RE project analysis, as well as disseminating recent developments in the financial and technology markets, best practice and lessons learned internationally, so as to facilitate their increased involvement in RE project lending.

### ***Limited collateral and security capacities***

52. As assets for RE energy generation are very project-specific, especially in the case of hydroelectric or wind projects, banks usually consider them illiquid collateral. In consequence, additional levels of guarantee are required that can reach between 120 and 150% of the debt financing provided. In many cases, private developers pledge their land and equipment as well as personal assets and reach around 90% of the required loan amount corresponding to around 67% of total project cost, over and above the 25 - 30 % of direct equity injected into the project company. Small independent projects usually have difficulty in providing such additional levels of security.

53. The PRG facility is intended to address this barrier directly, as it is anticipated that a partial guarantee for qualified projects will result in commensurate reductions in collateral requirements or the award of more competitive financial terms and conditions. Based on an extensive dialogue with CABEI, the IFIs and project developers during preparation phase, the PRG facility will serve to bridge the collateral gap by providing projects with a maximum 35% guarantee, made conditional on corresponding reductions of collateral requirements or other credit enhancements provided by CABEI and the intermediary financial institutions (IFIs).

## **1.5 Stakeholder analysis**

### ***1.5.1 General presentation of CABEI***

54. The Central American Bank for Economic Integration (CABEI) is the multilateral bank for the development of Central America, whose mission is to promote the progress and integration of the Isthmus, to foster equitable economic growth and to respect the environment. The Bank meets these objectives by supporting public and private projects that generate jobs and contribute to the improvement of the productivity and competitiveness of the beneficiary countries, as well as to raising the human development indicators of the region.

55. CABEI was founded on December 13, 1960, by the Republics of Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica to promote regional integration and development. Since then, both Belize and Panama have received the status of non-founding, benefit receiving countries. As of today, non-regional countries have joined the bank thereby strengthening its capital base: The Republic of China (Taiwan), the Republic of Mexico, the Republic of Argentina, the Republic of Colombia, Spain and the Dominican Republic.

56. CABEI is one of the largest and best capitalized financial institutions in Central America. Targeting the capital markets and assuming country risk, CABEI has attracted external funding for a very large number of outstanding financial and technical assistance programmes. These programmes have improved and developed energy, telecommunications, transportation and agricultural industries in Central America, as well as its human resources, housing, tourism, social development, and environmental conservation.

57. CABEI is financed by two main categories of funds:

- *Export credit funds (tied funds)*: credit lines originating from International Commercial Banks (export credit). These funds are tied to the national origin of the goods supplied.
- *Ordinary funds*: CABEI has also access to untied funds for example from the EIB (European Investment Bank) or other national banks. As these funds are untied they are easier to use than tied funds, and are usually quickly used. CABEI has also access to public bilateral funds. These funds are usually concessional.

### 1.5.2 CABEI's financial instruments

58. CABEI typically on-lends between 50% and 75 % of total project costs to private sector investors. Projects have to be located in one of CABEI's member countries to benefit from CABEI financing. If the project sponsor originates from a CABEI member country, the Bank can finance up to 65% of project cost. If the project sponsor is not from the region, CABEI's maximum participation is 50% of total financial requirement. In both cases, the private project sponsors are requested to invest at least 25% of the total investment cost in the form of equity. The remaining financial needs are usually provided by local banks referred to as Intermediary Financial Institutions (IFIs).

59. CABEI uses two main mechanisms to finance private sector projects: Intermediated Credits; and Direct and Co-financing Credits (lending alongside a local Bank).

60. Intermediated Credits (Créditos Intermediados) apply to small projects (less than USD 2 million). In this case, CABEI lends funds in US dollars to a local bank (IFI) that has been previously selected by CABEI (more than 100 in the region, including such institutions as BGA, Banco Atlántida, Bamer, etc.), which in turn on-lends to the project. In this case, 100% of the project's commercial risk is taken by the local IFI and CABEI acts as a second tier lender (banco de segundo piso). To date, no RE project has been financed using this procedure. General terms and conditions vary according to the project, country risk, quality of financial institution and funding available:

- Amount: subject to local IFI requirements;
- Type: indexed rate (generally referenced to LIBOR);
- Rate: LIBOR + 350 – 500 basis points + local IFI commission;
- Maturity: 8 to 10 years;
- Grace period: approximately 18 months (according to project needs, usually corresponding to construction period); and,
- Guarantees / collateral: subject to local IFI requirements.

61. Through Direct Credits CABEI can co-finance projects with a local bank or international financial institutions (IFC, CDC, large multinational lending banks, etc.). In this case CABEI finances up to 50% of project costs directly to project sponsors, as well as up to 25% in the form of credit lines to a local IFI or international institution that in turn on-lends to the project. International institutions may also finance directly at least 25% of the project cost. The sponsor or promoter must provide at least 25% of the project cost in the form of equity. This financial structuring enables CABEI to share the project's commercial risks with other institutions. This is the mechanism most widely used for private-led RE projects and is foreseen for the present initiative.

62. *Interest rates* -- CABEI interest rates are indexed on LIBOR 3 or 6 month for variable rates, or over the Commercial Interest Reference Rate (CIRR) for fixed rate lending. Fixed rates are approximately 300 basis points more expensive than variable rate loans, which makes them unattractive to borrowers. As a result, fixed rates loans are seldom used to finance projects in the region. Margins of IFIs are usually negotiable between the parties.

63. *Guarantees* -- Projects from the private sector are financed under corporate financing schemes, where shareholders need to provide additional collateral to CABEI over and above the project assets to back up a loan. Bank or personal guarantees are requested from the project sponsors, which usually amount to between 110 and 130% of the loan provided (the first 100% being guaranteed by the project's assets). No limited recourse or project finance schemes have been used by CABEI to date.

64. *Project evaluation* -- Cost of project evaluation on co-financed projects is one tenth of 1% of the total amount to be financed, with a minimum fee of US\$ 20,000 (whatever the size of the project). Of this



fee, 50% is paid upfront and 50% when and if the project is approved for financing (if financing is not approved, 50% of the fee is reimbursed).

65. Main documents necessary for bank evaluation are company incorporation documents, environmental impact assessment, audited financial statements, feasibility studies and PPAs, when applicable. CABEI doesn't have any set standard requirement for PPAs. The reliability of the energy purchaser (i.e. public utility), the duration of the contract and purchase price of energy are also taken into account.

### ***1.5.3 Environmental considerations***

66. Since its foundation and through its Constitutive Agreement, CABEI has recognized the importance of preserving and protecting the natural resources and the environment of the Central American region. In 1987, CABEI's Board of Directors authorized the signing of the Declaration of Environmental Policies and Procedures for Economic Development. In March 1988, CABEI introduced environmental assessments in all the projects financed to the public and private sectors, to identify the environmental impacts of the projects financed and the corresponding measures to compensate such impacts. In 1992, CABEI signed an agreement with the Central American Commission for Environment and Development (CCAD). Its main objective is to consolidate the actions of coordination and cooperation in specific areas related to the environment and the sustainable development, such as legal, technical and financial issues. Among other activities and in the context of this agreement, CABEI/CCAD have sponsored several regional workshops and seminars to facilitate the transfer of knowledge and help the country members to define strategies for the region.

67. Through its operations, CABEI contributes to meeting the obligations contained in the Central American Alliance for Sustainable Development (ALIDES) in terms of supporting activities related to the protection of the natural resources and the environment of the region. The ALIDES agreement was signed in 1994, supported by all the Presidents of Central America, including Belize and Panama. It represents an integral strategy for the sustainable development of the region, aiming towards the promotion of political, economic, social, cultural and environmental sustainability. However, technical assistance activities, such as the organization of workshops, remain marginal.

68. On November 1999, the Bank sponsored The Environmental Workshop for Central America, and obtained important results, such as the signature of what has been called the Declaration of Tegucigalpa. This agreement was signed by the Environmental Ministers of Central America and Panama, to manifest their support for the Bank's initiative to create the Regional Carbon Fund, giving the Bank authority to promote it among the international financial institutions. This demonstrates that the Bank is recognized as playing a role in this sector on a regional basis by member states. This programme is still awaiting approval by the Bank's Board of Directors.

### ***1.5.4 Renewable energy involvement***

69. CABEI has an energy sector lending portfolio of US\$ 646 million, of which 59% represent on-grid RE investment for hydro, wind and biomass-based electricity generation (>20 MW).

70. To date, CABEI has financed mostly large projects over 20 MW and a few medium size RE projects. In general, CABEI only acts as a financier and plays a minor role in project formulation and preparation.

71. It is estimated that small and micro RE projects, especially projects of less than 10 MW sponsored by local stakeholders, will lack adequate project preparation capacity and will require support at pre-

feasibility and feasibility stages before projects can be considered bankable. RE-based off grid electricity generation is seen as a large market by public authorities and multilateral development agencies, with at least 2 million households unconnected in Central America (representing roughly 11 million inhabitants). The socio-economic impact is therefore very significant.

72. CABEI recognizes that to accelerate future investment in RE projects (<10 MW), the Bank must take a more pro-active role in project identification, formulation and appraisal, and lending, alongside the development and promotion of innovative tailor-made financial products.

73. The ARECA Project will be the driving and guiding force of such an initiative. The objective of the full-size programme implementation is to accelerate RE investment through CABEI, thereby reducing the CO<sub>2</sub> emissions of the energy sector and contributing to economic development in Central America by:

- Integration of small-scale renewable energy project development and lending strategies internally at CABEI;
- Development of a small-scale renewable energy pipeline to be included in the lending portfolio of CABEI;
- Development of appropriate risk mitigation mechanisms, specifically a US\$ 5 million GEF-funded Partial Risk Guarantee (PRG) facility, to increase the availability of investment capital and bank financing for renewable energy projects of less than 10 MW;
- Enhancing the participation of selected national lenders in the financing of such projects, by promoting more advanced project evaluation techniques and deploying the PRG mechanism for their benefit;
- Capacity building in the area of renewable energy project evaluation and the design of appropriate financial packages to address the specific risks of small and medium size renewable energy projects;
- Increase in available information relating to the renewable energy market in Central America;
- Development of collaborative arrangements between CABEI, the Intermediary Financial Institutions and other financial players in the Central American renewable energy market; and,
- Support for increased market penetration through expanded financing opportunities.

74. In addition, the proposed full-size programme will assist CABEI in meeting its environmental policy objectives.

75. Compared to other multilateral banks, CABEI is the only one active in the region that has been set up by –and is also partially owned– by five countries from the region, with its headquarters also located in the region (Tegucigalpa, Honduras).

76. It is to be noted that CABEI continues to demonstrate great commitment to the Project, having:

- initiated the dialogue with UNDP/GEF in early 1999;
- pledged cash and in-kind co-financing for its execution;
- committed US\$ 25 million to finance selected RE projects as well as managing the PRG facility; and,
- demonstrated the necessary willingness to make institutional changes to facilitate accelerated future RE investments in the region.

### ***1.5.5 Stakeholder participation during the PDF-B stage***

77. In the late 1990s and early 2000s it became clear that existing plans to meet growing electricity needs in the region were focused primarily on thermal expansion. As a result, total CO<sub>2</sub> emissions would increase and the pace for off-grid electrification would be very slow because of high costs of either extending the grid or the provision of small fossil fuel based electricity generation sets. With the abundant RE resources available in the region, coupled with the availability of mature RE conversion technologies,

UNDP-GEF supported activities to analyze why RE based electricity generation and distribution had not taken off in a meaningful manner in the region (GEF Operational Program #6 barriers).

78. In consequence, activities have been carried out in the past 6 years by UNDP-GEF in Panama, Costa Rica, Guatemala, Honduras, El Salvador and Nicaragua. In broad terms, there is now recognition that general barriers to the further development of RE based electricity generation relate to:

- i. the lack of awareness and availability of information;
- ii. non-existing policy environments and policy instruments that could place RE on a level playing field with fossil fuel based electricity generation;
- iii. a lack of human and institutional capacity for project identification, preparation and implementation; and,
- iv. the lack of access to available financing.

79. With a medium size Project entitled “The creation and strengthening of the capacity for sustainable RE development in Central America,” UNDP-GEF has worked on addressing points i) to iii) above through strategic interventions to kick-start national level RE developments. Further national UNDP/GEF initiatives are also addressing these items. The proposed activities under the ARECA project are focused on increasing the availability and access to RE investment capital. Rather than setting up new RE financing structures at national levels for all seven countries in the region, the existing regional financial structures operational in these countries (i.e. CABEI and its IFIs) will be used. This approach will tremendously reduce the overhead for the proposed activity and, more importantly, streamline the implementation of such an initiative.

80. The PDF stage of this Project started with a broad consultation process in the region. A seminar for productive sectors, international organizations, private and public utilities, government authorities, financial institutions, NGOs and academia, took place in Honduras in August 2001. This seminar promoted partnerships between international stakeholders, governments and commercial energy sector enabling their further involvement for the project execution stage.

81. In addition, at the later stage of the project preparation phase, stakeholders’ needs for capacity building in all participating countries were identified to formulate the corresponding activities for the full project execution phase.

## **1.6 Synergy of the current project with other projects in Central America**

82. In CA, the growth of energy demand and the numerous households without electricity access constitute the two main challenges that every country will face during the next decade. Therefore, the success of a regional development bank/GEF supported programme would impact positively on the region. Close linkages with other on-going RE initiatives should allow efficient regional co-ordination.

83. In this regard, activities have been executed or are under implementation by UNDP-GEF in Panama, Costa Rica, Guatemala, Honduras, El Salvador and Nicaragua. Most of these initiatives are focused on off-grid RE development. Nevertheless, project teams and national counterparts are usually involved in RE promotion as a whole.

84. Currently, a growing GEF project portfolio exists under GEF Operational Programme #6 directly related to RE development. The following table summarizes the existing or already implemented projects facilitated by GEF in Central America with the UNDP as the implementing agency.

**Table 6. GEF projects in the Central American region**

<b>Projects by country</b>	<b>Objective</b>	<b>Budget &amp; current stage</b>	<b>Technology &amp; geographic area</b>	<b>Executing agency</b>
REGIONAL (MSP)	The Creation and Strengthening of the Capacity for Sustainable RE Development in C.A. (FOCER)	GEF US\$ 750,000 Completed	(off-grid/on-grid) Small scale renewable energy in seven Central American countries	Non-Governmental Organization Biomass-Users Network Central America (BUN-CA)
COSTA RICA (FULL) National Off-Grid Electrification Programme based on Renewable Energy Sources	Validate renewable energy technologies as a viable option for rural electrification, in isolated areas that will not have access to the connected system in the 10 coming years	GEF US\$ 1 145 000	(off-grid) (PV, hydro, wind power, bio-fuels) Non-electrified rural areas	Ministry of Environment and Energy (MINAE / ICE-CONACE)
GUATEMALA (MSP)	Renewable Energies promoting Small Enterprise Development in Former Areas of Conflict	GEF US\$ 383,000 Completed	(off-grid) (Small Hydro + PV) Department of El Quiche	Non-Governmental Organization Fundacion Solar
GUATEMALA (FULL) Productive Uses of Renewable Energy in Guatemala	Foster the business development of the rural energy sector. Develop mechanisms where RE developers will obtain an adequate return on their investment.	GEF US\$ 2 650 000	(off-grid/on-grid) Mini, small hydro, solar	Non-Governmental Organization Fundacion Solar
HONDURAS	RE Development Programme for Electricity Generation	Integrated within a World Bank infrastructure project.	(off-grid/on-grid) (bio-fuels, small hydro, PV, wind) Nation-wide	
NICARAGUA (CNE / UNDP - WB-GEF)	National Strategy for Rural Electrification. Rural electrification development project in areas remote from the National Interconnected System (UNDP implements Productive Uses of RE in Rural Areas)	WB Global : MUS\$ 20 WB -GEF MUS\$ 5 UNDP US\$ 14M UNDP-GEF 4.5M Under implementation	(off-grid) small-hydro, photovoltaic, hybrid systems UNDP - Departments of Jinotega, Chontales, and Nueva Segovia	National Energy Commission (CNE)
NICARAGUA (FULL) Small-scale hydropower development for off-grid productive uses	Reducing the cost of implementation and dissemination of Small Hydropower Plants (SHP), in an effort to promote productive development in rural areas outside the SIN.	GEF US\$ 3 700 000	(off-grid) (small hydro)	National Commission of Energy (CNE)

85. The ARECA Project is directly focused on RE projects defined by a project size of less than 10 MW. While CABI has not so far been involved in providing technical assistance to small off-grid projects, the existence of an active GEF portfolio related to off-grid projects in the region, benefiting from such TA, means that they will be considered if presented to CABI for financing.

86. Close links with the above projects will be secured by the project's Coordinator – RE Project Financing Specialist through the development of operational relationships. CABI's initiative will complement these national programmes by providing new sources of funds and innovative financing tools to the RE projects. It will also contribute to improving capacities within CABI, local banks and other local financial institutions on the specificities of the RE sector.

87. The most important project for ARECA to coordinate with is the Central American Markets for Biodiversity (CAMBio) project, which is another regional UNDP-GEF project with CABI. The CAMBio aims to support the mainstreaming of biodiversity conservation and sustainable use within small, micro- and medium-sized enterprise (SMME) development and financing in five Central American countries (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua). It works with the Region's financial sector network, namely CABI and selected members of its extensive network of financial intermediaries. The objective of the project is to remove financial barriers to large-scale development of investment in the biodiversity conservation field through a creation of a Partial Risk Guarantee Fund. The activities concentrate on the following areas:

- develop and extend new financial products that will generate substantial increased lending to biodiversity-friendly SMMEs for investments that create biodiversity benefits;
- work with potential biodiversity-friendly SMMEs and in partnership with a range of national and international providers of business and technical services to ensure that SMME investments are made efficiently and in a manner that maximizes economic, social and biodiversity/ environmental benefits; and,
- work with Governmental and inter-governmental institutions, including Ministries of Environment, relevant sectoral ministries (agriculture, industry, tourism, finance and commerce) and the Comision Centroamericana de Ambiente y Desarrollo (CCAD), a regional coordinating structure, to promote an enabling environment that will encourage biodiversity-friendly SMME growth over the medium and long run.

88. The CAMBio project is being coordinated by the Environmental and SMME focal points within the Development and Competitiveness Unit in CABI, the same unit where the proposed project will be coordinated through the energy focal point. The coordination teams of these two projects will benefit from synergies during the execution of similar financial facilities. The proposed collaboration includes:

- coordinated efforts in the region on policy related work;
- co-operation in developing financing packages and new financing instruments;
- strengthening of the financial institutions sector in the region;
- joint promotional activities; and,
- replication of best practices.

89. The other key project where synergies will be sought is UNDP-GEF's Energy Efficiency Measures in the Honduran Industrial and Commercial Sector (PESIC). This project is being executed through a local private sector NGO, Consejo Empresarial Hondureño para el Desarrollo Sostenible (CEHDES) and its objective is to remove barriers to increased commercial use of energy efficiency measures and technologies. CABI's role in this project is to administrate the Partial Risk Guarantee Mechanism that is being used by its IFIs to finance pre-identified pilot projects.

90. Finally, the project will also link with the UNDP/GEF "Caribbean Renewable Energy Development Program", especially with regards to the financial component of that project, to identify

potential synergies amongst these projects. Likewise, the project will link up with UNEP's Cleaner Production specialists and, in particular, assess the "Financing Cleaner Production" program since this program's financial assessment tools may be relevant to the project.

## **1.7 Baseline analysis**

91. The baseline conditions for this Project are defined by the participation of CABEI and other IFIs in financing small and medium sized RE projects in Central America, in the absence of this GEF support. Without the ARECA Project, minimal financing would be channeled by CABEI and its partner IFIs to RE investments, and it is unlikely that CABEI would be involved in the SMREP market at all. While a number of initiatives are already underway, they would remain isolated and under utilized for RE projects. In particular, funds such as the CABEI environmental fund, which provides soft loans for small environmentally friendly projects at 5% prime rate, would not be used for energy projects. The IDB's MIF equity fund, in which CABEI is considering co-investing, would provide an equity opportunity but would not solve the burdensome collateral requirements which invalidate small RE projects. Additionally, the IFIs of the region would not have any incentive to consider such riskier projects for funding even with CABEI as their first tier bank, in the absence of any guarantee instruments for RE projects: this gap is expected to be filled by the deployment of the PRG facility.

92. Without this Project, Central American RE project promoters would only be able to implement a small proportion of their RE potential projects, due to the lack of appropriate financial mechanisms; furthermore, local Banks would remain ignorant of the financing needs of this new sector of activity, as there would be little consolidated information available on the SMRE market on an ongoing basis. Finally, there would not be any direct and tested experience of successful RE financing and related instruments in the Central American region. To sum up, without the ARECA Project, the region would not be able to effectively exploit the potential of its abundant RE resources.

93. CABEI recognizes that improving its participation in small RE projects is consistent with its regional role for economic development and integration and is also aware of the environmental benefits that would result from the use of climate-friendly energy forms. Some of the ongoing activities of Central American governments at national policy level and international lending institutions like the WB and the IADB are complementing the activities of ARECA and will be integrated as appropriate.

94. The baseline expenditures are estimated at US\$ 85,616,631 (NPV, 10 years – 12% discounting rate) considering the installation of 43 MW diesel plants (power factor 50%) by replacing 34 MW hydroelectricity (power factor 63%) and producing the same energy amount (roughly between 190,000 MWh/year and 210,000 MWh/year).

## PART 2: Strategy

### 2.1 Project Rationale and Policy Conformity

95. In the past few years, most of the Central American (CA) countries have undertaken RE initiatives attempting to involve the private sector. However, national initiatives and private projects have faced financial barriers that have prevented the involvement of the private sector on a larger scale. These barriers include uneven conditions of access to investment capital and financing, and lack of financial tools dedicated to the specificities of the RE market. The project's purpose is to place CABEL, a Regional financial institution able to provide financing and innovative financial instruments to the private sector, at the heart of a process to accelerate SMREP investment in CA.

96. This initiative is of special importance for the CA Region due to the fact that, within the context of the Region's energy sector restructuring, CABEL has had to change its partners to respond to an increasingly private sector-led investment industry. In general, the CA Region has been quite successful in tapping the RE potential for large projects, with the financial support of CABEL in many cases. However, as the scope for larger projects diminishes, the size of the new RE projects tends to be smaller: hence the ARECA Project will focus on projects of less than 10 MW of installed capacity. While the project size might seem small, the number of potential projects is higher than for those above 20 MW. An additional reason lies in that reform of the generation sector is increasingly allowing non-traditional industries (e.g., the sugar industry) to serve the electricity grid.

97. The CABEL Board of Governors, the highest authority of the Bank, is composed of 12 members from each of CABEL's constitutive countries. Based on this structure, CABEL's mandate is directly linked to the national policies of CA countries, which give a high priority to sustainable development and which are increasingly interested in further developing the Region's RE potential (an objective rendered even more urgent given current high oil prices).

98. This Project complements the efforts of national energy agencies, whose main objectives include developing and implementing new institutional and legal frameworks adapted to the development of RE projects. By strengthening the institutional framework and appropriate energy sales conditions, the national projects are providing a favorable context for CABEL's participation in the financing of individual RE projects. The table below provides the latest update of recent and on-going legal and regulatory initiatives to promote RE development in the participating countries.

**Table 7. Legal and regulatory initiatives to promote small-scale RE development in participating countries**

Country	Reform to promote small scale RE
Costa Rica	<ul style="list-style-type: none"> <li>• Law N°7200, 18 October, 1990, and Law N°7508, of May 1995 authorize the participation of renewable-energy, independent private power generators up to a 20 MW. It specifies a 15% installed capacity target. Law 7508 allows individual project bundling up to 50 MW based on an open tender procedure.</li> <li>• Law N°7447, of December 13, 1994 creates the National Commission for Energy Conservation (CONACE) with the purpose to establish and implement a consistent and environmentally friendly policy for all the electricity sector of the country.</li> <li>• Law N°8345, 26 February 2003 allows the participation of the Cooperatives for Rural Electrification as well as Municipal Power Companies to enter into the power generation market. It includes a regulatory framework to sale power to ICE, as well as provides tax incentives and exonerations for renewable energy developments.</li> </ul>
El Salvador	<ul style="list-style-type: none"> <li>• Since 2003, with the sponsorship of USAID, the General Directorate for Electricity (DGEE), associated with the Ministry of Energy and the Ministry of Environment study the feasibility of a compensation fund to guaranty the price for small scale renewable energy projects participating to the spot market and mechanisms to bundle small RE projects to this effect.</li> </ul>

Country	Reform to promote small scale RE
	<ul style="list-style-type: none"> <li>The Government of El Salvador has also passed an Executive Decree (N°59-2001, SIGET) to simplify the procedures for requesting concessions for renewable energy developments, as well as expedited procedures for the approval and grant environmental permits.</li> <li>Currently, with the assistance of the Interamerican Development Bank, the DGEE under the Ministry of Economy is developing a policy, which integrates a more favorable framework to promote on-grid and off-grid renewable energy.</li> </ul>
Guatemala	<ul style="list-style-type: none"> <li>Presidential Decree N°52-2003, 28 October 2003 promotes Small Scale Renewable Energy investments through PPAs with INDE and machinery and equipment import tax exemptions, income tax holidays up to 10 years, etc.</li> </ul>
Honduras	<ul style="list-style-type: none"> <li>Decree N°85-98, 29 April 1998, and Decree 267-98, 30 October, 1998 provides incentives for renewable energy projects such as import tax exemptions, income tax holidays up to 5 years.</li> <li>Renewable energy projects below 50 MW are granted up to 10% premium on the price per kWh paid by ENEE.</li> <li>Executive Decree 003-2004, May 12, 2004 created the Energy Technical Commission under the Presidential Commission. Longer term PPAs are under serious consideration.</li> </ul>
Nicaragua	<ul style="list-style-type: none"> <li>Law N°467, 29 August 2003 was promulgated for promoting hydroelectricity investments and includes, among others, exoneration for 3 years for all duties, and import taxes for machinery, equipment, and raw materials for the construction of power generation plants and associated infrastructure like sub-stations, transmission and distribution lines.</li> <li>Decree 12-04 of March 2004 establishes a set of incentives to specifically support hydro and wind power generation projects.</li> <li>The CNE in charge of energy policy is currently preparing a RE law with the support of ESMAP.</li> </ul>
Panama	<ul style="list-style-type: none"> <li>Law 45, of August 4, 2004 provides an incentive framework to promote hydropower, wind and other RE development, including a 5% premium on the spot market price, priority in dispatch and fast tracks for permits and concessions for projects up to 20 MW.</li> </ul>

99. A number of private sector developers are actively developing RE projects in the Region. For example, while ATDER is developing a hydro project for Nicaragua, CABEI and other IFIs financial support has been lagging due to the high level of collateral required. Other private developers in hydroelectric projects include: Hydroyogoa la Nieve and la Esperanza in Honduras, Iberdrola in Guatemala, and a private farmer in El Salvador. For wind power, examples include: Union Fenosa and Electric Power in Panama, Enisa in Nicaragua, and Cerro de Hule in Honduras. For biomass, in particular bagasse based cogeneration, examples include: La Liquejera, Flor de Caña, Grupo Pella in Nicaragua, La Cabaña in El Salvador, Tres Valles in Honduras and Uogoa in Honduras. All of these RE projects have at some point contacted CABEI for support. The present initiative is necessary to ensure that national goals and actions actually result in concrete investment in small scale RE.

100. Particular attention has been devoted in the design of the ARECA Project to ensure sustainability and post-project replication. For example, as an integral part of the Project, adaptive management based on a series of multi-stakeholders activities will allow the adaptation of Project activities to evolving needs as they arise. Also, fund raising, aimed at doubling the size of the guarantee facility at minimum and increasing its applicable gearing ratio, allowing PRG support for a greater lending volume with the same amount of available funds in the guarantee account, should ensure that this initiative will continue beyond the life of the current Project.

## 2.2 Project Goal, Objective, Outcomes and Outputs/Activities

101. In keeping with the GEF mandate, **the overall goal** of the Project is the reduction of greenhouse gas emissions in the CA Region through accelerated investment in RE projects under 10 MW to replace energy sector investments based on fossil fuel.



102. **The objective** of the Project is to remove the main financial, capacity and RE project development barriers to catalyzing investment in small and medium scale RE projects (SMREPs under 10 MW) in CA. As this Project addresses the financial barriers and increased access to local sources of financing, it falls within the GEF-3 strategic priority CC2 (Increased Access to Local Sources of Financing for Renewable Energy and Energy Efficiency).

103. This Project does not intend to support RE projects that are not financially viable. Rather, this Project seeks to remove barriers, and in particular the main barrier related to collateral requirements, for those SMREPs that demonstrate sound business prospects. Nevertheless, the valuable experience gained in the evaluation and design of small scale RE projects will inevitably ease financing for RE projects over this 10 MW threshold.

104. This Project has been conceived to improve the catalytic role of one of the Region's leading actors in the field of economic development: the Central American Bank for Economic Integration (CABEI). While in the past CABEI has financed some medium scale RE projects, it has recognized that it can significantly increase its participation in both small and medium scale RE projects, thereby becoming a leading actor in RE project financing. In order to achieve this, the following project outcomes have been set:

**Outcome 1:** CABEI assumes a catalytic role in strategically promoting increased lending on a project finance basis to SMREPs;

**Outcome 2:** CABEI and IFIs develop the capacity (technical and financial) to finance SMREPs;

**Outcome 3:** SMREPs receive support through the Partial Risk Guarantee Facility and other innovative financing mechanisms; and,

**Outcome 4:** Evaluating, learning and adaptive management are ensured.

105. The Project Outcomes and Outputs are described in the Section below, with additional information provided in the Logical Framework Matrix (Section II). The **duration** of the project will be five years.

### ***2.2.1 OUTCOME 1: CABEI assumes a catalytic role in strategically promoting increased lending on a project finance basis to SMREPs***

106. This Project seeks to support a new strategic approach in the way that CABEI interacts with actors in the RE sector, both investors and lenders, and develops its energy portfolio. In particular, a two track approach is foreseen:

(i) internally, RE project development would become a new growth area of business; and,

(ii) at a policy level, CABEI demonstrates the necessary strategic commitment and the technical and institutional capacity to provide leadership, guidance and direct support to IFIs, thus driving a process of barrier removal at a national level, in close coordination with other ongoing initiatives. CABEI will play a catalytic role in the field of RE project finance with particular reference to SMREPs, working in close partnership with local IFIs in each member country to develop this type of project.

#### **Output 1.1 Internal strategy, policy and/or procedures, and structure established within CABEI to support the financing of SMREPs in the Region**

107. To facilitate CABEI's strategic move towards SMREP development at its various operating levels (at Head Office and at its Country Offices) the following initiatives will be carried out.

#### ***Development and implementation of appropriate institutional structures, policy and operating procedures for SMREPs***

108. With support from the Project's Coordinator – RE Project Financing Specialist, senior CABEI officers will design CABEI's SMREP strategy, addressing in particular the Bank's future actions in the following areas :

- The development of project evaluation methodologies, giving precedence to the introduction of a limited recourse / project financing approach as appropriate;
- Candidate project selection matrix to speed up the process of identifying pilot projects for the financial strategy;
- The processes regarding internal project approval, syndication and co-financing with other lenders, etc.; and,
- The strategy to be adopted to familiarize the market with CABEI's new approach to RE funding.

CABEI will develop and introduce small-scale RE project intake protocols to serve as an effective screening process of projects. As part of this effort, benchmark evaluation criteria and financial analysis models will be developed. The results of this internal process will then be translated into a guidance paper(s) for the Bank, and the results will be presented during a high level seminar. In addition, consideration will be given to CABEI's positioning in relation to other financial initiatives in the Central American RE marketplace, including funds such as the E&CO equity fund, as well as to other financial players such as the IDB and World Bank.

#### ***Development of SMREP promotion material and related financing guidelines***

109. The guidance and promotional material will provide the basis for all communication material of CABEI on the subject and will be utilized by country offices and loan officers in assisting project developers to understand the parameters of RE project funding in their countries. It will also assist country officers and loan officers in the structuring of RE projects to take advantage of favorable policy initiatives and to work through legal framework issues for RE projects. Developing and broadly disseminating these protocols to each country office will provide helpful guidance to loan officers and substantially reduce the review and analysis time for each project. The intake protocols and evaluation benchmarks will also serve as helpful documents for the Regional seminars for CABEI officials, IFIs, government executives, multilateral donors and project developers.

110. These documents will also allow country officers to be more specific and detailed in their reasons for accepting or rejecting projects that will go beyond collateral requirements and balance sheet evaluation of projects. This information will be utilized to provide a more informative annual report from each country office regarding the level of interest and financing of RE projects.

#### **Output 1.2 Regional renewable energy market analyzed on an ongoing basis**

111. The context in which RE projects can be developed will vary from country to country in the CA Region. While in general terms the financial barriers are common to all the countries, the legal, regulatory, and institutional framework for small-scale RE projects will vary. Particular energy pricing and contracting policies in one country may make SMREPs more viable than in the others. Similarly, import tax policies in certain countries may facilitate the import of equipment associated with renewable technologies while other countries import duties may be technology neutral or even negative. As a result, there is no monolithic framework for SMREPs in the Region. The existence of taxation regimes, which in general provide little stimulus for investment in RE projects, will again vary.

#### ***Carry out comprehensive small scale Regional renewable energy market analysis and updates***

112. A Regional RE market analysis report will evaluate the framework for financing RE projects in each country, and provide lessons learned from various policy initiatives. This will serve as basis for the

formulation of the Bank's Regional RE strategy and in particular for CABEI positioning and priority-setting in actions vis-à-vis various countries/organizations.

113. The Project will undertake, with the assistance of experts in this area, a review of the policy and regulatory framework for RE projects in each country. This information may be obtained from existing reports and analyses provided by government agencies, educational institutions or associations related to the RE industry. The Regional RE project development framework report will help each country office better understand its environment for development and finance of RE projects. It will also allow policymakers in each country to learn from the experiences of their colleagues in the Region. Regional energy market characteristics (policy, pricing, taxes) will be made available to CABEI and IFI staff on an ongoing basis.

**Output 1.3: Formalized synergies established among available and future financial institutions and instruments relevant for financing of SMREPs on a project finance basis**

114. Several project development and financing programmes addressing RE initiatives, such as the Fund for technical Cooperation (FONTEC), exist within CABEI. Other initiatives and funds are operating in the Region, such as E&CO/MIF equity fund and the Clean Energy Fund. Developing a full knowledge of these programmes and fund operations, and defining the modalities of collaboration with them, will provide an additional dimension to the Bank's operations and will foster the successful utilization of all available resources for RE project implementation in the Region.

***Monitoring of all relevant financial developments in the RE market, and identification of institutional synergies (e.g. with MFIs, ODA, private sector funds, etc.)***

115. The Project will explore all relevant programmes and options for RE projects, and will produce and update simplified documentation relating to SMREPs identifying all equity, loan, concessional loans and guarantees. Periodic reviews will be published for the benefit of RE project sponsors in the Region. Based on the first meeting of managers of the various IFIs, the first guidance paper will be completed by the end of year 1, and should include financing programmes and grant entities that could fund or co-finance project development and implementation. Contact persons and roles and responsibilities of each institutions department will also be provided. The guide will be broadly disseminated to country offices, project developers, IFIs and policymakers in the Region.

***Conduct ongoing interactions with IFIs to incorporate and implement the financial and technology developments***

116. The implementation of the Project requires close coordination between CABEI and the IFIs in each beneficiary country of the Region involved in the promotion of renewable energy and rural electrification programmes.

117. Periodic meetings between CABEI and IFIs will be held:

- to ensure maximum cross-fertilization with regard to market information, financing techniques, lessons learned; and,
- to develop synergies in relation to SMREP project finance. At least one annual workshop will be held with CABEI and participating IFIs focused on SMREP financing, which will be used to assist in the formulation of CABEI and IFI lending policies for RE projects.

### **2.2.2 OUTCOME 2: CABI and IFIs have developed the capacity (technical and financial) to finance SMREPs**

118. As a result of this Project, CABI officials at all levels, from the Board of Directors to country loan officers, as well as partner IFIs and RE project developers, will become aware of the important contribution to be derived from the implementation of SMREPs for sustainable development in the Region. Country Office and IFI loan officers, working in close liaison with CABI's executives, supported by the Project Coordinator – RE Project Finance Specialist, will be provided with the necessary financial tools to effectively evaluate the financial and technical aspects of these RE project proposals and develop appropriate funding packages which will lead to a higher ratio of successfully financed SMREPs. Internal monitoring policies and practices will allow country offices and Regional headquarters to effectively assess the progress of this initiative.

#### **Output 2.1: In-house capacity developed in CABI Head Office, Country Offices and IFIs to identify/evaluate/finance SMREPs and to implement the Partial Risk Guarantee**

119. Based on the assessments made during the PDF-B exercise, the main stakeholders – private developers and IFIs – need to build or strengthen capacities in the various aspects of RE projects business planning, particularly in economic and financial analysis, and the structuring of appropriate financial packages to bring viable SMREPs to market. Additionally, mutual understanding of the parties will result in global improved efficiency.

120. So far, most capacity building activities delivered in the Region by national energy agencies, multilateral institutions or NGOs have focused on various aspects of RE technologies. CABI, as the main Regional actor of integration projects financing, will concentrate its capacity building efforts to improve aspects of business planning, financing and risk assessments, in accordance with the new financial mechanisms developed within the frame of this ARECA project

#### ***Formal capacity-building of CABI and IFI key personnel in SMREP project finance-based evaluation and financial structuring, including seminars, workshops and training programmes***

121. New capacities will be needed for projects project finance-based evaluation and financial structuring of SMREPs. This new positioning will also require CABI to evolve from being a purely financial institution in the RE sector to being more of a development bank, participating in project identification and preparation.

122. Capacity building for CABI and IFI staff will be instrumental in carrying out this activity: i) to obtain a better understanding about the type and quality of RE projects to be developed; ii) to develop a more continuous project pipeline for CABI's portfolio; iii) to participate in the project structuring in cases where projects developers lack capacity and iv) to create necessary links between RE projects and other infrastructure sectors covered by the bank.

123. One of the principal responsibilities of the Project Coordinator – RE Project Finance Specialist will be to transfer his experience and skills to the widest possible audience of banking specialists both inside CABI and the IFIs with which CABI will work in the Project. This will be done on the basis of the following initiatives:

- The organization by the Project Coordinator – RE Project Finance Specialist of thematic workshops and training sessions covering such subjects as:
  - The general characteristics of RE project financing and project evaluation;
  - The specific risks associated with RE financing in general and SMREPs in particular;
  - The use of tailor-made risk matrices and the process of risk allocation;

- The role of different financial instruments;
- The contribution of specific insurance mechanisms; and,
- The potential for collaboration with external funding sources.

In these activities, the Project Coordinator – RE Project Finance Specialist may be assisted by external specialists contracted to address specific issues. Attendance at such activities will include CABEI lending officers, RO representatives and representatives of the IFIs with which CABEI intends to work country by country.

- In addition, the Project Coordinator – RE Project Finance Specialist will participate directly in activities related to the country by country identification and development of candidate SMREPs. This could include
  - Periodic review sessions in country, at which candidate projects are reviewed and a short list for more detailed examination is drawn up;
  - Participation, alongside CABEI's lending officers (bearing in mind the Bank's lead manager role in the final financing), in the detailed process of project evaluation, including the determination of what additional feasibility studies are required; and,
  - Design of the most appropriate funding package, relying as necessary on the deployment of the PRG facility.

**Output 2.2 Increase awareness of SMREP financing (including PRG) opportunities and modalities among all relevant stakeholders, including RE project developers in particular**

***CABEI disseminates information regarding new RE financing strategy (including PRG mechanism) and conducts a project identification workshop to assist in establishing RE project pipeline.***

124. Training sessions on business planning and RE project financing will be developed and offered, including awareness raising among IFIs regarding CABEI's RE financing strategy that involves the PRG mechanism. At least one training event will be conducted in each country for project developers, NGOs, and potential investors over the project lifetime. An outline of anticipated workshops and seminars is provided in the table below.

125. At an appropriate stage of the above process, a pipeline building workshop or seminar will be held that will cover technical, economic, organizational risk assessments and financial aspects of RE systems financing and project implementation. This RE project identification workshop will involve the short listed IFIs, RE project sponsors and external RE project specialists as necessary.

**Table 8. Workshops and seminars to be provided under ARECA**

<i>Activities</i>	<i>Duration</i>	<i>Target Participants</i>	<i>Number of Participants</i>	<i>Year</i>
Workshop: presentation of the new financing mechanisms promoted by CABEI and related delivery mechanisms; risk assessment of RE financing.	1 day meeting	Regional project promoters, Local Banks, Multilateral Agencies, Governments representatives (energy agencies), Regional electricity utilities (public, private), International utilities and RE project developers	80-100 participants	Before end of year 1
Seminars on RE Project Financing	2 days	Regional project promoters, National association of small RE systems producers	25 - 30 Participants	2 in the course of the project

As needed, seminars on risk assessment and PRG programme mechanism: – Purpose – Delivery mechanism – Requirements	1 days	National project promoters Local banks and financing institutions	1 Seminars course per country around 30 Participants / Course	Each year
Seminars on RE Project Appraisal for Financial Intermediaries	1 to 2 days	Local banks and institutions	1 Seminar/Course per country per year around 25-30 Participants/ Course	Years 2 & 3
Workshop/seminar on RE project identification and preparation	1 to 2 days	National project promoters National association of small RE systems producers Government representatives (energy agency...)	1 Seminars/ Seminar per country per year @ 30 Participants/ Course	2 in the course of the project
Training on RE project business planning: -technical and commercial components of the business plan, -risk mitigation, - financial modeling, -financial structuring.	3 days	Project promoters/ developers	1 Training Course per country per year @ 30 Participants/ Course	Years 2 & 3

### ***Preparation of promotional material on RE financing***

126. To improve communications between CABEI and local actors, the dissemination of the results achieved in the above activities need to be brought to the attention of new entrants on the RE market. This material will be developed by the Project with support from CABEI and participating IFIs, and will be available on the Project's website for access by interested parties. CABEI and the IFIs should also develop information material to complement the above.

### **Output 2.3: Feasibility work funded through CABEI and other pre-feasibility funding sources**

127. The success of any financing initiative in the SMREP market depends heavily on the quality of the feasibility and other studies backing up each individual project. The Project will focus on ways in which this gap can be filled most effectively and rapidly.

### ***Establish mechanism to finance feasibility work necessary for project funding***

128. Project preparation costs such as pre-feasibility, feasibility and environmental studies represent significant investment costs for project promoters, with a high level of technical and institutional risks. Small investors have to invest part of their available equity funds at the project preparation stage without knowing if the project will finally be implemented.

129. In addition to the specific technical risks inherent in the nature of RE projects (risk of insufficient or irregular energy resource, environmental impact risks, access to site, technical difficulties of construction, etc.) SMREPs are also confronted with additional regulatory and legal difficulties. For example, the award of the related concession contract, which in some countries of the Region may be subject to competitive bidding even after the technical studies and project design have been conducted by a single investor. The regimes covering such “private initiatives” (iniciativa privada) project methodologies may vary from one CA country to the next. While it is hoped that the Project may lead to a wider recognition of the urgency of

improving the enabling environment for SMREPs, it is not possible directly to confront such obstacles under the ARECA Project.

130. However, to focus on one of the major impediments to SMREP success (namely the absence of feasibility studies on which lenders can rely in evaluating a project's financial viability), the objective of this task is to increase the number of new projects likely to reach financial close, by validating and/or updating elements of the project's existing technical and economic studies. This initiative would enable private investors to limit their level of risk at project preparation stage. Project preparation costs have been estimated to be between US\$ 40,000 to 60,000 on average per project. This activity will entail (i) the provision of a direct financial contribution by CABEI to this activity, (ii) liaison with existing T.A funds, and (iii) the promotion of these funds amongst project investors

131. To fulfill this output, CABEI has committed \$600,000 in assistance for SMREP feasibility studies. It is anticipated that 10 to 15 projects will have benefited from TA assistance at the end of year 5. GEF support will also be provided for technical assistance on the development of special capacity for RE financing and delivery mechanisms. The upcoming MIF equity fund and bilateral projects and programmes will also be included in this effort.

### ***2.2.3 OUTCOME 3: Partial Risk Guarantee mechanism established and operational***

132. The overriding objective of the Partial Risk Guarantee (PRG) mechanism is to encourage an increase in the level of financing of smaller-scale RE projects, with particular reference to lending by the IFIs, while limiting their exposure to risk. This core part of the ARECA Project is intended to facilitate the participation of CABEI, IFIs and private investors in SMREP financing in the Central American Region. The purpose of the guarantee programme is to diminish the barriers and mitigate risks that currently prevent or limit access to adequate financing for RE projects. The ultra-conservative lending practices of Central American banks means that little attention is paid to a project's underlying financial viability, with the bank preferring the easiest solution : namely the collateralization of loans made to the SMREP with unrelated assets such as personal guarantees, mortgages and similar mechanisms. The "equity" contribution (i.e. the 25 – 30 % direct equity provided to the project plus additional collateral of 100 – 150 % of the loan value) of the RE project sponsor is thereby raised to unacceptable levels which usually lead to premature project termination. Based on an extensive dialogue with CABEI, the IFIs and project developers during preparation phase, the use of a PRG facility is seen as an important contribution to bridging the collateral gap by providing projects with a maximum 35% guarantee tied to a corresponding reduction of collateral requirements by CABEI and the IFIs.

133. Currently, no financial institutions participating in the ARECA Project undertake limited recourse lending to RE projects, where the financial viability rests on the project's cash flows. Collateral and guarantee requirements for CABEI are stated in current bank policy documents as being 100% of the borrowed amounts, although experience shows that the Board of Directors normally asks for guarantees from 120 to 150%. Many smaller-scale RE project proponents are simply not in a position to provide such guarantees, although their projects may be very well designed, hold high promise of significant return on investment and, once constructed, would easily be worthy of this level of guarantee.

134. Moreover, when CABEI participates in financing of RE projects through their Intermediate Credit or Co-financed Direct Credit programmes, local banks' collateral and other underwriting requirements will be utilized if they are more restrictive than CABEI's lending policies. This represents a critical impediment to RE project financing as many commercial banks in the Region, due to country specific issues or a weakened financial conditions, will lend only to borrowers with the strongest credit or those who can provide collateral and/or guarantees well in excess of the loan amount to eliminate repayment risks.

135. To overcome this barrier, the PRG facility has been designed as an essential part of the present initiative, providing financial support, in the form of partial guarantees, to RE project developers that are unable to obtain appropriate funding for viable projects, due to their inability to provide sufficient collateral to meet restrictive commercial bank lending terms in the Region.

136. The success of this component will depend on the PRG management's ability effectively to evaluate the financial viability of proposed RE projects and provide guarantees to those projects that are financially sound, but unable to provide sufficient collateral to meet local lending requirements. This will require the PRG and RE lending officers to evaluate projects on more advanced cash flow bases to determine their eligibility for guarantee support. The transfer of this capacity and expertise is foreseen under Outcome 2 above.

***Design of legal and contractual documentation relating to PRG and associated financing***

137. As outlined in Section IV, Part 5, "Partial Risk Guarantee Facility", the outline terms and conditions covering the use of the PRG facility line have been agreed upon. The legally binding documents to offer the guarantee, secure funds investment and monitor use will be developed at the outset of the Project's implementation and will be based on a detailed analysis of the current operational procedures and in particular CABEI and partner IFI collateral structure. During project implementation, actual legal documents for operationalizing the funds will be issued and all necessary administrative and staff related matters will be addressed with a view to providing collateral to projects by end of year 2 at the latest.

138. Elaboration of these documents will be based on agreed guidelines for the PRG programme, which is presented in Section IV "Partial Risk Guarantee Facility" and summarized as follows:

- Grant Amount: US\$ 5 million in Global Environment Facility funds to be placed in a Guarantee Facilities Account.
- Interest earnings on the PRG Account and guarantee fee income may be used by CABEI partly or fully to compensate for the administrative and operating costs of the guarantee programme based on the estimated operating budget, which will be annually presented to and agreed with UNDP.
- Management Structure: Management of the guarantee programme will be assumed by the Department of Development and Competitiveness. Initial SMREP intake and evaluation will be done by CABEI country offices according to the bank's decentralized structure. However, under the ARECA Project, it is expected that CABEI will play a more proactive role in SMREP evaluation : the precise modalities of the interaction between CABEI Head Office and the country representations remain to be determined. All other aspects of the loan administration, including disbursement of funds and loan repayments will remain with the appropriate country office. If a project is denied partial guarantee coverage, the loan applicant will be informed of this decision in writing by the CABEI's country office.
- Leveraging and Gearing Limits: The maximum amount of guarantee to be provided by the facility for individual loans should not exceed 35% of the related loan amount in normal circumstances. The gearing limit, or the ratio between the total amount of outstanding guarantees divided by total fund balance at any point in time, is expected to average 3:1 over the life of the Project. With a US \$5 million fund, guarantee limits of 35%, a gearing ratio of 3 : 1, and a mean Fund capitalization of 75 % over the 5 year period (i.e. an estimated allowance for PRG payouts) and project equity requirements of 25%, the Facility could provide leverage for total SMREP investment of the order of US\$ 80 million, bearing in mind CABEI's commitment to provide up to US\$ 25 million in financing for these projects.
- Beneficiaries of the PRG must agree to forfeit all CERs issued on their investment if the guarantee is called and therefore, the GEF resources are directly used in their investment.
- Credit Risk Assessment. The implementation of a PRG Facility can only take place in the context of high quality project and credit risk assessment by CABEI. The establishment of a trained and



experienced RE guarantee loan internal expertise, development of appropriate project risk and cash flow assessment tools are part of the Project.

- Develop the associated legal and administrative procedures. An agreement between GEF and CABEI will be drafted for approval by both parties. This agreement will formally document the granting of monies for the specific purpose of creating a PRG Facility. The project unit will also have to ensure that the appropriate legal structures and administrative mechanisms are established to support the Facility and related PRG mechanisms within CABEI. In order to operate a Guarantee Facility, a set of governance and ongoing management guidelines must be established. GEF support is not required to finalize the legal framework of the project's funds.
- Develop local guarantee programme operations manual including standard application documents and due diligence guidelines.

***Develop standard loan guarantee forms, procedures, and manual for RE projects, including risk categories to be covered, percentage of overall IFI debt to be covered, ratio of leverage and other qualitative and quantitative parameters***

139. The PRG application form will seek financial and technical data from RE project sponsors and set out the conditions under which a PRG will be provided. As such, the application form will serve as a self-screening device for RE project developers. By responding to the application form, developers will know whether they can produce all the requisite financial and technical data and whether their project can meet specific financial performance targets. Project developers who are unable to fully respond to the application form will realize that a more detailed developed project plan is necessary to obtain a guarantee.

140. A carefully drafted application document will also assist IFIs in understanding the nature and scope of the guarantee programme and in more effectively evaluating SMREP developers' requests for loan guarantees against programme guidelines. This should reduce the number of PRG applications for projects that fail to meet programme guidelines, and allow the IFIs and CABEI staff to focus on the most viable projects.

141. A standard PRG agreement will be attached to the application form. Although each project will have its own unique technical design and specifications, the standard PRG agreement will include the financial terms and condition of the PRG mechanism that will apply to all projects. This will supply project developers and IFIs with very specific legal terms that reflect the PRG's policies and conditions.

***Finalization of agreements between CABEI and IFIs, CABEI and UNDP***

142. The standard PRG agreement may vary slightly for each country office in the Region due to specific legal and regulatory framework issues in each country. These standard PRG agreements will help streamline the PRG operations, and provide IFIs with a full understanding of the terms and conditions of the PRG facility.

143. CABEI should involve the Regional IFIs in the contract drafting process (or allow for IFIs comment on draft contracts) to facilitate full negotiations of all outstanding issues between CABEI and IFIs before the standard PRG agreement is finalized. This will reduce negotiations between IFIs and CABEI on PRG terms for each specific project. It needs to be borne in mind that, being a partial risk guarantee mechanism, the nature of these "partial" risks may vary from project to project for which due allowance must be made.

***Capitalize and operationalize the PRG Facility***

144. CABEI will invest GEF guarantee facility account funds in appropriately high-grade securities having very low currency risk and good liquidity as per UNDP Treasury rules and regulations. Any

investment earnings generated by the fund will be re-channeled annually to cover a portion administrative and operating costs and provide funding for Technical Assistance programmes operated by the Bank and directed specifically towards RE projects in Central America. Any investment losses (not to be confused with guarantee losses) will be covered by CABEI. Investment decisions for fund balances (not to be confused with PRG decisions) will be taken by appropriate CABEI funds management personnel. The investment policy will be approved and in place before GEF funds are transferred to the PRG facility account.

### **Output 3.2: SMREPs identified, evaluated, and/or financed**

#### *Finance small scale RE projects with the use of the PRG*

145. Investments made in RE projects within the Region. It is targeted that 5 - 10 SMREP will have been financed with reliance on the PRG mechanism by the end of year 3. The PRG facility is expected to trigger approximately US\$ 80 M in investment in SMREPs by the end of the Project.

### **Output 3.3: Replication and Exit Strategy Implemented**

#### *Design and implement Project exit/replenishment strategy*

146. Initial programme duration is to be five years, with provision to extend in five-year renewal periods by mutual acceptance of the parties. It is anticipated that programme renewal will involve consideration of reductions in the 35% level of guarantee coverage on a step-down basis. In the event of wind-up, residual funds not utilized for loan-loss guarantee repayment will be committed to other RE activities as mutually agreed by UNDP and CABEI, preferably for the continuation of the PRG mechanism if it is considered successful. Wind-up provisions must allow for funds to stay in place to cover existing guarantee periods at that time. The final exit strategy for GEF funds will depend on the success of the programme. If monitoring and evaluation reports indicate that programme objectives are being met, successful elements of the GEF grant should remain available to continue their function. Ultimate reduction in guarantee coverage, as CABEI and local lending institutions become more familiar with smaller-scale RE project risk, will be an important element in the future operation of the programme.

#### *Seek replenishment commitment from other sources*

147. It is anticipated that, if successful, the PRG facility will need to be re-capitalized after a period of time in order to reach a broader range of investors and IFIs and consolidate the market development triggered by the GEF project. It will be one of the Project tasks to identify possible sources for such replenishment, including multilateral financial institutions, bilateral agencies and others. It is expected that the GEF supported programme will demonstrate the usefulness of the guarantee instrument, which should facilitate negotiations with new donors for their participation in the re-capitalization of the PRG Facility. CABEI will engage in discussions with potential donor-agencies, foundations, and multilateral financial institutions in this regard throughout the Project. Contact with potential funders should take place in the last two years of project operations to reach fund re-capitalization foreseen to be around US\$ 5 million.

## **2.2.4 OUTCOME 4: Evaluating, learning and adaptive management are ensured**

148. Experience with financial mechanisms exists with all GEF implementing agencies yet impacts are often related to funding. Although lessons learned have been compiled and published by the GEF Secretariat, it is felt that this particular initiative, with a prestigious Regional bank as partner, is a unique opportunity to learn and utilize adaptive management to maximize impacts.

149. The evaluation and learning aspects of the PRG mechanism will be conducted primarily through the country office reports and survey of project developers and IFIs. The monitoring process will assess the utilization level of the programme, identify reasons why the programme may not be fully optimized, and provide recommendations for programme modifications. An annual exchange meeting of stakeholders will also be held to provide additional inputs to this process. As a result, the initiative will be in a position to respond to shortcomings in operations and applications in a timely and effective manner to ensure that stakeholders throughout the Region view the programme as a responsive and effective solution to financing small-scale RE projects. This outcome will also ensure that the activities carried out by the project team and CABEL senior management are geared toward achieving the outcomes as agreed to in the present document. Lessons from successful implementation of small-scale projects will be documented on a systematic basis and serve as input to this process.

#### **Output 4.1 Comprehensive project impact monitoring and analysis system established**

##### ***Monitoring of performance indicators (financial / technical / CC impact) in place***

150. The ARECA project will ensure that high-quality information is made available for the project manager, project team and key stakeholders for decision-making

151. It is foreseen that analysis will involve three assessment levels of the PRG mechanism, intended to identify the weakest links in the chain of decision-making associated with the application, review and approval of loan guarantees. An annual performance report will be prepared incorporating the annual reports from each country office, the survey of project developers and IFIs and the recommendations from CABEL's Programme Management. The report will identify reasons why SMREP developers are not utilizing the guarantee programme, the reason why IFIs are not marketing or incorporating the guarantee programme into their lending programmes and products, and common shortcomings/problems with rejected loans. A special task force consisting of representatives from all stakeholder groups will be convened to address common problems with the programme and recommend solutions. This output will result in specific recommendations for modifications to the PRG mechanism to make it more responsive to project developers and IFIs. The following activities will be carried out:

152. Effectiveness of the project in raising demand from the RE promoters - The first assessment level will focus on the number of PRG requests submitted by project developers and IFIs. A low submission level may be due to any of the following factors: (1) lack of programme knowledge by developers and/or IFIs; (2) lack of perceived programme benefits by project developers, (i.e. the change in lending conditions by IFIs due to the guarantee is not sufficient to justify the guarantee fee, and developers conclude that guarantee fees are excessive relative to benefits); (3) the PRG application form and background material are too complicated and difficult to comprehend by project developers.

153. A project developer survey will be conducted to provide an assessment of the market's perception of the PRG programme's benefits. The country offices' annual reports providing the number of guarantee applications received each year, particularly as a percentage of the number of small-scale RE loan applications, will provide insight into these issues as well. The developers survey and annual reports will be read together to get a fuller understanding of the PRG mechanism at this level.

154. Willingness of IFIs to finance RE projects - The second assessment level will focus on the number of PRG requests submitted by the IFIs to CABEL. A substantial drop off in the number of loan applications submitted to CABEL from IFIs relative to the number of loan requests submitted to IFIs by project developers would reflect potential shortcomings in the programme design. These may include the following: (1) project developers are not adequately familiar with guarantee programme criteria and submit requests to IFIs that are rejected for lack of adequate information; (2) the project intake protocols

and evaluation criteria are not sufficiently clear and require substantial time to complete, resulting in a disincentive by IFIs to access the programme; (3) IFIs find the programme burdensome, leading to delays in project financing and therefore encourage project developers to drop PRG requests; (4) the IFIs believe guarantees are not necessary and do not properly focus on the risk needs of RE projects. The annual survey of IFIs will identify which of these, or other factors are preventing IFIs from moving applications forward to CABEL.

155. Effectiveness of obtaining valid proposals - The third level of assessment will focus on the percentage of PRG requests approved by CABEL.

156. The following will also be considered:

- A high level of PRG rejections will reflect any of the following: (1) lack of knowledge of programme criteria by project developers and IFIs, such that projects are rejected by CABEL owing to inadequacies in the information supplied; (2) country office inattention to PRG requests due to lack of priority; (3) internal processing of PRG requests is overly burdensome and projects move forward to financing before guarantee approval is obtained.
- The annual survey of project developers and IFIs combined with the annual country office reports will provide the necessary information to determine if the programme is achieving its intended goals, or if not, to give a clear indication of the specific weakness in the programme that must be addressed.
- Satisfaction and efficiency indicators will be developed to assist in the assessment of the programme's effectiveness. These will include the number of projects submitted for PRG coverage. Submission of less than 5 PRG applications in the first year, 10 applications in the second year and 15 applications in each subsequent year will be considered an indication of insufficient programme activity and recommendations for programme modification will be required.
- A rejection rate by IFIs of more than 50% of PRG applications will be considered an indication of programme ineffectiveness and recommendations for modifications in project application materials, intake protocols and evaluation criteria will be required. These recommendations will not seek to weaken standards of project financial viability review, but rather will focus on application and related materials to make them more easily understood by developers and to ensure that developers who submit applications for loan guarantees have addressed all of the necessary underlying aspects of good project structuring and financial analysis. It should be borne in mind that the quality of such applications will depend heavily on the programme's ability to transmit adequate guidelines and preparatory information to SMREP developers, via workshops, seminars and published material. A high number of IFI rejections would indicate that project developers believe that the guarantee programme is designed to fill gaps in projects that are not financially viable or properly structured rather than to reduce collateral requirements for sound projects that simply cannot meet these collateral requirements otherwise.
- A rejection rate by CABEL of PRG applications of more than 20% will be considered an indication of programme ineffectiveness and recommendations for programme revisions will be required. The self-screening nature of the guarantee application form, the intake protocols and evaluation criteria, and the willingness of IFIs to assume project lending risk for a majority of the project debt financing, should effectively reduce the number of projects submitted to CABEL that are not considered eligible for guarantee coverage.

157. Understanding how perception of RE has changed to feed in the exit/replenishment strategy - This evaluation will begin in year 3 and continue through each subsequent year of the programme. The evaluation will assess the willingness of IFIs to accept higher gearing ratios for the guarantee programme, and/or guarantee coverage ratios below 35%. This assessment will be obtained from surveys of and

interviews with participating IFIs. The results of this effort will be considered in developing an exit strategy in year five of the programme.

158. Beginning in year 3, the issues relating to gearing ratios and guarantee coverage will be added to the discussions at the annual exchange meetings of stakeholders. It will also become a matter of review for the Task Force. Another indicator will be the number of IFIs that participate in the guarantee programme. A decreasing number of participating IFIs in the programme will be a signal that small-scale RE projects are considered a high risk or unprofitable sector for IFIs. Conversely an increasing number of IFIs in the programme will reflect a higher acceptance for this sector among lending institutions.

159. The annual survey of project developers and IFIs combined with the annual country office reports will provide the necessary information to determine if the programme is achieving its intended goals, or if not, to give a clear indication of the specific weakness in the programme that must be addressed.

### ***Reporting system defined and operational***

160. External evaluations and financial audits will be held as outlined in the schedule provided in Section I, Part 4 – “Monitoring and Evaluation Plan and Budget”.

### **Output 4.2: Adaptive management systems established to inform and adjust project implementation based on lessons learned from monitoring system**

#### ***Adaptive management approach elaborated and adopted***

161. As it is often the case close monitoring of numbers does provide guidance to identify where problems are but does not give sufficient indication of the nature of the issues nor of the different viewpoint or solutions adapted to a wide range of stakeholders. The main purpose of this output is to provide CABI with insight into the Project’s short comings to nourish the internal decision making process of the project.

### ***Project Steering Committee convening to review analysis and recommendations, and call for corrections***

162. The PSC will convene and act according to the outline provided in Section I, Part 3 “Project Steering Committee”.

### **Output 4.3: Regional information dissemination of project lessons and best practices for SMREP development and financing**

#### ***Dissemination meetings on project results***

163. Opportunities will be created for stakeholders to learn about Regional experience with SMREP development and financing, including through a Regional workshop on SMREP financing and ARECA results.

### ***Lessons learned from programme (including effectiveness in raising demand from promoters, willingness of IFIs to co-finance, effectiveness of obtaining valid proposals) prepared and disseminated***

164. Opportunities will be established for stakeholders to learn about Regional experience with SMREP development and financing. Materials (reports, case studies, statistics, official CABI publications, etc.) will be made available on the Project's website accessed by interested parties. At least one lessons learned

report will be prepared and disseminated widely in the CA Region. All materials will be made available on the project's website accessed by interested parties.

### 2.3 Project Indicators, Risks and Assumptions

165. The main purpose of the ARECA Project is to create conditions which lead to increased funding being made available on acceptable terms to SMREPs in the CA region. The key indicator is, therefore, evidence of a larger number of successful SMREPs operating in the region. The inherent financial viability of the approved projects, deriving from appropriate SMREP evaluation methodologies and financial packages, will be the best yardstick of success and the sustainability of Project. It is important to bear in mind that the financial viability of SMREPs will derive directly from the following two main outputs of the Project:

- The appropriate evaluation of SMREPs on a limited recourse basis, rather than an investor collateral potential basis, means that a greater number of SMREPs reach financial close. The excessive demands for complementary collateral currently being imposed on SMREP sponsors means that a large number of projects never reach financial close. The availability of the PRG facility is intended to overcome this hurdle and enable a larger number of projects to reach close.
- The combination of more sophisticated RE project risk evaluation techniques and the ability of the PRG to intervene at a time of project crisis means that a greater number of SMREPs stand a chance of surviving and starting operations.

166. Achievement of the above assumes that macro-economic conditions continue to favor the development of RE power projects, including high fossil fuel costs. Further, the institutional environment and sales prices of RE technologies are assumed to be favorable enough to enable the implementation of RE projects in a profitable manner.

167. Another major indicator of Project Objective achievement is that the financial mechanism has been used to leverage lending to SMREPs, evaluated by examining how the PRG mechanism has been accessed over the course of the project and the value of SMREP loan portfolios generated as a result. This achievement will rely on inter-bank relations between CABEI and the IFIs continuing to be sufficiently collaborative. It should be noted that the Project relies on, but does not have full control over, private sector activities.

168. Project indicators, with their associated risks and assumptions, have also been developed for each Project Output and are detailed in the Logical Framework Analysis (Section II, Part 2). Discussion of RE project risks is provided in Section IV, Part 5 (Additional renewable energy project risks).

*Outcome 1: CABEI assumes a catalytic role in strategically promoting increased lending on a project finance basis to SMREPs*

- Indicators:
  - CABEI is perceived as a leading institution for the development of SMREPs;
  - Financing SMREPs has been fully mainstreamed in CABEI's energy sector strategy; a unit supporting SMREP financing exists; staff are aware of policies/procedures;
  - Regional energy market characteristics (policy, pricing, taxes) are available to CABEI and IFI staff on an ongoing basis;
  - Simplified documentation is available relating to small-scale renewable energy identifying all equity, loan, concessional loans and guarantees and publication of periodic reviews for benefit of RE project sponsors;
  - Periodic meetings occur between CABEI and IFIs to develop synergies in relation to SMRE project finance.

- Risks and Assumptions:
  - Assumes no major energy crisis and that fuel costs will not undergo a drastic fall that would reduce the interest in RE in general.

*Outcome 2: CABEI and IFIs have developed the capacity (technical and financial) to finance SMREPs*

- Indicators:
  - CABEI (Headquarters and Country Offices) and IFIs are identifying and evaluating SMREPs;
  - Seminars and training sessions on RE project financing offered;
  - Awareness among IFIs regarding CABEI's RE financing strategy. Project identification workshop held to invite short listed IFIs, RE project sponsors and external RE project specialists;
  - Internal guidance available regarding feasibility funding, including the option of receiving TA funding from CABEI on a reimbursable loan basis.
- Risks and Assumptions:
  - Risk that the technical and financial skills of some beneficiaries are so low that takes a long time to become sufficiently capacitated;
  - Assumes that the IFIs place the qualified personnel required to undertake more advanced project analysis work at the disposal of the project, to work closely with CABEI and the Project Coordinator – RE Project Finance Specialist.

*Outcome 3: SMREPs receiving financing through the Partial Risk Guarantee Facility and other innovative financing mechanisms*

- Indicators:
  - Number of loans through PRG to SMREPs approved by CABEI and IFIs;
  - Reduced collateral requirements by IFIs for SMREPs;
  - PRG mechanism is established and operational within CABEI, including all required supporting documentation prepared and disseminated for PRG;
  - RE projects identified, evaluated and/or financed;
  - PRG mechanism accessed;
  - CABEI's success in attracting other investors to the PRG.
- Risks and Assumptions:
  - Macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs).

*Outcome 4: Evaluating, learning and adaptive management are ensured*

- Indicators:
  - The Project applies lessons learned and adapts to the changing environment, thereby helping to achieve its objective;
  - high-quality information available for the project manager, project team and key stakeholders for decision-making;
  - External evaluations and financial audits prepared;
  - Bi-yearly revision of project Logical Framework and implementation strategy based on inputs from monitoring system. This project will adapt the financial instrument should this one not meet expectations;
  - Opportunities for stakeholders to learn about regional experience with SMREP development and financing.

## **2.4 Expected global, national and local benefits**

### ***Global Benefits***

169. The major global benefit of the project lies in the long-term emission reduction potential. Additional strategic benefits that the project will also bring about include helping to reduce costs, remove barriers and expand the markets for RE private developers in the CA Region. Such developments are expected to produce far greater reductions in future GHG emissions.

170. The GHG emission reductions were estimated on the basis of RE incremental consumptions displacing part of the total baseline energy production in Central America. These were estimated based on an assumed mix of fossil fuels replaced by the incremental increase in RE usage. It was assumed that baseline generation is from oil-, coal-, and gas-fired power plants (800 gCO<sub>2</sub>/kWh on average).

171. Estimates place the total emissions reductions associated with reaching the target of 34 MW RE installed capacity by 2011 at about 172,000 tons of CO<sub>2</sub> per year. As a direct result of the project, and based on the projects to be directly supported, 3.4 million tons of CO<sub>2</sub> will be avoided over a 20 year period.

### **Regional Benefits**

172. Enhanced funding and new financing mechanisms will increase market penetration for RE and will increase economic activities through private sector participation. The implementation of RE projects will contribute to generate employment opportunities, as well as providing power to currently unserved communities, thereby assisting the poverty alleviation strategies of the 7 national governments involved in the project.

173. RE projects will also contribute to reduce fossil fuel imports generating hard currency savings for the economies of the Central American Region.

174. CABEL estimates that, by 2011, the project would have influenced/stimulated at least the addition of 30 to 40 MW RE and by 2015, 100 MW.

## **2.5 Country Ownership: Country Eligibility and Country Drivenness**

175. The seven participating countries have ratified the United Nations Framework Convention on Climate Change (UNFCCC) and all are eligible for UNDP assistance. The Focal Points were fully involved during the project brief preparation phase and have been closely following the evolution of the ARECA's development and approval process. The following table details the dates of each country's UNFCCC signature and ratification.

**Table 9. UNFCCC signature and ratification for ARECA participant countries**

Country	UNFCCC signature and ratification	
	Signature	Ratification
Costa Rica	June 13 <sup>th</sup> , 1992	August 26 <sup>th</sup> , 1994
El Salvador	June 13 <sup>th</sup> , 1992	December 04 <sup>th</sup> , 1995
Guatemala	June 13 <sup>th</sup> , 1992	December 15 <sup>th</sup> , 1995
Honduras	June 13 <sup>th</sup> , 1992	October 19 <sup>th</sup> , 1995
Nicaragua	June 13 <sup>th</sup> , 1992	October 31 <sup>st</sup> , 1995
Panama	March 18 <sup>th</sup> , 1993	May 23 <sup>rd</sup> , 1995

176. RE is a priority for all countries as stated in their respective UN cooperation framework (UNDAF) and also in their regional strategy in the frame of CCAD. In 2005, the Ministers of Energy and Minister of Environment of Central America signed in Honduras the "San Pedro Sula Declaration on Renewable Energy and Environment" which requested CABEL to accelerate the procedures to effectively finance RE



initiatives in the region. The countries are all members of CABEI and have a network of CABEI's IFIs functioning within them. Furthermore, all the seven governments are preparing their Second National Communication with UNDP as the GEF Implementing Agency.

## 2.6 Sustainability

177. The ARECA project is designed to yield sustainable RE initiatives in the CA Region and associated global environmental benefits, with sustainability integrated within a four-pronged approach: (i) strategic integration of SMREP considerations within CABEI; (ii) capacity development initiatives within the finance and RE communities in CA; (iii) design of the PRG mechanism; and (iv) focus on extracting and disseminating ARECA's lessons learned.

178. *Strategic integration of SMREP considerations within CABEI* - Integrating consideration of SMREPs into CABEI's internal strategies, policies/procedures and structure will help ensure that the impact of ARECA will stand after the project has ended. A successful project execution will provide CABEI with the experience in dealing with the small and medium size RE market, and the opportunity to refine its policies and procedures based on this experience.

179. *Capacity development initiatives within the financial and RE communities in CA* - Capacity development of CABEI and IFI staff, and RE developers in the region is being targeted under ARECA. Capacity is being developed within those IFIs that will continue their relationship with CABEI long after the project has ended. The experience itself of increasing capacity of RE developers (e.g, through workshops, seminars, associated materials) will be retained for future deployment in the Region by way of self-taught training resources.

180. The mechanism to finance feasibility work necessary for RE project funding will be established under ARECA. This fund will be replenished by CABEI based on a positive experience with ARECA, thereby enabling other projects to continue to benefit. CABEI has the financial capacity to increase the TA funding available to RE projects less than 10 MW once the GEF project is over.

181. *Design of the PRG mechanism* - The face value of the PRG facility is intended to be leveraged considerably to facilitate a higher overall volume of lending by the selected IFIs, especially given the low rate of non-performing loans tolerated by CABEI in the portfolio of its accredited IFIs. Based on its historic monitoring of IFI lending performance, CABEI will multiply the guarantee exposure level within prudent banking principles. While the final exit strategy for the PRG facility will depend on the success of the programme, if executed as planned the GEF grant should remain available in the form of the PRG to continue its function well beyond the life of the GEF project.

182. *Focus on extracting and disseminating ARECA's lessons learned* - The focus on lessons learned and information dissemination provides opportunities for a broad range of stakeholders to learn about the regional experience with SMREP development and financing. The experience of both ARECA and the SMREPs will also be preserved through project reports/lessons but, more importantly, leveraged as outlined in the section below on Replication.

## 2.7 Replicability

183. The design and implementation of credit enhancement mechanisms similar to the PRG facility is an on-going activity in the developing world. Significant resources are being devoted to the problem by such institutions as the World Bank, the IDB and others. As time passes, lenders and sponsors are acquiring a more sophisticated appreciation of the risks which affect projects in the RE sector. Simultaneously, technological progress is reducing the technology risks and costs associated with RE generation and

transmission projects. By the end of the ARECA Project cycle, there will be a much clearer appreciation of what has worked and what has failed. The lessons learned in ARECA will in turn facilitate the adaptive design of more targeted and effective risk-mitigation mechanisms, in which it is expected that CABEL will continue to play a leading role.

184. ARECA has been designed with replication in mind, again with the theme of replication inherent in each of the Project's Outcomes: Outcome 1 begins with a core group of IFI but allows for future expansion of access to the PRG; Outcome 2's feasibility study funding mechanism looks to expansion; Outcome 3 includes focus on the replication strategy for the PRG mechanism; and Outcome 4 covers ARECA's dissemination work:

- While the project will begin by targeting a small group of IFIs short-listed with CABEL, this group can be expanded in future to provide greater financing coverage in CA.
- As outlined in the section above, the feasibility study funding mechanism is intended to not only be a sustainable structure but, through replenishment, will allow for a much greater number of SMREPs to gain access beyond the GEF Project's reach.
- One of the Project tasks is to identify possible sources for re-capitalized of the PRG facility that may be needed after a period of time. ARECA intends to demonstrate the usefulness of this mechanism, which would be used facilitate negotiations with new donors. Future fund raising, aimed at doubling the size of the guarantee facility at minimum and increasing its applicable gearing ratio, will allow the PRG to support a greater lending volume with the same amount of available funds in the guarantee account, thereby ensuring that this initiative will continue to replicate its impact beyond the scope of the current Project.
- Replication is inherent in the design of ARECA, with the SMREP initiatives started under ARECA essentially providing examples within the CA Region of successful SMREPs and fostering interest in SMREP beyond the project's scope (both temporal and geographic). Awareness of the successes of SMREPs will be actively facilitated through Outcome 4, where lessons learned will be identified and disseminated. This dissemination work, coupled with the PRG facility and the feasibility assistance outlined above, will serve to accelerate replication of ARECA's objective across the CA Region.

## PART 3: Management Arrangements

### 3.1 Project Management

185. The following key institutional actors and structures will be involved in project management:

- **UNDP** will be the project's implementing agency,
- **CABEI** will be the project's executing agency,
- A **Project Co-ordination Unit (PCU)** will be responsible for day-to-day project co-ordination and management,
- A **Project Steering Committee (PSC)** will oversee project implementation,

#### *UNDP*

186. The UNDP Country Office in Honduras will maintain day-to-day oversight responsibility for project implementation and has direct responsibility for fulfilling the duties and obligations of a GEF Implementing Agency. It will be responsible for financial management and accountable for the use of GEF resources under the project. It will provide technical and administrative backstopping to the Project Co-ordination Unit (see below) to ensure results-oriented management and proper administration of funds. It will maintain project accounts, facilitate staff recruitment and monitor resource mobilization of baseline and co-finance as defined in the project document. Financial transactions will be subject to annual audits undertaken by internationally certified auditors.

187. UNDP Honduras will oversee and verify the proper use of funds through: the "cash advance request" based on an annual basis dependant on workplans and quarterly financial reports; Combined Delivery Reports (and/or other reports generated from UNDP's project management software); budget revision approval; periodic visits to CABEI, including the PCU; regular communication with project staff; site visits; and dialogue with project stakeholders.

188. UNDP Honduras will also participate in project work planning exercises, Project Steering Committee (PSC) meetings and monitoring missions. The office will introduce and sensitize project staff and consultants to UNDP work planning, adaptive management and financial reporting requirements, formats and processes, particularly during the Project Inception Phase (PIP). UNDP may provide additional assistance upon request by Government, through Letters of Agreement for Support Services (as per the UNDP Programming Manual).

189. UNDP-GEF's Regional Co-ordination Unit (RCU) for Latin America and the Caribbean, and in particular its Regional Co-ordinator for Climate Change, is responsible for project oversight, ensuring that the project maintains principles of incrementality while achieving global environmental benefits. The UNDP-GEF Regional Co-ordinator has an important role in monitoring project implementation and in ensuring that GEF funds are used in accordance with GEF eligibility rules, policies and norms. The Regional Co-ordinator will serve as a key link between UNDP Honduras and the GEF, advising the former on the nature of UNDP's responsibilities as an officially designated GEF "Implementing Agency" and the appropriate means of fulfilling these. Finally, the UNDP-GEF Executive Coordinator in New York will report regularly on project delivery to the GEF Secretariat and GEF Council.

#### *CABEI*

190. CABEI will be the executing agency for the proposed Full-Scale Programme activities. More specifically the Department of Development and Competitivity will oversee and coordinate all aspects of the project. The head of this unit will be the Executing Director of the Project. Also, a focal point per CABEI's Country Office, will be assigned to participate in project execution and activities. CABEI's responsibilities as the executing agency and key project stakeholder will include the following:

- Jointly selecting, in co-operation with UNDP Honduras and UNDP-GEF, staff of the **Project Co-ordination Unit (PCU)**;
- Planning for and monitoring the technical aspects of the project, and monitoring progress benchmarks and outputs,
- Actively participating in all relevant project activities where appropriate;
- Adopting, during the course of the project, the systems, programmes and tools developed by the project to ensure sustainability of the project outcomes;
- Ensure all committed credit lines remain available for project related lending activities;
- Play an active role in coordinating with other stakeholders throughout the project.
- Preparation and submission of periodic progress reports, and regular consultations with beneficiaries and contractors;
- Chairing the **Project Steering Committee (PSC)** and annual **Tripartite Review (TPR)** meetings;
- Maintaining a separate project account for the accountability of project funds;
- Ensuring advanced funds are used in accordance with agreed workplans and project budget;
- Preparing, authorizing and adjusting commitments and expenditures; ensuring timely disbursements, financial recording and reporting against budgets and work plans;
- Managing and maintaining budgets, including tracking commitments, expenditures and planned expenditures against budget and work plan ; and,
- Maintaining productive, regular and professional communication with UNDP and other project stakeholders to ensure the smooth progress of project implementation.

### ***Project Co-ordination Unit***

191. The Project Co-ordination Unit (PCU) will be established in Tegucigalpa within the Headquarters of CABEI and will have general project coordination functions. It is proposed that the unit be located within the Unit of Development and Competitivity in CABEI, together with the Project Co-ordination Unit of CAMBio project. In this Unit are also the recently appointed Energy and Environment Focal Points and they will have strong links to the PCU and will be responsible for assisting to link the PCU to the rest of CABEI's Departments, offices and programmes.

192. The PCU will ensure that project implementation proceeds smoothly through well-written workplans, Terms of Reference and carefully designed administrative arrangements that meet UNDP's requirements. The PCU will be staffed as follows:

- *The Project Co-ordinator – RE Project Finance Specialist, in order to combine the two functions of coordination and real financing input, will be a person with significant direct experience related to the scope of the Project, specifically in the core area of financial structuring of RE projects, and also strong management skills. (S)he will provide overall technical direction and leadership for the project, working closely with CABEI personnel and ensuring maximum transfer of expertise at that level. This person will be an international expert for the full five years of the project.*
- *The Young Professional will be a person with some substantial experience but in the early stage of his career. (S)he will provide assistance to the Project Co-ordinator both in the management and administration of the project, and can in particular provide support in the area of RE market research. This post is for four years.*

193. The PCU staff will also be assisted in project administration from the Administrative / Finance Assistant hired by the project CAMBio for both UNDP/GEF projects executed by CABEL.

194. The responsibilities of the PCU will include the following:

- achievement of the project outcomes and objective;
- to manage day-to-day implementation of the project, coordinating project activities in accordance with the rules and procedures of UNDP-GEF and CABEL and based on the general guidance provided by the Project Steering Committee (PSC);
- to provide overall project co-ordination, while acting as an independent and unbiased guarantor of co-operation and information exchange;
- to provide technical input as appropriate into the outcomes, with particular reference to:
  - advanced project evaluation methodologies,
  - the adaptation of state of the art RE project financing structures and instruments,
  - the identification of and collaboration with available providers of RE financing (both equity and debt), including multilateral institutions, bilateral ODA-type entities, specialized funds, and,
  - the design of appropriate interbank and co-financing modalities to maximize the contribution of the IFI network alongside CABEL;
- to coordinate with the project stakeholders and regional programmes of relevance to the project;
- to convene quarterly Project Implementation Meetings (PIMs) in order to review progress in implementing project workplans;
- to ensure, together with UNDP, that specified tasks are outsourced to suitable sub-contracted Technical Assistance Service Providers or national and international consultants through competitive bidding processes. PCU responsibilities in this regard include development of bidding documents and terms of reference;
- to organize project-level meetings and workshops, e.g., inception workshop, Project Steering Committee (PSC) meetings, etc.;
- to work closely with UNDP offices in the region in organizing and providing technical and logistic support and coordination to all missions and assignments by international and national consultants; and,
- to prepare overall project reporting.

### **3.2 Project Steering Committee**

195. Project implementation will be overseen by a Project Steering Committee (PSC), vested with the responsibility of approving the project's annual operational plans and reports, as well as ensuring that project activities are in line with those outlined in the approved project documentation and with relevant policy frameworks in the region. The PSC will have its first meeting during the Project Inception Phase (PIP). This ten to twelve person committee will include representatives from UNDP, CABEL and CCAD, as well as the Ministries of Environment of each participating country and relevant NGO and private sector representatives (IFIs) and may be complemented with external experts as deemed appropriate by the executing agency. The PSC will normally meet twice a year to review semi-annual progress reports, monitor results, receive other reports that they may request on an ad hoc basis and agree on annual rolling workplans. These meetings may be conducted through telephone and/or video conference facilities available at CABEL.

196. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased

with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes.

## **PART 4: Monitoring and Evaluation Plan and Budget**

197. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP-GEF. The Logical Framework Matrix provides performance and impact indicators for project implementation along with their corresponding means of verification. These will form the basis on which the project's Monitoring and Evaluation system will be built.

198. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

### **4.1 Monitoring and Reporting**

#### **4.1.1 Project inception phase**

199. A Project Inception Workshop (IW) will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate. The IW will be held shortly after the Coordinator – RE Project Financing Specialist has been appointed.

200. A fundamental objective of this IW will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

201. Additionally, the purpose and objective of the IW will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.

202. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

#### **4.1.2 Monitoring responsibilities and events**

203. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

204. Day to day monitoring of implementation progress will be the responsibility of the Project Coordinator – RE Project Financing Specialist, Director or CTA (depending on the established project structure) based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

205. The Project Coordinator – RE Project Financing Specialist and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit.. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

206. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this Annex. The measurement, of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

207. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

208. UNDP Country Offices and UNDP-GEF RCU as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

209. Annual Monitoring will occur through the Tripartite Review (TPR). This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

210. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

#### ***Terminal Tripartite Review (TTR)***

211. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

212. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks are provided in Annex .../will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

#### ***4.1.3 Project monitoring reporting***

213. The Project Coordinator – RE Project Financing Specialist in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

#### ***Inception Report (IR)***

214. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

215. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

216. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

#### ***Annual Project Report (APR)***

217. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides



input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

218. The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CAE and other expenditure reports (ERP generated)
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

### ***Project Implementation Review (PIR)***

219. The 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 by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

220. The individual PIRs are collected, reviewed and analysed by the RCs prior to sending them to the focal area clusters at the UNDP-GEF headquarters. The focal area clusters supported by the UNDP-GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

221. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

222. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP-GEF has prepared a harmonized format for reference.

### ***Quarterly Progress Reports***

223. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team.

### ***Periodic Thematic Reports***

224. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

### ***Project Terminal Report***

225. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

### ***Technical Reports***

226. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

## **4.2 Independent Evaluation**

227. The project will be subjected to at least two independent external evaluations as follows:

### ***(i) Mid-term Evaluation***

228. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

### ***(ii) Final Evaluation***

229. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

### **4.2.1 Audit Clause**

230. Audit of the project will follow UNDP standard audit arrangements and regulations. Auditors to the project will be officially designated. Such auditors, and/or other officially appointed auditors shall undertake periodic management and financial audits of the project in accordance with UNDP auditing procedures.

### 4.3 Learning and Knowledge Sharing

230. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- ARECA will consolidate lessons learned from the programme (including effectiveness in raising demand from RE promoters, willingness of IFIs to partner, effectiveness of obtaining valid RE project proposals). In particular the effectiveness of the Partial Risk Guarantee (PRG) should be evaluated and recommendations made as to ways in which such a financial instrument might be designed in the future. These lessons will be prepared and disseminated through regional meetings focusing on project results.
- The project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics.
- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

231. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP-GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

#### *Project Publications*

232. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources allocated under Outcome 4 will be used for these activities as appropriate.

**Table 10.** Indicative Monitoring and Evaluation Work plan and corresponding Budget

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Budget US\$</b> <i>Excluding project team Staff time</i>	<b>Time frame</b>
Inception Workshop	<ul style="list-style-type: none"> <li>▪ Project Coordinator – RE</li> <li>▪ Project Finance Specialist</li> <li>▪ UNDP CO</li> <li>▪ UNDP GEF</li> </ul>	30,000	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> <li>▪ Project Team</li> <li>▪ UNDP CO</li> </ul>	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	<ul style="list-style-type: none"> <li>▪ Reporting system defined. Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members</li> </ul>	20,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	<ul style="list-style-type: none"> <li>▪ Oversight by Project GEF Technical Advisor and Project Coordinator</li> <li>▪ Measurements by regional field officers and local IAs</li> </ul>	70,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	<ul style="list-style-type: none"> <li>▪ Project Team</li> <li>▪ UNDP-CO</li> <li>▪ UNDP-GEF</li> </ul>	None	Annually
TPR and TPR report	<ul style="list-style-type: none"> <li>▪ Government Counterparts</li> <li>▪ UNDP CO</li> <li>▪ Project team</li> <li>▪ UNDP-GEF Regional Coordinating Unit</li> </ul>	None	Every year, upon receipt of APR
Steering Committee Meetings	<ul style="list-style-type: none"> <li>▪ Project Coordinator</li> <li>▪ UNDP CO</li> <li>▪ Regional representatives</li> </ul>	30,000	Following Project IW and subsequently at least once a year with participation from the regional representatives
Periodic status reports	<ul style="list-style-type: none"> <li>▪ Project team</li> </ul>	5,000	To be determined by Project team and UNDP CO
Technical reports	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ Hired consultants as needed</li> </ul>	15,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP- CO</li> <li>▪ UNDP-GEF Regional Coordinating Unit</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>	25,000	At the mid-point of project implementation.
Final External Evaluation	<ul style="list-style-type: none"> <li>▪ Project team,</li> <li>▪ UNDP-CO</li> <li>▪ UNDP-GEF Regional Coordinating Unit</li> <li>▪ External Consultants (i.e. evaluation team)</li> </ul>	50,000	At the end of project implementation
Terminal Report	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP-CO</li> </ul>	None	At least one month before the end of the

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
	<ul style="list-style-type: none"> <li>▪ External Consultant</li> </ul>		project
Lessons learned and dissemination meetings	<ul style="list-style-type: none"> <li>▪ Project team</li> <li>▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)</li> <li>▪ External consultants</li> </ul>	50,000	Yearly
Audit	<ul style="list-style-type: none"> <li>▪ UNDP-CO</li> <li>▪ Project team</li> </ul>	5,000 (average \$1000 per year)	Yearly
Visits to field sites	<ul style="list-style-type: none"> <li>▪ UNDP Country Office</li> <li>▪ UNDP-GEF Regional Coordinating Unit (as appropriate)</li> <li>▪ Government representatives</li> </ul>	20,000 (average one visit per year)* <i>Excluded from budget total as costs to be charged to IA fees</i>	Yearly
TOTAL INDICATIVE COST		US\$ 300,000	

## PART V: Legal Context

233. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Honduras and the United Nations Development Programme, signed by the parties on January 17, 1995 and coming into effect on April 27, 1995, Order in Council Number 33-95. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

234. The UNDP Resident Representative in Honduras 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 the UNDP-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.

## **SECTION II Strategic Results Framework and GEF Increment**

### **PART 1: Incremental Cost Analysis**

#### **BROAD DEVELOPMENT GOALS**

In Central America, the restructuring of the power sector has unique characteristics in every country and energy consumption in the region is also very uneven. However, independently from the way the power sector is managed in the seven Central American countries, power and energy production capacities in the region will need to almost double within the next 6-7 years, requiring the addition of over 4,500 MW of installed power capacity.

Historically, hydroelectric power dominated Central America's electricity sector. However, since opening up to foreign investors beginning in the late 1990s, the privatization of energy markets allowed the development of numerous new thermal (mainly oil) generation plants increasing dependence on imported oil supply.

This shift from renewable energy (RE) sources to thermal generation is increasingly constrained by the social and environmental consequences of large -scale power projects. These constraints have heightened interest in RE options and particularly in projects with smaller installed capacity, which could be carried on by private investors, instead of traditional utilities. Additionally, the CA region, highly dependant on imported fossil fuel is vulnerable to oil price variation and RE development is part of energy security strategies of the countries concerned.

There is abundant renewable energy potential identified in the region (hydro, geothermal, wind, bagasse)<sup>4</sup> at pre-feasibility stage, exceeding by far the anticipated additional capacity requirements by the year 2015. These projects would be connected to the conventional grid for energy transport and distribution. Between 30 and 50% of the CA population has no access to electricity. Extensive efforts are also being made to develop off-grid renewable energy systems that will be providing the most cost effective electricity services for remote, rural locations.

This potential capacity faces important financial barriers that have prevented so far the implementation of RE projects on a larger scale in the region. The Central American Bank for Economic Integration (CABI) as the main financial institution in the region involved in the financing of energy infrastructures, is well aware of the situation and is willing to contribute to the removal of the barriers and to the financing of RE projects. CABI realizes that in order to accelerate future investment in smaller renewable energy projects (<10 MW), it will need to take a more pro-active role in project identification, formulation and appraisal in combination with other donors and financing institutions active in the region.

Furthermore, risk assessment and consequential collateral requirement from the financing sector for privately developed small-scale RE projects prevents CABI's standard and concessional funds to flow toward this type of projects. In fact, despite the existence of a number of opportunities for feasibility as well as investment financing, small scale RE is only experiencing a slow development in the region.

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<sup>4</sup> There is an aggregated potential of about 37,000 MW of hydro, 4,000 MW of geothermal and at least 350 MW from wind power plants, with a significant participation of small-to medium-scale projects connected to the grid. There is also a significant potential for bagasse-based co-generation, with a regional conservatively estimated capacity of at least 300 MW to be exploited in the short term.

The proposed CABEI-UNDP-GEF programme will be the driving and guiding force of such an initiative. The objective of the full-size programme implementation is to accelerate renewable energy investment through CABEI, thereby reducing the CO<sub>2</sub> emissions of the energy sector and contributing to the economic development in Central America, by implementing an objective of 34 MW of small and medium scale RE projects before 2011. Furthermore, the built in replication strategy will allow to double this figure in the next period bringing direct project and post project impact to 100MW.

This project seeks GEF's support to ensure that the GHG emissions from the fossil fuel-based activities in the region is reduced by 172,000 t CO<sub>2</sub>/year through the utilization of RE resources This corresponds to 3.4 million tons of CO<sub>2</sub> over a 20 year period and GEF support corresponds to 2.10US\$ per avoided ton of CO<sub>2</sub>.

## **BASELINE**

The baseline conditions for this project consist of what would be the participation of CABEI and other financial institutions in financing small RE projects in Central America, without GEF support. A number of initiatives are already underway but would remain isolated and under utilized for RE projects. In particular funds such as the CABEI environmental fund which provides soft loans for small environmentally friendly projects at 5% prime rate would not be used for energy projects. The MIF equity fund in which CABEI is considering co-investing would provide an equity opportunity but would not solve the collateral requirement issue of small RE projects. At last, the Financial Institutions of the region will not have any incentive to consider these risky projects for funding even with CABEI as their first floor bank.

Without this project, Central American project promoters would only be able to implement a small proportion of their RE potential projects due to the lack of adapted financial mechanisms, and local Banks would not become familiar with the financing of this new sector of activity. Without this project, the region would not be able to effectively make the most of its abundant RE resources.

CABEI recognizes that improving its participation in small RE projects fits with its regional role for economic integration. CABEI is also aware of the environmental benefits that would result from the use of climate -friendly energy forms. Some of the ongoing activities of Central American governments at national policy level and international lending institutions like the WB, IFC and the IADB are complementing the activities of the proposed CABEI-UNDP-GEF Project and will be integrated.

The baseline expenditures are estimated at **US\$ 85,616,631** (NPV, 10 years – 12% discounting rate) considering the installation of **43 MW diesel plants** (power factor 50%) by replacing 34 MW hydroelectricity (power factor 63%) and producing the same energy amount (roughly between 190,000 MWh/year and 210,000 MWh/year).

## **GLOBAL ENVIRONMENT OBJECTIVES**

The global environmental objective of this project is to reduce greenhouse gas emissions through new renewable energy generation by removing financial barriers with a focus on risk related barriers that currently impede the large development of renewable energy projects in Central America. Project's purpose is to develop a regional approach, involving Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama which aims at reducing Greenhouse Gas Emissions (GHG) by promoting the use of renewable energy systems for electricity generation tapping the potential of projects less than 10 MW, thereby contributing to the reduction of greenhouse gas emissions resulting from the present use of traditional energy and future use of diesel oil consumption in small scale energy generation.

More strategic reductions that the project will bring about is in helping reduce costs, remove barriers and expand markets for renewable energy private developers in the Central American region. Such developments are expected to produce far greater reductions in future GHG emissions.

To reach this objective, CABEI will consolidate its position as leader in the development of a renewable energy regional market, provide suitable financing mechanisms to overcome those barriers that prevent the development of small-scale renewable energy by the private sector, and will co-finance projects in association with private investors and local lending institutions. Such actions will result in the acceleration of RE investments through the Central American Bank for Economic Integration (CABEI).

CO2 emission reductions are estimated for the programme in the range of 172,000 tCO2/year. So considering a project life span of 20 years (2005-2025) around 3.4 million tons of CO2 will be avoided.

## **GEF ALTERNATIVE**

The alternative proposed under the GEF-Operational Programme #6, Climate Change Strategic Priority Number 2, will remove small RE projects financing hurdles, by involving a regional financial institution, CABEI, able to provide standard and concessional financing to the private sector. This is coupled with GEF support to mitigate the perception of risks by the lending institutions and alleviate collateral requirements for project promoters with otherwise financially sound projects, is expected to accelerate renewable energy investments in Central America Even though CABEI has a good track record of investments in infrastructure in the region, its investments in the RE sector were mostly related to large - scale hydroelectric generation projects connected to the electric grid. There is limited experience at this point of other technologies and small-scale projects.

The Project is designed to reach four main outcomes:

- 1) Consolidate CABEI as a key player in the region by triggering a new way to do business and with the aim of influencing the adaptation of national and regional policies towards sustainable use of natural resources and creating a level playing field for RE as well as proposing a co-coordinated financing offer to RE investors
- 2) Develop capacity of CABEI, national partner financial institutions and project promoters in the region and propose the tools to prepare RE projects for funding including access to patient and equity funds
- 3) Set up a guarantee fund to mobilize financial flow while alleviating collateral constraints of sound RE projects
- 4) Generate a learning dynamic as part of project monitoring so as to ensure adaptive management to maximize project impacts.

In the alternative scenario using small RE generation capacities, it is estimated that for an objective of 34 MW of RE installed capacity by 2011, 172,000 tons of CO2 per year will not be released into the atmosphere<sup>5</sup>. This corresponds to 3.4 tons of CO2 bringing GEF support to 2. US\$ per ton of CO2. Another 2.2 tons of CO2 are estimated as part of the direct post project impact while 16.6 million CO2 correspond to project replication impact.

The technical incremental cost of this technology substitution and/or new generation has been calculated at **US\$ 7,808,830** based on the difference between Net Present Value (NPV) of the 2 options: 34 MW RE projects or conventional diesel plants (43 MW) over a 10 year period. This same value calculated over a

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<sup>5</sup> GHG emission reductions were estimated on the basis of R.E incremental consumptions displacing part of the total baseline energy production in Central America. These were estimated based on an assumed mix of fossil fuels (oil-, coal-, and gas -fired power plants) replaced by the incremental increase in RE usage.



20-year period is equal to – 9.56 million hereby justifying GEF intervention to promote RE investment in the region.

## **REGIONAL BENEFITS**

Improved financial offer and new financing mechanisms will increase market penetration for RE and will increase economic activities through private sector participation. The implementation of RE projects will contribute to generate employment opportunities and assist the poverty alleviation thrust of the seven local governments involved in the project.

RE projects will also contribute to reduce fossil fuel imports generating hard currency savings for the economies of the Central American Region.

## **PROJECT BOUNDARIES**

The project will finance mostly privately owned, RE projects less than 10 MW. Large RE projects such as hydroelectric projects over 10 MW will not be covered by the project. Geographic coverage will be limited to CABI member countries in the region, plus Panama.

## **COSTS**

The total cost of RE projects implementation by considering an average cost for hydro electrical installations in the range of US\$ 2300 per kW, is estimated at US\$ 93,425,461 while total cost for baseline scenario is estimated at US\$ 85,616,631. While over a 10 year period, the technical incremental cost stands at **US\$ 7,808,830, over a 20 year period this cost is negative and stands at US\$ –9,569,200.** When taking into account total program cost including set of activities needed to accelerate small-scale renewable energy investment in Central America, the full-agreed cost from the lending community perspective stands at \$ 65,332,400.

GEF contribution will cover incremental activities, which would not be necessary in a situation where future electricity needs of the region were met in a conventional manner. CABI will contribute to the project with conventional lending lines for a total of US\$ 38M, concessional lending lines for US\$ 5M as well as providing office space and qualified personnel for a total of in kind contribution of \$ 880,000. In addition, easier access to CABI FALIDES soft loan facility will provide a cash subsidy to small-scale RE projects between \$ 2 and \$ 3 million calculated on an interest gap of 4% between CABI on- lending rate and FALIDES on-lending rate.

Regarding the financing plan for the Full-Scale Programme, including projects realization and accompanying measures, the total budget involved reaches US\$ 89,590, 000. Of this total, US\$ 6.92 M is sought from GEF. US\$ 82.67 M will be financed in Central America by CABI, local banks, and private investors. Estimation gives that greenhouse gas emissions resulting from diesel oil combustion will drop around 3,440,000 thousand tons of CO<sub>2</sub> over a 20-year period (2005-2025) through these project activities. GEF intervention corresponds to \$2.1 per ton of avoided CO<sub>2</sub>.

## **INCREMENTAL COST ASSESSMENT (continued): comparison between hydro and diesel solutions**

### Hypothesis for the calculation of incremental costs:

Incremental costs between hydroelectric power stations and diesel power station is based on the difference between Net Present Value (NPV) of the 2 options. The NPV is calculated by discounting all the costs for both solutions, i.e.:

- the initial investment
- the operating & maintenance costs, expressed in % of the initial investment (ratio Kem)
- the costs of fuel Kd for diesel power station, calculated on the basis of assumption for the diesel cost, an average specific consumption, and load factor of power stations

The discounting rate used is the same that the discounting rate taken into account for economic analyses carried out by Wesa, that is to say 12%

### Notice on the investment costs of hydroelectric power stations:

The investment costs indicated in some analyses for hydroelectric power stations in Central America appears very low compared to other studies carried out in the area.

During the preparatory phase of the "National Programme of promotion of grid connected renewable energies projects development" carried out in 2002 for the Salvadorian Department of the Environment, a comparative and extensive analysis confirmed by various contacts with regional experts had demonstrated that most investment costs presented at preliminary phase of hydropower plant projects were under-evaluated. Investment costs should include all the development and construction cost of a hydropower plant project, i.e. :

- Cost of development and studies: identification, feasibility, and environmental impact assessment
- Cost of field purchase or concession fees
- Cost of transport for the working equipment and power station components to the work site (in some case requiring the building of a specific and costly track until the site)
- Cost of civil engineering
- Investment cost of equipment
- Cost of installation & commissioning

Hypothesis on electricity production and load factor have also a tremendous effect on the economical analysis of hydropower plant. Thus, investment costs of a hydropower station can vary from one to tenfold depending on the specific characteristic of each site. International data indicates that costs can vary from 600 up to 10,000 US\$/kW. At the Central America regional level, investment costs seems to be included in a range of **1,500 to 3,000 US\$/kW** for micro and medium hydropower station.

The final hypothesis for the calculation of incremental costs are summarized in the following table:

Discounting rate		12%	
		Diesel	Hydro
Investment cost	US\$/kW	400	2300
Fuel cost	US\$/l	0,3	
Specific consumption	l/kWh	0,2	
Power factor	%	50%	63%
Ratio Kem	% of Io	4,0%	3,2%

In the next table the NPV for diesel and hydro projects as well as incremental costs based on a 5, 10 and 20 years discounted analysis:

Incremental costs over 5 years:	US\$27.350 M
Incremental costs over 10 years:	US\$7.810 M
Incremental cost over 20 years:	US\$-9.569 M

**Renewable Energy Portfolio**

To be financed by CABEL within the GEF Full-Size Project  
Incremental Costs Assessment

<b>Hypothesis</b>											
Discounting rate	%		12%								
<u>Diesel :</u>							<u>Hydro :</u>	2300			
Investment cost	US\$/kW		400								
Combustible cost	US\$/l		0.3								
Specific consumption	l/kWh		0.2								
Power factor	%		50%					63%			
Ratio Kem	% of Io		4.0%					3.2%			
<b>Diesel plant</b>	Year :	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<i>Technical parameters :</i>											
Capacity	MW	43.3									
Production	MWh/year		189,847	189,847	189,847	189,847	189,847	189,847	189,847	189,847	189,847
Diesel consumption	m3/year		37,969	37,969	37,969	37,969	37,969	37,969	37,969	37,969	37,969
GHG	tCO2/year		151,877	151,877	151,877	151,877	151,877	151,877	151,877	151,877	151,877
<i>Economical parameters :</i>											
Investment cost	US\$	17,337,600									
E&M	US\$/year		693,504	693,504	693,504	693,504	693,504	693,504	693,504	693,504	693,504
Diesel cost	US\$/year		11,390,803	11,390,803	11,390,803	11,390,803	11,390,803	11,390,803	11,390,803	11,390,803	11,390,803
Total E&M cost	US\$/year		12,084,307	12,084,307	12,084,307	12,084,307	12,084,307	12,084,307	12,084,307	12,084,307	12,084,307
<b>Total NPV over 5 years</b>	<b>US\$</b>	<b>60,898,823</b>									
<b>Total NPV over 10 years</b>	<b>US\$</b>	<b>85,616,631</b>									
		<b>107,600,651</b>									
<b>Hydro plant</b>	Year :	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<i>Technical parameters :</i>											
Capacity	MW	34.4									
Production	MWh/year		189,847	189,847	189,847	189,847	189,847	189,847	189,847	189,847	189,847
Diesel consumption	m3/year		37,969	37,969	37,969	37,969	37,969	37,969	37,969	37,969	37,969
GHG	tCO2/year		151,877	151,877	151,877	151,877	151,877	151,877	151,877	151,877	151,877
<i>Economical parameters :</i>											
Investment cost	US\$	79,120,000									
E&M	US\$/year		2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840
Diesel cost	US\$/year		0	0	0	0	0	0	0	0	0
Total E&M cost	US\$/year		2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840	2,531,840
<b>Total NPV over 5 years</b>	<b>US\$</b>	<b>88,246,717</b>									
<b>Total NPV over 10 years</b>	<b>US\$</b>	<b>93,425,461</b>									
<b>Total NPV over 20 years</b>		<b>98,031,436</b>									
<b>Incremental costs over 5 years (US\$) :</b>		<b>27,347,894</b>									
<b>Incremental costs over 10 years (US\$) :</b>		<b>7,808,830</b>									
<b>Incremental costs over 20 years (US\$) :</b>		<b>-9,569,215</b>									

**INCREMENTAL COST TABLE**

<b>Outcome</b>	<b>Baseline (B)</b>	<b>Alternative (A)</b>	<b>Increment (A-B)</b>
<b>1 Small RE lending integrated and operationalized within CABEI overall lending strategy</b>	<p>With CABEI decentralization process, focus and benchmarking does not include small scale RE</p> <p>CABEI's involvement in energy projects is demand driven. Small scale projects are of little interest to CABEI</p> <p>Regional policy issues remain focused on HV grid connection</p>	<p>CABEI regional offices report and corporate recognition is given when financing small-scale RE projects. Procedures are streamlined.</p> <p>CABEI is taking a proactive role in seeking, supporting the development and financing small scale RE projects</p> <p>Climate change issues are better integrated in decision processes and CABEI is taking position at regional level in energy policy related matters.</p>	<p>CABEI lending officers are proactive and CABEI partner's interest is raised.</p> <p>The offer for funding to small-scale RE projects is greatly improved and efforts are coordinated in the region.</p> <p>Concessional lending opportunities are known and procedures are simplified. 5 million US\$ are channeled to RE projects.</p> <p>Decision makers in the region increasingly integrate main climate change and in particular renewable energy related issues in their decision processes.</p>
	Cost: \$ 0	COST \$ 720,000 GEF \$ 340,000 CABEI \$ 380,000	TOTAL \$ 720,000 GEF \$ 340,000 CABEI \$ 380,000
<b>2.: Capacity and operational linkages to identify and prepare RE projects for funding</b>	<p>There is a lack of capacities at CABEI and in other partner Financial Institutions to handle the specificities of small scale RE project for evaluation and financing.</p> <p>There is a lack of capacity for project identification and preparation. To date CABEI is only a financier, and never a project developer.</p> <p>TA funds are not channeled towards preparing small scale RE projects</p>	<p>CABEI becomes a regional player for small scale RE project financing. Partner Financial Institutions and project developers are well informed and an informal network is developing.</p> <p>CABEI develops internal capacities and every Regional Offices, can draw on CABEI internal technical expertise in RE evaluation. Regional offices know how to access the TEC fund and other TA funds available the region and support RE project developers of country of representation. Developers are aware of financing requirements.</p> <p>CABEI becomes a project developer and finances feasibility work to prepare small scale RE projects for funding</p>	<p>CABEI participates in the financing of RE projects, and mobilizes commercial co-financiers in the region (local Banks).</p> <p>New projects identified and developed by CABEI are financed.</p>
	Costs (US \$) 0	COST \$ 1,320,000 GEF \$ 590,000 CABEI \$ 730,000	TOTAL \$ 1,320,000 GEF \$ 590,000 CABEI \$ 730,000

<p><b>3: Support market penetration through expanded financing opportunities</b></p>	<p>There is limited access to loan financing in the region; In particular, concessional financing access is difficult due to high collateral requirement applicable to all funding.</p> <p>Project promoters are unable to meet all funding requirements. Their knowledge of available opportunities is also limited.</p> <p>The financial sector remains uninterested, unaware and risk adverse toward small-scale renewable energy projects.</p> <p>Missed or wasted business opportunities</p> <p>Regional energy needs are met with fossil fuel for a total levelized cost of 107 million over a 20 year period.</p>	<p>CABEI creates and manages a new guarantee fund, allowing to finance small-scale RE projects with collateral requirement near a project finance option.</p> <p>Project success ensures expanded guarantee facility for the future.</p> <p>Participation of the private sector and development of a market for small scale RE.</p> <p>5 million of concessional funds are directed towards small-scale RE projects (FALIDES) at 4 % on lending rate. CABEI is also directly using FALIDES more readily. The estimated financial contribution resulting is equal to \$ 2 to 3 million in reduced interest for 10-year loans. In addition, more than 70 million of conventional financing is directed to Small-scale RE projects.</p> <p>Levelized cost of RE option of 20 years: \$ 98 million.</p>	<p>Local stakeholders are committed to invest in RE projects,</p> <p>More projects are financed and implemented with long-term competitive loan conditions.</p> <p>Local banks are associated to CABEI financing as co-financiers.</p> <p>Financiers face less risks and are more confident to finance RE projects, resulting in improved access to funds for project developers, and development of a new know-how for the financing of the RE sector in the region.</p> <p>Private firms have access to this new market in an equitable manner.</p> <p>Technical incremental cost: \$ -9. Million</p>
	<p>Costs (US \$) 17,337,600 (Investment cost of 43 MW of diesel gensets)</p>	<p>COST \$ 86,890,000 GEF \$ 5,350,000 CABEI LENDING \$ 38,140,000 CABEI FALIDES \$ 5,000,000 OTHER LENDERS \$ 19,200,000 EQUITY \$ 19,200,000</p>	<p>COST \$ 69,552,400 GEF \$ 5,350,000 CABEI and others \$ 64,222,400</p>
<p><b>4: Evaluation and learning for adaptive management and effective barrier removal</b></p>	<p>Although the program is running efficiencies and information gaps still exist and new initiatives are not taken into account. Coordination among initiatives is poor.</p> <p>The funding community is unable to gain access to the wealth of information to adapt their offer to the market demand to finance small-scale RE projects.</p> <p>Project developers that did not have access to funding are excluded from the monitoring process.</p>	<p>Links with existing and future initiatives allowing funding feasibility work, to provide soft conditions or equity to projects are created on an on going basis.</p> <p>The complementary nature of the present initiative is maintained throughout the project lifetime and characteristics procedures and operation is constantly improved to respond to market needs.</p>	<p>Level of confidence of all players whether project promoters or FI is improved.</p> <p>The decision processes are transparent and criteria for decision-making are made widely available to interested parties.</p> <p>The project experiences are monitored, recorded, codified and disseminated to benefit other similar initiatives worldwide.</p> <p>More projects are implemented.</p>

	Costs (US \$) 0	COST \$ 660,000 GEF \$ 640,000 CABEI \$ 20,000	COST \$ 660,000 GEF \$ 640,000 CABEI \$ 20,000
<b>TOTAL OF THE PROGRAMME</b> Global Environmental Benefits	CO <sub>2</sub> emissions increase as demand for power increases,  Barriers prevent penetration of clean energy sources in isolated zones,	Reduction in CO <sub>2</sub> emissions due to new RE generation,  Gradual substitution of fossil-fuel energy sources with local RE sources,  The inclusion of small scale renewable energy within national development plans is achieved.	Estimated 172,000 thousand tons of CO <sub>2</sub> per year are avoided over a 10-year period (with objective of 34 MW of RE installed over the 5 years project), confirming the tendency to decrease CO <sub>2</sub> emissions in the region.  Conditions for a regional development of renewable energy are improved thereby increasing the chances of reduced CO <sub>2</sub> emissions at regional level.
<b>Local Benefit</b>	Project promoters of RE project have limited access to financing to implement their projects,  Monthly expenditures in fossil fuel to supply energy services.	Larger and growing supply of RE energy  Lower costs in long-term for local renewable resource power production for isolated areas,  Increased independence from import of fossil fuels.	Project developers are able to finance and implement RE projects,  Important long-term savings for public finances,  Existence of a local market of RE technologies with potential development at regional level.
<b>TOTAL</b>	Costs (US \$) 17,337,600	TOTAL \$ 89,590,000 GEF \$ 6,920,000 CABEI CASH FALIDES \$ 5,000,000 CABEI CASH LENDING \$ 37,790,000 CABEI TA funding \$ 600,000 CABEI in kind contribution \$ 880,000 OTHERS \$ 38,400,000	TOTAL \$ 72,252,400 GEF \$ 6,920,000 CABEI \$ 32,666,200 OTHERS \$ 32,666,200

## PART 2: Logical Framework Analysis

Project Strategy	Objectively verifiable indicators				
Goal	Greenhouse gas emissions reduced in the Central American Region through accelerated investment in renewable energy projects (under 10 MW) to replace energy sector investments based on fossil fuel				
Objective, Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
<p><b>Objective of the project:</b>  <b>To remove the main financial, capacity and project development barriers and to catalyze investment in small/medium scale RE projects (SMREPs under 10 MW) in Central America</b></p>	<p>Number and generation capacity of RE Projects financed by CABEI by end of project.</p> <p>Installed capacity of RE in MW by end of project</p> <p>Amount of funding leveraged by PRG mechanism</p>	<p>Minimal financing is channeled by CABEI and its IFIs to SMREPs.</p> <p>No financing mechanisms in place.</p>	<p>Financing for 30-40 MW of SMREPs committed by CABEI and its IFIs, in the form of at least 12 SMREPs.</p> <p>At least 10MW installed and operating by the end of the project.</p> <p>The \$5 million partial risk guarantee (PRG) mechanism has been used to leverage at least \$80 million for SMREP development.</p>	<p>Intermediary and final project reports and reviews.</p> <p>Official documents produced by CABEI and IFIs will report on increase in value of RE loan portfolios, and use of PRG.</p>	<p>The institutional environment and sales prices of RE are favorable enough to enable the implementation of RE projects in a profitable manner.</p> <p>Assumes that macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs)</p> <p>The financial mechanism is designed to be able to work long after the project is finished.</p> <p>Interbank relations between CABEI and the IFIs continue to be sufficiently collaborative.</p> <p>The Project relies on, but does not have full control over, private sector activities.</p>



Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
<b>Outcome 1:</b> <b>CABEI assumes a catalytic role in strategically promoting increased lending on a project finance basis to SMREPs</b>	CABEI is perceived as a leading institution for the development of SMREPs	CABEI is not involved in SMREP market.	CABEI has a strategy and a partnership with a local IFI in each member country to develop SMREPs.	CABEI Documentation.	Assumes no major energy crisis and that fuel costs will not undergo a drastic fall that would reduce the interest in RE in general.
<b>Output 1.1</b>					
Internal strategy, policy and/or procedures, and structure established within CABEI to support the financing of SMREPs in the region	Financing SMREPs has been fully mainstreamed in CABEI's energy sector strategy; unit supporting SMREP financing exists; staff are aware of policies/procedures	CABEI not involved in financing SMREPs.	Active pipeline and portfolio of SMREPs in CABEI by end of year 3	CABEI internal documents, including staff surveys; annual reports; website and other literature mentioning RE activities.	Assumes no major energy crisis and that fuel costs will not undergo a drastic fall that would reduce the interest in RE in general.
<b>Output 1.2</b>					
Regional renewable energy market analysed on an ongoing basis	Regional energy market characteristics (policy, pricing, taxes) available to CABEI and IFI staff on an ongoing basis.	Little consolidated information available on the SMRE market on an ongoing basis.	Review of policy and regulatory frameworks on each country is available.	Publications and Media release, and/or documents produced by CABEI.	Assumes no major energy crisis and that fuel costs will not undergo a drastic fall that would reduce the interest in RE in general.

<b>Outcomes and Outputs</b>	<b>Indicator (quantified and time-bound)</b>	<b>Baseline</b>	<b>Target</b>	<b>Sources of verification</b>	<b>Risks and Assumptions</b>
<b>Output 1.3</b>					
Formalized synergies established among available and future financial institutions and instruments relevant for financing of SMREPs on a project finance basis	Simplified documentation relating to small-scale renewable energy identifying all equity, loan, concessional loans and guarantees and publication of periodic reviews for benefit of RE project sponsors	No document available outlining available RE financing and related instruments	Document relating to SMREPs identifying all equity, loan, concessional loans and guarantee is elaborated and widely disseminated by end of project year 1. Updated as necessary.	CABEI documentation	Assumes no major energy crisis and that fuel costs will not undergo a drastic fall that would reduce the interest in RE in general.
	Periodic meetings between CABEI and IFIs to develop synergies in relation to SMRE project finance.	No active review within CABEI and partner IFIs on financing and related instruments available for RE	At least one annual workshop with CABEI and participating IFIs focused on small scale renewable energy project financing	List of participants and workshop report	
<b>Outcome 2:</b>	<b>Indicator (quantified and time-bound)</b>	<b>Baseline</b>	<b>Target</b>	<b>Sources of verification</b>	<b>Risks and Assumptions</b>
<b>CABEI and IFIs have developed the capacity (technical and financial) to finance SMREPs</b>	CABEI (Headquarters and Country Offices) and IFI's are identifying and evaluating SMREPs	No specific focus on, and support for, SMRE in lending portfolio within CABEI and regional IFIs	Evaluations of SMREP projects are conducted by CABEI's country office and partner IFIs in each member country.	CABEI and IFIs staff survey	Risk that the technical and financial skills of some beneficiaries are so low that takes a long time to become sufficiently capacitated.

Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
<b>Output 2.1</b>					
In-house capacity developed in CABEL Head Office, Country Offices and IFIs to identify/evaluate/finance SMREPs and implement the PRG	Seminars and training sessions on RE project financing offered	No training available	Trained and specialized human resources are in place in CABEL Head Office, Country Offices, and Partner IFIs to assess SMRE projects (80 to 100 individuals)	Reports on capacity development workshops/seminars. Number of trained people working in CABEL/IFIs by the end of the project.	IFIs place the qualified personnel required to undertake more advanced project analysis work at the disposal of the project, to work closely with CABEL and the Project Coordinator - Project Finance Specialist
<b>Output 2.2</b>					
Increase awareness of SMREP financing (including PRG) opportunities and modalities among all relevant stakeholders, including RE project developers in particular	Awareness among IFIs regarding CABEL's RE financing strategy.  Availability of promotional material	No information on RE financing or consolidated training materials (including use of PRG) and opportunities available to increase awareness and overall capacity to ultimately finance SMREPs  No consolidated information available	Training sessions on business planning and RE project financing offered. Workshops to disseminate financing modalities and train stakeholders on project development, business planning, utilization of PRG, and banking proposal preparation. At least one training event in each country (30 participants) for project developers, NGOs, and potential investors over the project lifetime.  Promotional materials prepared and disseminated	Training materials, list of participants, and survey of usefulness of training activities and materials. Survey of project proponents and other stakeholders.  Materials available (website, published and disseminated)	

Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
<b>Output 2.3</b>					
Feasibility work funded through CABI and other pre-feasibility funding sources	Internal guidance available regarding feasibility funding, including the option of receiving TA funding from CABI on a reimbursable loan basis	Few RE projects receiving TA for feasibility work	Feasibility studies for at least 10 to 15 projects have been prepared by the end of the project.	Internal guidelines and completed feasibility studies	
<b>Outcome 3:</b>					
Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
<b>SMREPs receiving financing through the Partial Risk Guarantee Facility and other innovative financing mechanisms</b>	Number of loans through PRG to SMREPs approved by CABI and IFIs  Reduced collateral requirements by IFIs for SMREPs	Number of loans for SMREPs is small, and none make use of a Guarantee Fund  Collateral requirements of up to 150% of debt value	10 - 20 loans approved to SMREPs by end of project  Collateral requirements and/or financing terms and conditions significantly improved for SMREPs	Loan approvals and documentation	Macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs) A sufficient number of SMREP projects of underlying financial viability can be identified and processed, with due application of the PRG facility.
<b>Output 3.1</b>					
Partial Risk Guarantee (PRG) mechanism established and operational	PRG mechanism is established and operational within CABI, including all required supporting documentation prepared and disseminated for PRG	No guarantee instrument available for RE projects.	RE Guarantee Fund is established within CABI during the first year of project	Annual report, including review of Fund status. Report from CABI and IFIs on guarantee applications contracts	Macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs)

Outcomes and Outputs	Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions
			Loan guarantee operational manuals issued, cleared and disseminated  IFIs familiar with Guarantee program and make use of available documentation appropriately.	Loan guarantee manuals  Survey of IFIs and project developers	
<b>Output 3.2</b>					
SMREPs identified, evaluated, and/or financed	RE projects identified, evaluated and/or financed.  PRG mechanism accessed.  Investments triggered.	Few RE projects financed, and none making use of a Guarantee Fund	5-10 projects financed by PRGM by end of year 3. PRG mechanism has triggered approximately US\$ 80 M in investment in SMREPs by end of project	Report from CABEI and IFIs on SMREP financing	Macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs)
<b>Output 3.3</b>					
Replication and exit strategy implemented	CABEI's success in attracting other investors	N/A	From year 4, interested parties approach CABEI with concrete proposal for recapitalization amounting to around US \$ 5 million. Agreement signed by project end.	Project monitoring and decision documents. CABEI project related website and outreach publications.	Macro-economic conditions continue to favor the development of RE power projects (including high fossil fuel costs)
<b>Outcome 4:</b>					
Indicator (quantified and time-bound)	Baseline	Target	Sources of verification	Risks and Assumptions	
<b>Evaluating, learning and adaptive management are ensured</b>	The Project applies lessons learned and adapts to the changing environment, thereby achieving its objective	N/A	Project on schedule, meeting objective and targets.	PSC reports, mid-term and final project evaluations	
<b>Output 4.1</b>					

Comprehensive project impact monitoring and analysis system established	High-quality information available for the project manager, project team and key stakeholders for decision-making	N/A	Tracking and analysis of project implementation (reports and reviews).	Regular monitoring exercises and reports.	
	External evaluations and financial audits prepared	N/A	All evaluations and audits conducted on time.	Evaluation and audit reports	
<b>Output 4.2</b>					
Adaptive management systems established to inform and adjust project implementation based on lessons learned from monitoring system	Bi-yearly revision of project Logical Framework and implementation strategy based on inputs from monitoring system. This project will adapt the financial instrument should this one not meet expectations.	N/A	A yearly (minimum) set of recommendations is issued and taken into account for adaptive management.	Periodic project reports and reviews, minutes of the PSC, annual meeting reports.	
<b>Output 4.3</b>					
Regional information dissemination of project lessons and best practices for SMREP development and financing	Opportunities for stakeholders to learn about regional experience with SMREP development and financing	N/A	Material available on the project's website accessed by interested parties.	Lessons learned reports	

**Table 11. Indicative Outputs, Activities and quarterly workplan<sup>6</sup>**

Outputs	Activity	Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Recruit Coordinator																				
	Inception Workshop																				
1.1 Internal strategy, policy and/or procedures, and structure established within CABEI to support the financing of small/medium scale RE projects in the region	1.1.1 Develop / implement institutional, HR, policy, procedures for SMREPs																				
	1.1.2 Develop SMREP promotion and related financing guidelines																				
1.2 Regional renewable energy market analysed on an ongoing basis	1.2.1 Comprehensive small scale regional RE market analysis / updates																				
1.3 Formalized synergies established among available and future financial institutions and instruments relevant for financing of SMREPs on a project finance basis	1.3.1 Monitor RE market fin. / tech. developments / institutional synergies																				
	1.3.2 Conduct ongoing interactions with IFIs																				
2.1 In-house capacity developed in CABEI Head Office, Country Offices and IFIs to identify/evaluate/finance SMREPs and implement the PRG	2.1.1 Disseminate RE fin. strategy / project pipeline identification workshop																				
	2.1.2 Capacity-building CABEI / IFI key personnel in SMREP finance																				

<sup>6</sup> Outputs and activities to be verified and confirmed during Inception Workshop and yearly meetings/workshops

Outputs	Activity	Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.2 Increase awareness of SMREP financing (including PRG) opportunities and modalities among all relevant stakeholders, including RE project developers in particular	2.2.1 Workshops to disseminate financing modalities and train stakeholders																				
	2.2.2 Prepare promotional material on RE financing																				
2.3 Feasibility work funded through CABEL and other pre-feasibility funding sources	2.3.1 Establish mechanism to finance feasibility work																				
3.1 Partial Risk Guarantee mechanism established and operational	3.1.1 Design legal / contractual documentation re PRG & finance																				
	3.1.2 Develop RE projects loan guarantee forms, procedures, manual																				
	3.1.3 Finalize agreements between CABEL and IFIs, CABEL and UNDP																				
	3.1.4 Capitalize and operationalize fund																				
3.2 SMREPs identified, evaluated, and/or financed	3.2.1 Finance small scale RE projects with the use of the PRG																				
Project # 1 Activities (indicative)	Evaluation					P1		P2		P3		P4		P5		P6		P7		P8	
	Structuring						P1		P2		P3		P4		P5		P6		P7		P8
	Financing							P2		P2		P3		P4		P5		P6		P7	



Outputs	Activity	Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3.3 Replication and exit strategy implemented	3.3.1 Design and Implement Project Exit/Replenishment Strategy																				
	3.3.2 Seek Replenishment Commitment From Other Sources																				
4.1 Comprehensive project impact monitoring and analysis system established	4.1.1 Monitor performance indicators (financial / technical / CC impact)																				
	4.1.2 Reporting system defined and operational																				
4.2 Adaptive management systems established to inform and adjust project implementation based on lessons learned from monitoring system	4.2.1 Adaptive management approach elaborated and adopted																				
	4.2.2 PSC review analysis and recommendations / corrections																				
4.3 Regional information dissemination of project lessons and best practices for SMREP development and financing	4.3.1 Dissemination meetings on project results																				
	4.3.2 Lessons learned from program prepared & disseminated																				

## SECTION III Total Budget and Workplan

Award ID: **00043791**Award Title: **PIMS 2042 CC: FSP ARECA**Project ID: **00051217**Project Title: **FSP Accelerating Renewable Energy Investment through CABEI in Central America**

GEF Outcome/Atlas Activity	Resp. Party	Source of Funds	ATLAS Budget Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total (USD)
OUTCOME 1: CABEI assumes a catalytic role in strategically promoting increased lending on a project finance basis to SMREPs	CABEI	GEF	71200 International Consult	9,200	5,750	4,600	3,450	0	23,000
			71300 Local Consultants	5,000	5,000	3,000	0	0	13,000
			71600 Travel	1,500	2,500	2,500	2,000	1,500	10,000
			71400 Cont. Services	22,000	18,000	18,000	12,000	10,000	80,000
			74500 Miscellaneous	1,000	1,250	1,250	1,000	500	5,000
<b>1</b>			Sub-total	<b>38,700</b>	<b>32,500</b>	<b>29,350</b>	<b>18,450</b>	<b>12,000</b>	<b>131,000</b>
OUTCOME 2: CABEI and FIs have the capacity to finance SMREPs	CABEI	GEF	71200 International Consult	12,000	18,000	20,000	15,000	15,000	80,000
			71300 Local Consultants	26,000	26,000	24,000	24,000	20,000	120,000
			71600 Travel	5,000	10,000	10,000	10,000	5,000	40,000
			71400 Cont. Services	53,000	45,000	30,000	30,000	22,000	180,000
			74500 Miscellaneous	2,500	2,500	2,000	1,500	1,500	10,000
<b>2</b>			Sub-total	<b>98,500</b>	<b>101,500</b>	<b>86,000</b>	<b>80,500</b>	<b>63,500</b>	<b>430,000</b>
OUTCOME 3: SMREPs receiving financing through the partial risk guarantee facility and other innovative financing mechanisms	CABEI	GEF	71200 International Consult	8,000	14,000	0	0	10,000	32,000
			71300 Local Consultants	10,000	20,000	0	0	10,000	40,000
			71600 Travel	2,500	5,000	5,000	5,000	2,500	20,000
			72600 Grants	0	5,200,000	0	0	0	5,200,000
			74500 Miscellaneous	3,500	3,250	3,000	3,000	2,250	15,000
<b>3</b>			Sub-total	<b>24,000</b>	<b>5,242,250</b>	<b>8,000</b>	<b>8,000</b>	<b>24,750</b>	<b>5,307,000</b>
OUTCOME 4: Evaluating, learning and adaptive management are ensured	CABEI	GEF	71200 International Consult	15,000	30,000	35,000	15,000	55,000	150,000
			71300 Local Consultants	5,000	10,000	15,000	5,000	15,000	50,000
			71600 Travel	4,000	8,000	12,000	4,000	12,000	40,000
			71400 Cont. Services	23,000	24,000	22,000	22,000	14,000	105,000
			71500 Miscellaneous	2,000	2,000	3,000	2,000	1,000	10,000
			74200 AV & Print Costs	1,500	2,500	3,300	2,000	1,700	11,000
<b>4</b>			Sub-total	<b>50,500</b>	<b>76,500</b>	<b>90,300</b>	<b>50,000</b>	<b>98,700</b>	<b>366,000</b>
PMU	CABEI	GEF	71200 International Consult	78,000	78,000	78,000	78,000	78,000	390,000
			71300 Personnel (LocCons)	0	25,200	25,200	25,200	25,200	100,800
			71600 Travel	23,000	23,000	23,000	23,000	23,000	115,000
			71500 Miscellaneous	3,040	3,040	3,040	3,040	3,040	15,200
			72800 IT Equip	5,000	2,500	1,500	1,000	0	10,000
			73100 Rental Premises	10,000	10,000	10,000	10,000	10,000	50,000
			74200 AV & Print Costs	1,000	1,000	1,000	1,000	1,000	5,000
<b>PMU</b>			Sub-total	<b>120,040</b>	<b>142,740</b>	<b>141,740</b>	<b>141,240</b>	<b>140,240</b>	<b>686,000</b>
			<b>TOTAL</b>	<b>331,740</b>	<b>5,595,490</b>	<b>355,390</b>	<b>298,190</b>	<b>339,190</b>	<b>6,920,000</b>

## SECTION IV Additional Information

### PART 1: Other agreements



HARRY E. BRAUTIGAM  
PRESIDENTE

#### BANCO CENTROAMERICANO DE INTEGRACION ECONOMICA

TELEFONOS 240-2222 Y 240-2230 FAX 240-2101  
APARTADO POSTAL 772, TEGUCIGALPA, M. D. C., HONDURAS, C.A.

February 12, 2007

Mr. Frank Pinto  
Executive Coordinator  
UNDP-GEF  
Washington, DC.  
United States of America

Dear Mr. Pinto,

Regarding the Regional Project ARECA "Accelerating Renewable Energy Investment in Central America through CABEL", we would like to inform you our compliance by having presented the project inside the committed time schedule. Our executives have worked diligently with UNDP's personnel in order to achieve the proposed goal. This is a reflection of CABEL's commitment in the development of small and medium scale renewable energy projects in the Central American region.

CABEL, after having developed two important Projects with GEF and UNDP: The Central American Markets for Biodiversity (CAMBio) and the Program for Energy Efficiency in the Industrial and Commercial Sectors in Honduras (PESIC), is once again supporting the initiative of actively working towards improving the energy and environment conditions in the Isthmus through the acceleration of renewable energy investments in the ARECA project.

In compliance with GEF's guidelines and demonstrating its commitment to executing and bringing to terms the ARECA project, CABEL is pledging a participation amount of approximately US\$25 Million in direct loans to cofinance small and medium size renewable energy projects under a project finance mode in the region. CABEL will also be providing support with US\$500,000 in kind and US\$600,000 as cofunding for finance feasibility studies for renewable energy projects through existing CABEL lines.

We look forward to working together and joining our efforts in promoting the development of renewable energy in the region.

Sincerely,

cc: Mrs. Rebeca Arias, Resident Representative, UNDP-Honduras

WM/MB

D&C-028/2007

## **PART 2: Terms of References for key project staff**

### **The Coordinator – RE Project Financing Specialist**

#### **I. Overview**

The Coordinator – RE Project Financing Specialist will be contracted by CABEI and financed through ARECA Project funds. (S)he will work will occupy a pivotal position at the heart of the ARECA Project, working in close collaboration with CABEI’s designated Programme Officer to ensure the success of the Project, as well as the effective management of its various activities. (S)he must bring to the Project the necessary skills and experience to ensure the following overall objectives:

- a. The effective and timely transfer of all necessary information and expertise to CABEI required to ensure CABEI’s acquisition of a proper understanding of the specific financial parameters and requirements of small and medium scale RE projects being developed in an emerging market region such as Central America, in such a fashion that CABEI may competently and rapidly assume the catalytic role in the SMREP financing market which is inherent in its participation in the ARECA programme. Such parameters will include:
  - Advanced project evaluation methodologies serving to design appropriate financing packages on a project by project basis, in such a fashion as to maximize the project’s inherent financial viability (limited recourse financing), and to move away from reliance on additional security provided shareholders and investors in the form of pledged personal assets;
  - An intimate knowledge of state of the art RE project financing structures and instruments;
  - Knowledge of available providers of RE financing (both equity and debt), including multilateral institutions, bilateral ODA-type entities, specialized funds, etc, so that CABEI may establish proactive working relations with those most likely to support the funding of SMREPs in the region;
  - The design of appropriate interbank and co-financing modalities to maximize the contribution of the IFI network alongside CABEI.
- b. CABEI’s design and implementation the GE-funded PRG facility, including documentation, terms and conditions of operation, applicable criteria, internal institutional and administrative arrangements, interbank arrangements, etc.;
- c. CABEI’s direct participation in activities serving to disseminate awareness of the PRG among financial intermediaries, including the organization of appropriate workshops for the benefit of IFIs, RE project promoters, and other interested “players” in the SMRE market;
- d. The provision of support to CABEI (as necessary) in the negotiation of interbank agreements relating to the application of the PRG;
- e. The cost-effective and professional management of the ARECA programme, with particular regard to the delivery of the programme Objective and Outputs, the capacity-building activities, the provision of all reports and other information permitting adequate monitoring of programme advancement, etc.

(S)he will in addition oversee the activities of the *Young Professional* who will be hired to support the Coordinator – RE Project Financing Specialist. His/her performance will be measured in large part according to whether the Outcome and Outputs, as well as the target indicators, are achieved as per the Logical Framework Matrix.

**II. Responsibilities related to specific project outputs**

<b>Output</b>	<b>Coordinator – RE Project Financing Specialist</b>
1.1 Internal strategy, policy and/or procedures, and structure established within CABEL to support the financing of small/medium scale RE projects in the region	<ul style="list-style-type: none"> <li>Work with the CABEL executives allocated to the ARECA Project to acquire the necessary expertise in SMREP financing, with a view to establishing the appropriate internal institutional arrangements and procedures serving to enhance CABEL's role in the evaluation of RE projects, the mobilization of financial resources (both inside CABEL and at the level of the IFIs) and the structuring of appropriate finance packages for candidate projects.</li> </ul>
1.2 Regional renewable energy market analysed on an ongoing basis	<ul style="list-style-type: none"> <li>Contribute to the identification of appropriate sources of information and ensure that analysis produces usable information for market participants.</li> </ul>
1.3 Formalized synergies established among available and future financial institutions and instruments relevant for financing of small-scale RE projects on a project finance basis	<ul style="list-style-type: none"> <li>Support CABEL executives in the identification of, and establishment of good working relations with, other institutions and programmes contributing to the development of the RE market in the CA region, whether of a financial or other nature. Assist in the identification and evaluation of new financing instruments targeted at the RE sector, to assess their relevance to the actions of CABEL under this Project.</li> </ul>
2.1 In-house capacity developed in CABEL Head Quarters, Country Offices and IFIs to identify/evaluate/finance SMREPs and implement the PRG	<ul style="list-style-type: none"> <li>Work with in-house credit officers and energy sector expert to design a training programme for the credit managers and officers in CABEL's headquarters and Regional Offices, with a view to preparing a preliminary project finance-based set of project evaluations tools and methodologies, backed up by appropriate credit and other facilities, and specifically the PRG. Once this preparatory work has been completed and agreement has been reached internally in CABEL as to the optimal manner in which such the financial institutions in the region should participate, establish working relations with the IFIs based on training and the joint design of RE lending and promotion strategies.</li> <li>Assist CABEL as necessary in the selection of the IFIs for the training programme</li> <li>In follow up to the training provide one on one consultations with IFIs to sensitize and consult senior management of banks in the nature of the SMREP market and project evaluation and lending tools, with particular reference to the PRG</li> <li>Work with CABEL's executives to design standard SMREP project concepts and financing structures</li> <li>Work with CABEL's executives to develop standard templates and guides to assist both the Bank Officers and IFIs to facilitate their project appraisal and assist clients in structuring of RE business financing, and;</li> <li>Design a scale up of the training programme to build capacity in as many financial institutions as feasible</li> <li>Work with CABEL's executives to finalize interbank modalities and operating procedures for the PRG facility</li> <li>Finalize financial management and contractual arrangements with GEF/UNDP and the participating financial institutions as necessary</li> <li>Work with CABEL and IFIs to launch the PRG facility</li> <li>Work with CABEL's executives to design and implement a monitoring system for the use of the funds, modify on the basis of lessons learned and further develop the PRG instrument as necessary</li> </ul>
2.2 Increase awareness of SMREP financing (including PRG) opportunities and modalities among all relevant stakeholders, including RE project developers in particular	<ul style="list-style-type: none"> <li>Assist CABEL and its Regional Offices in the design and implementation of activities serving to increase awareness of the Bank's new lending strategies directed at the SMREP sector, for the benefit of all participants in the RE market and SMREP developers in particular.</li> <li>Involve as necessary third party institutions in the process.</li> </ul>
2.3 Feasibility work funded through CABEL and other pre-feasibility funding sources	<ul style="list-style-type: none"> <li>Assist CABEL's executives in the application of funds set aside for feasibility studies on short-listed projects, in particular determining the scope and TORs of such work and the most cost efficient manner to identify, evaluate and contract advisors.</li> <li>Assist in the identification of complementary sources of feasibility study funding, through a dialogue with the IDB's INFRAFUND and similar instruments.</li> </ul>
3.1 Partial Risk Guarantee fund established and operational	<ul style="list-style-type: none"> <li>Assist CABEL's executives in finalizing all relevant aspects of the PRG</li> <li>Support CABEL's executives in getting the PRG mainstreamed both at the level of CABEL and of the IFIs</li> </ul>

Output	Coordinator – RE Project Financing Specialist
3.2 SMREPs identified, evaluated, and/or financed	<ul style="list-style-type: none"> <li>• Support the process of pilot SMREP identification and selection.</li> <li>• Participate directly as required in the negotiations with SMREP borrowers to ensure the smooth and cost-effective application of the PRG facility, in line with criteria and parameters determined under Output 2.1 above, and in the design of an overall project funding structure per project</li> <li>• Support as necessary CABEL's executive in the syndication of the final financing package</li> </ul>
3.3 Replication and exit strategy implemented	<ul style="list-style-type: none"> <li>• Support CABEL's executives in the design of measures and steps serving to replicate the PRG facility and any other innovative financial instruments developed in the context of the ARECA Project.</li> <li>• Working with CABEL's executives, the PSC and GEF / UNDP personnel, determine the optimum strategy for the follow-on stage of the ARECA Project, if appropriate.</li> </ul>
4.1 Comprehensive project impact monitoring and analysis system established	<ul style="list-style-type: none"> <li>• Working with CABEL's and IFI executives, as well as GEF / UNDP personnel, contribute to the design of a methodology for the evaluation of the Project's impact (financial, environmental, social and economic), with particular reference to the identification of positive and negative lessons learned.</li> </ul>
4.2 Adaptive management systems established to inform and adjust project implementation based on lessons learned from monitoring system	<ul style="list-style-type: none"> <li>• On the basis of the latter, and working with CABEL's executives, the PSC and GEF / UNDP personnel, assist in the design of follow-on measures which take full account of the lessons learned and assessed under 4.1</li> </ul>
4.3 Regional information dissemination of project lessons and best practices for SMREP development and financing	<ul style="list-style-type: none"> <li>• Assist CABEL's executives and GEF / UNDP personnel in the preparation of workshops, seminars, promotional and informative material, designed for a regional audience of all stakeholders in the RE market, drawing particular attention to the benefits of the ARECA project, the lessons learned and recommendations for future actions of this kind.</li> </ul>

### III. Period and duration

The Coordinator – RE Project Financing Specialist position will be filled as soon as possible following the start of the project and will be financed over a period of five years. It is the intention that his/her responsibilities will be assumed by CABEL staff at the end of this period.

### IV. Qualifications

- At least 10 years of project financing and general banking experience (preferably with a significant proportion of this time spent working alongside Latin American financial institutions), including direct experience of institutional structures, interbank relationships, project financing capacity building and SME business financing, and a general familiarity with the financial context of the Latin American region;
- At least 5 years of experience acquired in the field of RE project financing, specifically small and medium RE project design, financing and implementation arrangements. Particular merit will be attached to proven experience in the application of limited recourse and similar project evaluation and delivery methodologies (such experience to be backed up with detailed examples of projects completed over the preceding 5 years, as well as references from relevant institutions / clients);
- At least 5 years of experience acquired in the field of development and technical cooperation, preferably with the Latin American public sector and with multilateral institutions such as the World Bank, IDB, UNDP, etc.;
- Proven experience in successfully working with adaptive management/monitoring & best practice assessment;
- Well developed leadership, inter-personal, communication and negotiating skills, as well as a proven ability to work effectively in groups and to support the design of thematic workshops and seminars;
- Post-graduate specialization in relevant area, e.g., finance or development, desirable but not essential if relevant hands-on experience is adequately demonstrated;
- Reliability, initiative, thoroughness and attention to detail; and,
- Bilingual English and Spanish with full working proficiency in each.

## **PART 3: Stakeholder Involvement Plan**

### **A. Summary of stakeholder consultations held during project preparation**

#### *A.1 Initial workshop during the PDF-B stage, August 2001*

1. This workshop took place at CABEI headquarters in Tegucigalpa, Honduras. The workshop was organized together with CABEI and stakeholders from productive sectors, international organizations, private and public utilities, government authorities, financial institutions, NGOs and academia were invited. This seminar promoted partnerships between international stakeholders, governments and commercial energy sector enabling their further involvement for the project execution stage. These discussions helped to generate the basic concept underlying the present proposal.

#### *A.2 Regional consultations, 2002-2004*

2. In order to present the final project design, bilateral discussions were held with stakeholders in each initial project participating country in replacement of a final regional workshop. Given the importance of the project launch, a regional workshop, with special attention to new participating country Panama, was considered more appropriate at the Full Size Project inception phase and has been programmed as such.

### **B. Planned stakeholder involvement in full project**

3. The project's success will require close relationships and networking with the various relevant stakeholders and players. It aims to build on existing structures and good practices, especially in the financing field, rather than to establish new and heavy structures. The driving principles are to maintain transparency, best practices, compliance, control and accountability. This would strengthen the sustainability of the introduced activities and instruments. The roles of the various stakeholders are outlined below.

#### ***CABEI***

4. CABEI will be the key organization involved in generating environmental benefits through its commercial financing to eligible SMREPs. It will be both the executing agency for the GEF contribution and the main co-financier, and as such has been integral to the design and development of this project. The GEF-sponsored financing incentive instrument, in the form of the Partial Risk Guarantee (PRG) will be deployed by CABEI to assist its partner IFIs in making the overall lending package to individual SMREPs more attractive to borrowers.

5. CABEI will be responsible for the management of the ARECA funds and will report on their use to the Project Steering Committee. Lending to the IFIs will follow the general criteria established under the SMREP facilities. As an indication, it is expected that the PRG facility will be leveraged over the life of the Project on a 1 : 3 average ratio. That is to say, the PRG is expected to guarantee up to US\$ 11.25 million of IFI loans to SMREPs, assuming an additional average guarantee release of 25 % over the life of the Project. CABEI will also be the host and day-to-day coordinating and organization, with oversight from UNDP Honduras, for the technical assistance activities provided under the project, and especially those directed toward the IFIs.

6. The key collaborating unit will be the Department of Development and Competitiveness (at CABEI headquarters, as well as the focal points at the Regional Offices). The Energy Focal Point will be consulted in matters relating to RE, and in common policy directions, as the unit is also responsible for the GEF/UNDP CAMBio Project implementation within CABEI. CABEI will manage the overall monitoring of the financing program, will oversee the progress made by the IFIs, and will take corrective measures when necessary, with support from the project team.. ARECA project components will remain

an integral part of CABEI's regular activities beyond the life of the project. CABEI staff will also benefit from capacity building related to promotion, appraisal and monitoring of SMRE projects. CABEI will chair the Project Steering Committee (PSC). For more detail on implementation arrangements, please refer to Section I, Part 3 of this document.

### ***Financial Intermediaries***

7. CABEI's network of intermediary financial institutions (IFIs) already make use of CABEI credit line facilities within the framework of their overall credit ceiling with CABEI. The PRG, designed to soften the terms of IFI lending to SMREPs, will be made available to qualifying and viable SMRE investments and businesses through the IFIs. The IFIs are the main interface with potential SMRE clients, as it is expected that they will act as the "front line" in the process of RE project identification and development in each CA country, and therefore the role of the IFIs in this project is crucial to success. The proposed PRG instrument has already been discussed initially, and in general accepted and considered beneficial. The IFIs will be in a key position to "feel the market" as the project takes off, and will be able to obtain feed-back in relation to the suitability of the financing incentives as well as the relevance of the RE market promotion activities provided to their SMRE clients. This will provide the essential inputs for any adjustments needed on the instruments, in order to enable financing to materialize. The IFIs are expected to guide their clients in designing appropriate RE orientation in the projects and also lead them to the project TA providers for support in business planning. As the IFIs normally do limited marketing and proactive project identification, the TA provided through partnerships with other active players in that field will help to inject suitable SMRE project pipeline to the participating banks. The IFIs will also be represented in the PSC.

8. The IFIs will benefit directly from the project's TA in the context of the capacity building activities foreseen under Output 2 and Activities 3.1.1 and 3.1.2. When deemed necessary, the commercial banks will be subject to intensive on-the-job training by the project team and local TA providers. Training will focus on revenue-based lending techniques, project appraisal, and innovative alternative structured financing instruments and solutions. In addition, they will be acquainted with SMRE business, its promotion, appraisal and monitoring tools. The project will also help the IFIs to establish networks with SMRE-promoting institutions to boost their SMRE project identification abilities.

### ***CCAD***

9. CCAD will be among the project's main strategic alliances, as it is in a strong position to provide the project with networks and liaisons for environmental legislation and policy related issues, due to the fact that it already plays a pivotal role in the regional efforts in harmonization of the promotion of SMRE approaches by the regional Governments. As a member of the PSC, CCAD will also be able to bring feed-back to Governments from the business and financial communities on the actual SMRE business environment, and the obstacles that exist with regard to implementation of SMRE policies and incentives.

### ***National Ministries of Environment***

10. The project will work closely with the national government, especially with the Ministries of Environment, in each of the seven countries through UNDP and CABEI country offices.

### ***Sector Associations, Chambers of Industry and Commerce***

11. The sector and industry associations and chambers are key channels to their members, which are potential SMRE clients. As banks do very limited promotional work in specific fields, such as SMRE, these associations will take on an important role in project promotion and identification. They will be motivated and mobilized by the project through national seminars and other types of awareness creation



to become strong proponents of SMRE approach. The dialogue will also provide feed-back on the project activities, priorities and instruments, and will help focus them properly.

***Technical Assistance Service Providers, and Institutions and consultants providing project financing expertise, business planning and management support***

12. The main input comes through the Project Coordinator – RE Project Finance Specialist. In the event of additional inputs being required, to address specific technical or financial aspects, recourse would be had to such institutions as NGO's, business schools and consulting firms. Close cooperation with the specialized financing institutions has been included in the plans. The format for co-operation, whether formal agreements and /or program/sector/project level work will be agreed during the inception period. It is however clear that the proposed program would not duplicate efforts already taking place or planned, but will provide channels for adequate volumes of financing, to improve the business climate as well as contributing to improved project development and business planning activities. The identification of potential financial institutional partners to work alongside CABEI and IFIs is specifically foreseen under activity 1.3.1.

## Part 4: Partial Risk Guarantee Facility

### 1. PURPOSE AND CONTEXT

The overall impact of the Project in the Central American sector of RE project financing can be summarized as follows:

- to promote greater investment in small and medium sized RE projects through the dissemination of more sophisticated RE project evaluation and lending mechanisms, replacing the traditional asset-based corporate finance approach with more revenue-based project financing backed up by appropriate risk analysis and mitigation techniques;
- to introduce a partial risk guarantee (PRG) mechanism as an incentive to support the above objective;
- to conduct relevant capacity-building activities to facilitate the above; and,
- to strengthen the catalytic role of CABEL in this context.

Guarantee instruments are increasingly being used by multilateral financial institutions, in order to facilitate the financing of energy and environmental projects and investments in emerging markets. The experiences have been encouraging. Guarantees can be used to stimulate private sector financing to commercially viable climate change projects, by reducing the risk for private sector lenders, by mitigating specific risks or barriers inherent in RE projects that lenders are reluctant to bear. The essence of good banking being appropriate risk management, the purpose of this type guarantee is to persuade the commercial banks to provide medium and long term loans with lower collateral requirements than they normally require, and still manage their overall risks.

The proportion of the total debt covered by a partial risk guarantee (PRG) mechanism of the kind foreseen in this Project will vary from project to project, as will the nature the risks covered, but will normally cover in the range of 20 – 35 % of the loan amount, being high enough to decrease the commercial risk perception of the banks and enable more risk taking. The percentage guaranteed should be low enough to ensure that the lending institution still conducts the appropriate due diligence and risk analysis, thereby addressing the longer term objective of supporting the banks to introduce revenue based (as against asset based) lending policies and practices, based on an appropriate analysis of the underlying financial viability of the investment rather than on reliance on the creditworthiness of the client.

The broad issue of project risks can be broken into broad categories:

- a) the barriers to project implementation which have been analysed in Section I, Part 1 (subsection 1.4) of the Project Document, which are generally of a financial nature; and,
- b) the range of technical and other project implementation risks, as briefly listed in Box 1 and covered in greater detail in Section IV, Part 5.

#### Box 1. Non-financial Risk Factors (selection)

- Inadequate knowledge of the RE sector
- Intermittent resources (wind / solar / etc)
- Design Risk
- Licences / permits
- Construction Risk
  - delays
  - cost overruns
  - import restrictions / delays
- Operating Risk
- Fuel price instability
- Political Risk
- Currency Risk / Economic Risk, e.g.
  - foreign currency availability and convertibility
  - inflation
- Technology / Performance Risk
- Off take Agreement Risk (PPA / ERPA)
- Regulatory Risk
- Tariff / energy price policies
- Legal / lender recourse
  - changes in law
  - obstruction of an arbitration process
  - expropriation and nationalization

The process of identification and selection of the risks which the proposed PRG will remove or mitigate, involving a proactive dialogue between CABEI and the IFIs, with the support of the ARECA Coordinator – Project Finance Specialist, as per Activities 2.1.1 and 3.1.2 of the Log Frame, will serve to identify and quantify the type of risk which the PRG should address.

The introduction of a partial risk guarantee mechanism is intended to promote the systematic adoption by bank credit departments and officers of more sophisticated project appraisal and project financing methods to a larger extent than at present. In addition, the PRG would help persuade the banks to shift their presently conservative lending practices to include small and medium RE potential investors as new clientele to the banks.

### **1.1 The catalytic role of CABEI in the Project**

CABEI currently works with more than 130 intermediary financial institutions (IFIs) in the region, and therefore sits at the centre of an efficient financing network throughout the region. Every financial institution forming part of the CABEI network has to qualify as an IFI in the first place, and will be given a credit line from CABEI appropriate to the scale of its operations, the historical soundness of its loan portfolio, practices and compliance with various other indicators of good governance and prudent banking practice. The banks can draw on funds for on-lending up to the ceiling either from CABEI's ordinary resources or from the various special funds and facilities supported by foreign and international funding. Financial performance and loan portfolios are reported by the banks and monitored by CABEI on a quarterly basis. In the event that performance fails to keep within the minimum acceptable criteria, the CABEI lending limit will be decreased or closed until the minimum standards have been resumed. One key criterion is the non-performing loan rate which cannot exceed 5% of the total loan portfolio.<sup>7</sup>

CABEI traditionally participates indirectly and directly in lending to projects in the region: indirectly through the IFI making use of its credit lines with CABEI to fund its lending to the project and directly by CABEI participating on a “cofinancing” basis, structuring the finance directly with the project, with the IFI funding its portion of the debt out of non-CABEI credit lines. Whilst in the former example, CABEI relies on the credit evaluation of the IFI and plays no direct role in the financial structuring, in the latter, it is CABEI's internal credit evaluation and project structuring departments that take the lead and effectively determine the nature of the financial package.

It is the current view of CABEI that, in the context of this Project, and given its interest in playing a fuller catalytic role in the funding of small and medium sized RE projects in the region, the second modality is likely to be the most appropriate model.

The PRG instrument would be introduced into the present CABEI armoury of lending instruments, to be used principally in situations in which CABEI and the IFI have worked jointly on the project evaluation and financial structuring for the RE project (“cofinancing” modality), as an incentive for the IFI to apply less burdensome collateral conditions to the project (often so onerous as virtually to rule out financial close in many cases).

The implementation of this PRG will be closely co-ordinated with CAMBio and other guarantee facilities (such as the propped Finnish RE guarantee facility) as well as the other relevant financing windows available at CABEI. Promotion, identification, preparation, co-financing and technical assistance are those areas of joint interest, where co-operation basis and synergies can easily be found. Active

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<sup>7</sup> According to the standard international banking practice means loans not serviced (interest and/or principal) for more than 90 days. In actual fact, the current average non-performing loan rate among the client banks is less than 2%.

operational links between CABEI, CCAD/SICA and UNDP and other active RE financiers in the region (such as IADB, IFC, KfW, E+Co) should be encouraged and a joint consultation mechanism be sought.

Finally it should be noted that the Department of Development and Competitiveness, in which this Project will be located in CABEI, has recently hired an experienced financial officer from the private energy sector, who is charged with the development of energy and RE lending business as a growth area in the Bank, complementing the latter's existing participation in more traditional energy sector financing.

## 2. THE PRG FACILITY

The main terms and conditions covering the use of the PRG facility can be summarised as follows:

**Maximum amount:** US\$ 5 million, in the form of a revolving facility deposited with CABEI as a non-reimbursable grant trust fund.

**Purpose:** To be placed at the disposal of a short list of IFIs to enhance their direct lending to mainly small and medium sized enterprises willing to invest in renewable energy investments and business, and presenting viable and bankable projects. The PRG would be used in projects evaluated as being financially viable and qualifying under the general financial return criteria, but unable to provide the traditionally high level of collateral currently demanded by lenders on a corporate finance basis. The project evaluation and due diligence process would involve in-depth risk analysis on a matrix basis, and consideration would be given to limiting the PRG to certain classes of risk, not normally covered by specific insurance, performance guarantees or other forms of risk mitigation. The risks will be identified and quantified on a project by project basis, but might for example apply to risks deriving from the actions of the host government (political risk), relating to tariff or fiscal policies, currency risk, etc.

### **Benefiting financial institutions:**

Commercial banks and formal banking institutions belonging to the CABEI network generically referred to as IFIs. In the early stages of the Project, CABEI would draw up a short list of IFIs operating in the countries of the Central American region, with which to work directly under this Project. Such short-listed IFIs would be selected on the basis not only of their sound banking performance, but also on their demonstrable interest in, and ability to identify and evaluate, RE investment projects in the small – medium size range.

**Guarantee Coverage:** The PRG facility is intended to provide up to a maximum of 35 per cent first loss risk guarantee on loans (loan principal only) extended by the IFI. Individual guarantees will be tailored to the nature of the risks identified in each project and can vary between 20-35 per cent based on analysis on a combination of criteria. The level of cover can also be differentiated according to the risk level the banks are prepared to assume : the key objective is that the guarantee cover should be sufficient to result in a lower collateral requirement, i.e. new business created and new clients acquired. One of the first activities under the Project will be the design of a project risk evaluation methodology appropriate to small and medium sized RE projects, initially at the level of CABEI and subsequently disseminated to short listed IFIs.

Emphasis will be placed on the best practice development and application of risk matrices tailor-made to RE projects of this type, with a view to defining the most appropriate risk categories and types to which the PRG would be applied.

Beneficiaries of the PRG must agree to forfeit all CERs issued on their investment if the guarantee is called and therefore, the GEF resources are directly used in their investment.

**PRG Leverage :** Given the low rate of non-performing loans tolerated by CABEL in the portfolio of its accredited IFIs, the face value of the guarantee fund, being US\$ 5 million, may be leveraged considerably to facilitate a higher overall volume of lending by the selected IFIs. CABEL, based on its historic monitoring of IFI lending performance, would be prepared to multiply the guarantee exposure level within prudent banking principles. Whilst the level of coverage under the PRG will necessarily vary from project to project and might be expected to increase over the life of the Project, as accumulated experience generates greater confidence in the performance of RE projects, it is expected that the mean leverage ratio for the PRG over the 5 year life of the Project would be of the order of 1:3.

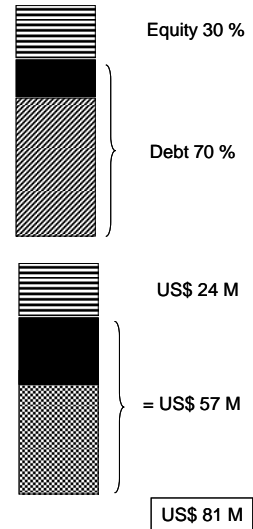
PRG Guarantee : US\$ 5,000,000  
 Max. Loan Guarantee : 35 % of IFI loans  
 Ratio / Leverage : 1 : 3  
 Mean availability : 75 %

CABEL direct financing : US\$ 25,000,000

PRG coverage = 14 % total investment

CABEL Co-Financing US\$ 25 M = 44 % of total debt  
 (no PRG Guarantee)

IFI Financing US\$ 32 M = 56 % of total debt  
 (of which US\$ 11.5 M guaranteed under PRG)



Based on the following main project lending / PRG application parameters:

- PRG face value : USD 5 million
- Average ratio : 1 : 3 (debt amount guaranteed = maximum USD 15 million)
- Average availability of the PRG over 5 year project life : 75 %
- Average % of non-CABEL project debt guaranteed under the PRG : 35 %
- CABEL maximum direct lending to RE projects not covered by the PRG : USD 25 million (as per CABEL commitment letter dated January 30<sup>th</sup>, 2007)
- Average project debt / equity ratio : 70 : 30.

The total value of the investment in small and medium sized RE projects is estimated in excess of USD 80 million. This assumption presupposes full usage of the USD 5 million, with an allowance for 25 % mean PRG depletion to meet default situations over the 5 year life of the Project. Such drawdowns on the PRG would commensurately reduce the face value of the PRG, with a consequent reduction in the total amount of lending to be guaranteed. Whilst the absence of any payments under the PRG facility would indicate that the operation had been redundant, an assumption of 75 % mean availability appears reasonable : the parameters may however vary both favourably or adversely in the light of practical experience. On this basis, an indicative forecast of RE projects contracted might include 10 – 20 projects of varying sizes, representing a total estimated RE capacity of 30 – 40 MW.

As projects meet their debt repayment obligations, the committed value of the PRG will be replenished pro rata, so that funds can be reallocated to new projects thus increasing the total leveraged financing.<sup>8</sup>

### 3. ASSOCIATED CAPACITY BUILDING

<sup>8</sup> This increased lending would be possible, if the funds will be available to CABEL beyond the completion of this project.

CABEI and the participating banks will be provided with technical assistance in project appraisal and revenue based lending techniques, targeted towards the sectorial credit officers and managers. In addition, CABEI will derive direct experience of the use of PRG and similar financial enhancements in the structuring of RE project financing.

Additional support to the process will be provided by the Project Coordinator / Financial Specialist who will be recruited to run the Project over its 5-year life. Candidates will have to demonstrate appropriate direct experience in the structuring of financial packages for energy projects in general and RE projects in particular. It is foreseen that this person will play an active role in support of CABEI's catalytic functions under the Project, in the process transferring a high level of valuable experience to CABEI and the participating IFIs.

Funds will additionally be provided in an indicative amount of USD 600,000 to undertake the financial feasibility studies required by the lending banks. The project will also be enjoying funding put forward for preparation of business plans by CABEI and bilateral donors. Project identification and preparatory support is also expected to be provided by RE Associations, Chambers of Commerce, Clean Production Centres, NGO's and other similar APEX bodies operating in the region.

## **4 MODALITIES AND PROCEDURES**

### **4.1. SELECTION CRITERIA FOR FINANCIAL INTERMEDIARIES**

All the approved CABEI financial intermediaries possessing a banking license would be eligible and can propose RE projects for guarantee support. The demand for guarantees may also be originated by the "house banks" of potential RE project sponsors, which can be included along the implementation process. CABEI will conclude guarantee agreements with selected active banks in the first place, but project demand should guide the selection as well. Synergy would also need to be created with the CAMBio program, as technical assistance support would be provided to select participating banks only. CABEI will short list the banks bearing in mind the following general selection criteria:

- institutions are currently approved CABEI financial intermediaries (IFIs);
- wide coverage in their host country, especially in business and geographical areas relevant to RE demand;
- good track record in financing SME activities;
- willingness and readiness actively to promote and consider financing of RE business;
- adequate institutional structures and human resources to incorporate such a new business sector and to absorb technical assistance (if included in the GEF/UNDP programmes);
- preferably prior experience in financing energy projects;
- existence of critical mass of clientele basis relevant to RE business and criteria;
- acceptable bank to potential RE client;
- readiness and capability of monitoring project development content and progress; and,
- readiness to start introducing (or expand) revenue based lending techniques in the tool-kit.

### **4.2. PROJECT APPROVAL**

IFIs seeking to benefit from the PRG mechanism for their RE loans, should clear each project with CABEI in advance on the following aspects<sup>9</sup>:

- eligibility of the project as potential RE investment (sector, target, size);
- approval of the conditions precedent for the guarantee cover (proposed lower collateral requirement, guarantee cover percentage, project appraisal essentials);

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<sup>9</sup> This consultation process will be made with the CABEI Regional Offices.

- prima facie financial viability of the project; and,
- preliminary evaluation of project risks.

Although CABEI has a full network of Regional Offices (RO) in the region, the final decision making is centralised at the bank's headquarters in Tegucigalpa (Honduras). ROs play an essential role as sounding board and advisers at the RE project formulation stage. Much can already be resolved at that stage in terms of financial engineering, eligibility and special conditions. The RO would transfer the request to CABEI HQ, c/ o Department of Development and Competitiveness. The minimum information and documentation required from the banks are:

- Business plan and/or feasibility study;
- Financial analysis and projections; and,
- Financing plan.

CABEI will carry out a further appraisal with its own staff.

#### **4.3. IMPLEMENTATION**

The banks will provide and administer the individual loans according to their standard procedures. More intensive monitoring of the RE loans is likely to be required from them, as part of the credit risk and exposure relies on the strength and positive cash flow of the project itself. CABEI should integrate and specifically monitor the guaranteed programme within the general quarterly oversight of the IFIs' performance, and should be given a specific category for monitoring and reporting purposes.

The following operational guidelines will be applied to the PRG :

- Progress and financial reporting of the guaranteed loans will be incorporated within the CABEI regular supervision process with the IFIs, including quarterly review of the portfolio. The Guarantee Agreement and corresponding covenants in the loan agreements will ensure that guarantee expires, if funds have not been used to the intended RE investment or business, or have been misused;
- Guarantee can be called by the bank if the RE loan principal is overdue for a period in line with standard industry practice, or any other acceptable standard practice in use by CABEI at the particular moment. CABEI senior management has to approve the basis. Regular banking default practices as defined by the Central Banks will be imposed. As the IFIs will retain a minimum 65 % risk, it is expected that, in any case, major efforts will be made by them to avoid the default and to collect the maximum amount in the adverse case;
- CABEI will charge the Guarantee Facility correspondingly when a guarantee is triggered and paid down. The final decision will be made by CABEI's senior credit management. The paid-out guarantee will be regarded as net depletion of the Trust Fund, unless the overdue payment can be collected within a reasonable time frame.
- The individual guarantee on a RE loan expires when the loan has been fully serviced, and the released guarantee commitment can then be re-committed to new business.

## **5. ADMINISTRATION**

The formal administration and contractual arrangements foresees the following three elements:

### **5.1. TRUST FUND AGREEMENT**

CABEI is currently administering a number of such trust funds with UNDP / GEF, donors and financial institutions. Key parameters for this Project include:

*Duration of Trust Fund:* As a revolving fund, it is recommended to be kept open-ended. This would allow for amendments, replenishments and termination to the trust fund upon mutual agreement and

based on periodic reviews. As project debt is repaid, funds under the PRG become available for re-utilization.

*Transfer of Funds:* The committed grant funds for the PRG will be transferred to CABEI at the Project Inception Phase.

*Reporting :* full quarterly reporting arrangements will be put in place by UNDP and CABEI.

*Administrative and operating costs:* An Executing Agency fee is paid by the Project to CABEI to meet its administrative costs, in addition to in-kind contributions to the Project. Supplementary operating costs associated with the implementation of the PRG and project evaluation process will also be partially offset by the interest income earned by CABEI from the un-disbursed funds.

*Cut-off dates:* It may be advisable to define:

- an expiration date for the guarantee;
- final date for placing loans under guarantee coverage, and,
- final date for submitting claims etc. Ten years could be proposed as a starting point, and the door should be left open for extension.



## Part 5. Additional renewable energy project risks

Financial institutions and lending banks in particular, generally apply stringent risk analysis and reporting protocols to their assessment of any particular loan opportunity. While the format of the risk analysis documentation varies from institution to institution, it is generally accurate to say that the purpose of the exercise is to identify specific risks in two broad categories, as follows:

- Project Risk, or the risk that certain events will adversely affect the borrower's ability to meet his debt payment obligations; and,
- Transaction Risk, or the risk inherent in the documentation, timing and processes of the loan agreements that might lead to disputes, gaps in legal status or collateral coverage, or other exposures related to the loan or repayment transactions themselves.

Various factors inherent in renewable energy projects can affect Project Risk. Each project, considered as an independent business, presents factors that can affect its profitability and cash flow. Additionally other areas of currency risk or political risk are relevant to the various Central American countries (as sub-components of credit risk), and must be identified and assessed by CABEL. Risks specific to renewable energy projects can be categorized as follows:

### Capital cost under-estimation

Renewable energy projects, irrespective of their investment size, are complex and require the involvement of several engineering disciplines in order properly to estimate the capital costs of implementation.

Civil works cost estimations, especially if related to remote sites, are often fraught with uncertainty. Two specific uncertainties exist with respect to engineered civil works. First, project promoters and inexperienced engineers or contractors often underestimate the time, material supply, or logistics support aspects of remote site construction. Second, initial assessments of physical site conditions are often based on regional generalities rather than site specific knowledge. It is imperative that experienced contractors and engineers conduct site-specific, detailed topographical and geo-technical investigations as part of the cost estimation process before financing is committed.

Hydroelectric projects are more susceptible to these problems than wind, biomass or solar installations simply because of the comparatively larger portion of these projects related to local civil engineering works. Dams or weirs must withstand flood conditions. Water conveyance structures often including tunnels and long canals, penstocks, and other required structures must be designed and built with specific terrain conditions in mind and require support that is entirely dependent on the strength and stability of the surrounding ground. All contribute to the uncertainty with respect to civil works cost estimates.

In addition, the cost of imported equipment, related currency risks, the erection and commissioning costs and timeframes associated with such equipment, transportation and import costs, appropriate spare parts inventory, and many other aspects must all be considered in developing an appropriate capital cost estimate.

The lender should be satisfied that appropriately qualified and experienced engineers have been involved in the capital cost estimation process, and that site-specific investigations of topography and geo-technical conditions have been carried out, again by appropriately qualified consultants with relevant local construction experience.

Financial sensitivity analysis with respect to capital cost will be part of the analytical review and risk assessment, and appropriate contingency amounts related to any uncertainty should be included in the estimates.

## **Operating cost under-estimation**

Renewable energy projects often have low annual operating costs. However, because of the high capital costs and long investment payback periods, the financial feasibility of these projects can also be very sensitive to under-estimation of periodic costs.

The most commonly unpredictable or underestimated costs are associated with maintenance and repair of facilities, which can be severely affected by inappropriate design, incompetent construction, or poorly negotiated warranty conditions.

Many factors must be considered in developing an appropriate operating cost estimate, including manpower and payroll burden, communication, taxes, licenses and permits related to electricity market participation, insurance, general administration, legal and accounting, repairs and maintenance, and contingencies.

The lender should be satisfied that appropriately qualified individuals experienced in the operation of similar facilities have been involved in the operating cost estimation process, and that equipment providers have been involved in setting the maintenance cost expectations. Spare parts inventory requirements are crucial, not only for preparedness for unpredictable breakdown, but also as a means of facilitating scheduled preventative maintenance. Project specific insurance quotations should be obtained if possible (rather than vague estimates), as insurance costs will often rank second only behind debt interest expenses in the hierarchy of annual costs.

Financial sensitivity analysis with respect to operating costs will be part of the analytical review and risk assessment, and appropriate contingency amounts related to any uncertainty should be included in the estimates.

## **Construction delays and related issues**

For many reasons, the highest degree of risk in renewable energy projects exists during the construction phase. This is the period when unanticipated geo-technical conditions or the results of poor pre-design investigation or construction estimating will become evident, often resulting in either cost over-runs or time delays or both. Construction timeframes can be as long as several years in some cases even without delays, and so risks associated with possible changes in energy market conditions between the start of construction and the final date of plant commissioning are also to be borne in mind.

Construction completion delays obviously result in the delay of incoming revenue flows, and can place project owners in contravention of their debt service and PPA obligations, depending on the terms of such agreements.

The likelihood and impact of construction and commissioning delays can be mitigated through careful engineering and appropriate construction contract mechanisms. Engineers and contractors should be selected based on several factors including experience and other merits rather than simply on lowest cost. If contractors are involved in the final design phase of projects alongside the engineers, they are often much more willing to accept risks associated with completion date penalties. Performance bond mechanisms can obviously be used to shift risk to contractors and engineers and away from financial institutions.

The risk of market condition change during the construction period cannot easily be mitigated unless advantageous PPA terms can be negotiated in advance by the project proponent. These PPA terms depend on the electricity sector organization. Currently, only Honduras seems offering reasonable visibility linked with long-term PPA between private developers and ENEE.

## **Available energy over-estimation**

The quantity of energy that can be produced by a renewable energy project is a factor of both equipment / civil works design and the quantity of the renewable resource that can be harnessed. As has been

highlighted in many other portions of this document, the quality of pre-development feasibility studies has a direct bearing on the risk of over-estimation in both cases.

Each type of renewable energy resource has its nuances with respect to quantity. Rivers have annual and longer-term flow patterns that can require years of data to understand properly, and only from such data can reliable flow duration information be developed. Detailed topographic information is required in order to properly assess the available head. Similarly, wind projects require site specific and properly conducted velocity measurement studies, often over several years, in order to alleviate the risk of over-estimation. Site-specific gas quality and quantity studies are required for landfill gas projects, and the net energy resulting from the combustion of agricultural residuals like bagasse are highly dependent on moisture content, boiler type, excess air control, and many other factors. Additionally, energy losses and inefficiencies are inherent in all types of energy production equipment.

Only appropriately experienced engineers can predict with any reasoned accuracy what the final energy production of a given project will be, and such predictions require time and properly gathered data. Even with careful analysis of the available resources and selected equipment, some margin for error will exist and will be allowed for in the estimates if performed by competent professionals.

Financial sensitivity analysis with respect to sales will be part of the analytical review and risk assessment, and appropriate contingency amounts related to any uncertainty should be included in the estimates.

The increasing availability of insurance specific to resource fluctuations is a relatively recent phenomenon in the RE market, currently restricted to markets in the developed countries. Some analysis should be devoted to this issue, particularly in situations in which a strong historic database exists for wind or hydro resources in the region.

### **Energy price over-estimation**

In the absence of a long-term, fixed-rate PPA, the risk of over-estimation of the selling price of energy produced is a most difficult concern. No amount of study or engineering discipline can predict the future behavior of markets.

CABI local representatives, in conjunction with local associations of RE operators and investors, can lobby governments so that new regulations are implemented which enable the enforcement of long term energy sales contracts, including price guarantees and price incentive programmes.

### **Generation or transmission interruption**

The interruption of generation or transmission capability can be caused by several factors, including equipment breakdown or physical catastrophe such as flood, earthquake, or violent weather events.

Downtime estimates for normal repair and maintenance requirements should be built into operating routines and be allowed for in energy production estimates. Unscheduled breakdowns do occur, however, and the risk of significant impact of these events on revenue can be mitigated either by ensuring that spare parts or redundancies are built into the physical plant requirements, or through insurance. Often it is a combination of these approaches that is most appropriate. Note that, with respect to the interruption of transmission capability, it may be assets owned or controlled by others that fail or are damaged.

PPA terms and agreements with transmission line owners, which may be separate agreements and involve different parties, should clearly address the issues of responsibility and recourse in the event of interruption of service.

### **Energy purchaser insolvency**

As in any business, there is risk associated with the future solvency of the customer. Market conditions and the financial strength of the energy purchaser will be assessed as in any other loan analysis situation.

## Signature Page

Country: Honduras

UNDAF Outcome(s)/Indicator(s):

Honduras has the capacity to reduce the vulnerability of its population through implementation of politics that integrate the environment and the risk management to achieve the sustainability of the development, the life, the welfare, and the equity between all the Honduran people.

Expected Outcome(s)/Indicator (s):

The Government of Honduras strengthens its capacity to formulate/validate politics and plans to generate energy from renewable resources

Implementing partner: Central American Bank for Economic Integration (CABEI)  
(designated institution/Executing agency)

Programme Period: *N/A*  
Programme Component: *3.3 Access to sustainable energy services*  
Project Title: *Accelerating renewable energy investments through CABEI in Central America*  
Project ID: PIMS 2042; ATLAS ID: Project: 00051217;  
Proposal: 00043791  
Project Duration: *5 years*  
Management Arrangement: *NEX*

Total budget:	89,095,000
Allocated resources:	
• Government	
• Regular	
• Other:	
○ UNDP Honduras	75,000
○ GEF	6,920,000
○ CABEI	25,000,000
○ CABEI (TAC)	600,000
○ Leveraged from IFIs and Private Investors	56,000,000
• In kind contributions	
○ CABEI	500,000

Agreed by CABEI: \_\_\_\_\_ date: \_\_\_\_\_

Agreed by UNDP: \_\_\_\_\_ date: \_\_\_\_\_