

FINAL EVALUATION

Caribbean Renewable Energy Development Programme (CREDP)

**United Nations Development Programme
Global Environment Facility**

Final version

July 2011

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LIST OF ABBREVIATIONS

APR-PIR	Annual Project Review – Project Implementation Report
CARICOM	Caribbean Community
CARILEC	Caribbean Electric Utility Corporation (association)
CAST	College of Art, Science and Technology (Jamaica)
CCST	Caribbean Council for Science and Technology
CDB	Caribbean Development Bank
CEIS	Caribbean Energy Information System
CLGM	commercial loan guarantee mechanism
CREDP	Caribbean Renewable Energy Development Programme
CREF	Caribbean Renewable Energy Facility
CRETAF	Caribbean Renewable Energy Technical Assistance Facility
CSES	Caribbean Solar Energy Society
EE	energy efficiency
GEA	Guyana Energy Agency
GEF	Global Environment Facility
GHG	greenhouse gas
GIZ	Gesellschaft für Internationale Zusammenarbeit, formerly known as:
GTZ	Gesellschaft für Technische Zusammenarbeit
GWh	Gigawatt-hour (1,000 million Watt-hour)
IDB	Inter-American Development Bank
MTE	Mid-term evaluation
MW	megawatt (million Watt)
OAS	Organization of American States
OECS	Organization of Eastern Caribbean States
OLADE	Latin-American Energy Organization
PDF	project preparation and development facility (GEF)
PMU	Project Management Unit
PPA	power purchase agreement
PSC	Project Steering Committee
RE	renewable energy
RET	renewable energy technology
SHS	solar home system
SVG	St Vincent & the Grenadines
SWH	solar water heating system
tCO ₂	ton of carbon dioxide
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USD	United States dollar
UWI	University of the West Indies



Source: en.wikipedia.org

EXECUTIVE SUMMARY

The Caribbean region is heavily dependent on fossil fuel combustion for its energy supply. Despite the Caribbean's substantial renewable energy resources, exploitation lags far below their potential, due to policy, financing, capacity and awareness barriers. In 1998, a number of Caribbean countries agreed to work together to prepare a regional project to remove barriers to the use of renewable energy (RE) and thereby foster its development and commercialization. A project preparation grant was applied for to the Global Environment Facility (GEF).

Full implementation of the Caribbean Renewable Energy Development Programme (CREDP) started in 2004. The project was developed as two parallel activities; one referred to as CREDP/UNDP with a GEF budget of USD 3.726 million and the other funded by the German government through its development agency GTZ¹. The two parallel activities had the same four outcomes, but CREDP/UNDP targeted 9 CARICOM member states, Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Guyana, St. Kitts & Nevis, Suriname, Trinidad & Tobago² with the CREDP/GTZ focusing on the 5 countries Dominica, Grenada, Jamaica, St. Lucia and St. Vincent & the Grenadines.

The UNDP Project Document mentions as its project **goal** (global and development objective) "To remove barriers to the increased use of renewable energies and reduce implementation costs thus reducing the Caribbean region's dependence on fossil fuels and contributing to the reduction of GHG emissions".

The project was designed to contribute to the objective with the following four components:

- **Supporting the implementation of policies, legislation and regulations** that create an enabling environment for renewable energy development – This component was designed to contain activities to set up the institutional and other necessary arrangements for the removal of regulatory and policy barriers, such as regional and national energy policy advisory committees;
- **Demonstrating innovative financing mechanisms for renewable energy products and projects** – The component was designed to address the need for significant technical assistance in preparing projects for bank financing by means of a Caribbean Renewable Energy Fund (CRETAF) and the establishment of supporting mechanisms for financing of renewable energy projects through loan and guarantee schemes;
- **Build capacity of selected players in the renewable energy field** – The (technical) capacity building component targeted different kinds of key players in the field of RE development, including project developers, financiers, engineers and technicians, government policy makers and planners and utilities staff;
- **Improved regional renewable energy information network** – by strengthening existing national and regional information systems and networks and creating larger knowledge on RE by various awareness creation activities.

¹ It should be noted that the German Gesellschaft für Technische Zusammenarbeit (GTZ) has been renamed as Gesellschaft für Internationale Zusammenarbeit (GIZ), but the old acronym GTZ will be used throughout the report to avoid confusion.

² The ProDoc mentions British Virgin Islands and Turks and Caicos Islands as participating, but where not eligible for GEF funding

During the first period 2004-2007 CREDP was **performing unsatisfactorily**:

- The policy component of CREDP had failed to move forward. After more than two years of operation, CREDP had yet to expend funding for the formulation of (renewable) energy policies and action plans in any of the CREDP participating countries. This reflected the lack of progress in implementation of activities. In particular the envisaged establishment of national energy policy advisory committees and regional advisory facility did not occur.
- The innovative financing component of the Project was in similar condition. The Renewable Energy Project Development Facility (CRETAF), a keystone of the CREDP project to help develop a pipeline of RE investment projects, was not yet operational, as the loan scheme was not attractive to prospective investors. Two other elements of the innovative financing component of the Project, the Caribbean Renewable Energy Fund (CREF), and the Guaranteed Loan Program (GLP) had not been initiated. One reason was that the envisaged partners to implement the schemes pulled out, while no alternative partners could be found. More importantly, the need for having special regional funding scheme for RE (in addition to existing regional and national funding opportunities) could be questioned;
- The technical capacity building component showed more satisfactory progress. Training activities had been undertaken in support of attainment of the outputs of the component.
- Efforts to establish an improved regional energy information network had progressed in certain areas but needed additional focus in others.

It was decided by UNDP and GTZ to prolong the project into a second phase with some changes. The project would be implemented directly by the newly established (in April 2008) Energy Programme unit of the CARICOM Secretariat. The concept of component 2 (financial mechanisms) was radically changed. The loan and guarantee schemes were abandoned, while support for project preparation through CRETAF, was now provided on a grant basis, not through loans. The CREDP-UNDP was extended in a budget-neutral way until December 2009, while CREDP-GTZ funding will end in 2012.

This terminal evaluation concludes that the second phase has brought more results:

- *Component 1*: Rather than focusing on setting up new institutional arrangements, such as national and regional energy advisory committees, existing government entities (ministries, agencies and/or utilities) have been supported in the formulation of energy policies or strategies in a number of countries;
- *Component 2*: CREDP-UNDP funds have supported 11 RE investment projects, which are now in various stages of project development, although none has reached financial closure yet. In addition, CREDP-GTZ funds are supporting RE project development in addition.
- *Component 3*: Various seminars, workshops and trainings at national and regional level have been supported with CREDP-UNDP and CREDP-GTZ funding³.
- *Component 4*: Websites were set up with info on CREDP activities. The Caribbean Information Portal on Renewable Energy (CIPORE) developed by CEIS and launched in April 2009 fits within the goals of planned Renewable Energy Web Portal and Virtual Regional Demonstration Centre;

Given these efforts and results, **implementation** of the second phase can be rated as *satisfactory*. Nonetheless, in terms **of achieving the original goals**, the financial issues still

³ There may be a linkage between component 3 and component 1 due to improved awareness on RE amongst government decision-makers. It may also reflect international developments, such as a perceived higher importance of RE due to climate change negotiations (e.g. Kyoto Protocol) and rising oil prices.

have not been resolved (and could not be tested as none of the RE project has reached financial closure yet). Some countries have formulated (renewable) energy plans and strategy, but the practical results are still to be seen. What is lacking is a clear analysis of the policy-regulatory and financial barriers still remaining and what could or should be done in future to mitigate these as a condition to bring the pipeline proposals to actual implementation stage. Based on this, the Evaluator rates the achievement in the second phase as *'marginally satisfactory'*.

In fact the slow progress in CREDP can be attributed to a complex set of issues, such as little support at political level in the first phase and passivity of its project management unit. But also, the slow progress can be attributed to **flaws in the project design**, which is rated as *'unsatisfactory'*. Some **lessons learnt** in this respect are:

- Mitigating barriers may take different timeframes. Capacity building and awareness creation events (consisting of a series of workshops, seminars or course participation) can be organized most quickly. However, effecting changes in the mind-sets of policy and decision-makers may need a timeframe longer than a typical GEF mitigation project. The process to formulate, review and discuss drafts, and to integrate opinions, requires sustained commitment different stakeholders and actors of energy development;
- Only if the appropriate policy goals have been formulated and an appropriate regulatory environment for RE investments has been established, commercial investors will be attracted. Only then financial mechanisms can be considered to mitigate financial barriers and risk factors, such as the perceived high risk of investing in a particular RE technology or country. The project's goals on financial mechanism have been too ambitious, while the goals in Component 1 (establishing advisory committees) may have been too soft;
- Experiences of renewable energy project implementation in the region has shown that preparation work to produce a bankable proposal takes more time and resources than foreseen during project planning, especially because the first RE project developer are the 'guinea pigs' in a way that invest in unchartered RE land. To attract such pioneers, grants to cover assessment and feasibility costs may be more appropriate than a loan scheme.

Project conceptualization has been weak in the sense that barriers analysis glosses over a wide range of technologies (grid-connected, off-grid, solar water heating, biomass), target groups (government, utilities, investors, financiers) and end users and groups of countries that differ in size, while assuming that all barriers can be addressed simultaneously in the short time period of a typical GEF project of 3-5 years.

One **recommendation** for future project design is for multi-country projects to group issues and barriers in technology-market-user clusters. Each cluster faces different barriers and has different needs in terms of capacity building and financial support and requires different approaches by the government and other institutions involved. This would allow a more focused approach from the onset and avoids that the project needs to be re-designed after the project's inception.

Where possible, links should be made with energy efficiency considerations. For example, solar water heaters are perfect to be promoted in the tourist sector in these sunny islands, but the message may sound even more convincing if solar water heaters are promoted as part of a range of energy saving options that result from energy audits in hotel (and other commercial or residential) buildings.

Rather than focussing on one-time 4 to 5 years interventions, one option for GEF and/or UNDP is to allow a more long-term programmatic approach with a country or region, which

would consist of several modules (smaller projects) that address specific issues and barriers, of which some would be implemented in parallel and other ones in a consecutive order. This would allow for flexibility in defining outputs and activities and fine-tune to the specific characteristics of the technology or intervention and the country's needs (that change over time). Rather than defining a package of activities worth several millions of dollars from the onset, this would also allow for more targeted, bottom-up, based budgeting per module and teaming up with projects and programmes of other bilateral and multilateral donors in a more flexible way.

Project design would benefit from a detailed baseline and end-of-project impact assessment that not only describes the project's implementation approach and individual, but looks at the higher-order outcomes and impacts, indicating what barriers and gaps were present at the project's beginning, what barriers still remain at the end and suggestions for future mitigation of the remaining barriers. This requires that the results framework of the project be adequately designed; distinguishing between output and outcome indicators and that GEF makes adequate funding available.

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1. INTRODUCTION

1.1 Background

The Caribbean region is currently heavily dependent on fossil fuel combustion, with petroleum products accounting for an estimated 93% of commercial energy consumption. Conventional methods of electricity production through fossil fuel plants are among the most significant contributors to air, land and water pollution. They are the primary source of greenhouse gas (GHG) emissions, and a major cause of balance of payments problems. At the same time, the expansion of electricity generation is a key aspect to economic development in the Caribbean countries. Cuba and Trinidad and Tobago possess the largest installed capacities, 4300 and 1253 MW, respectively. Since the Caribbean region has relatively high electricity coverage, off-grid renewable energy (RE) systems for rural electrification would apply only to the non-electrified jungle areas in a small group of countries such as Guyana, parts of Belize, and Suriname.

Despite the Caribbean's substantial renewable energy resources, exploitation lags far below their potential, due to policy, financing, capacity and awareness barriers. **Barriers** mentioned in the Project Document include:

- The energy policy pursued most widely by Caribbean governments has been the privatization of a number of formerly state-owned electric utilities. Privatization is motivated, amongst other reasons, by budgetary pressures, a need to improve efficiency, and a desire to attract private capital. This implicates that there is a need for policymakers to introduce effective, strong and transparent regulatory frameworks. Liberalization has raised some questions. Does it satisfactorily address security of supply, extend accessibility to energy services, and promote sustainable development at the same time?
- Few of the governments in the Caribbean region have developed policies to promote the use of renewable energy technologies (RETs), or have even assessed their inventories of renewable resources. There exists a lack of awareness among political decision-makers of the potential contribution of RE to national development objectives and of the actions needed to promote it.
- While RETs have lower maintenance and other operating costs than some fossil fuel based technologies, they do tend to be more capital intensive than most non-renewable options. This characteristic, together with the usually large existing foreign debts and high prevailing rates of interest in the participating countries, makes access to investment capital an essential requirement for the widespread use of RET systems;
- There is a need for significant technical assistance in preparing projects for bank financing. In particular, technical assistance is needed for the development of power purchase agreements (PPA's). Technical assistance is also needed to help utilities conduct grid stability studies. Capacity-building and awareness/information constraints can be overcome once a sound business environment is established. Capacity building programs and awareness/information campaigns without a sound business environment for RET are an ineffective use of funds and effort, as they can only support but not replace market drive.

1.2 Project objectives and strategy; project stakeholders

In 1998, a number of Caribbean countries agreed to work together to prepare a regional project to remove barriers to the use of renewable energy (RE) and thereby foster its development and commercialization. A project preparation grant was applied for to the Global Environment Facility (GEF). The preparatory activities were executed in two phases, one executed by the Caribbean Energy Information System (CEIS) resulting in barrier analysis and a second phase, executed by the CARICOM⁴ Secretariat, focusing on project pipeline and financial mechanisms development.

Full implementation of the Caribbean Renewable Energy Development Programme (CREDP) started in 2004. The project was developed as two parallel components; one referred to as CREDP/UNDP with a GEF budget of USD 3.726 million and the other funded by the German government through its development agency GTZ⁵. These components had the same four outcomes (which will be described next), but CREDP/UNDP targeted focused on 9 CARICOM member states, Antigua & Barbuda, Bahamas, Barbados, Belize, Cuba, Guyana, St. Kitts & Nevis, Suriname, Trinidad & Tobago⁶ with the CREDP/GTZ focusing on the 5 countries Dominica, Grenada, Jamaica, St. Lucia and St. Vincent & the Grenadines.

The UNDP Project Document mentions as its project **goal** (global and development objective) “To remove barriers to the increased use of renewable energies and reduce implementation costs thus reducing the Caribbean region’s dependence on fossil fuels and contributing to the reduction of GHG emissions”.

The project was designed to contribute to the objective with the following four components:

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- **Build capacity of selected players in the renewable energy field** – The (technical) capacity building component targeted different kinds of key players in the field of RE development, including project developers, financiers, engineers and technicians, government policy makers and planners and utilities staff;
- **Improved regional renewable energy information network** – by strengthening existing national and regional information systems and networks and creating larger knowledge on RE by various awareness creation activities.

⁴ The Caribbean Community was established in 1973 and now consists of 15 members. Apart from the countries participating in the project other full Members states are Haiti, Montserrat with Anguilla, Bermuda, British Virgin Islands, Cayman Islands and Turk & Cocos Islands as Associate Members

⁵ It should be noted that the German Gesellschaft für Technische Zusammenarbeit (GTZ) has been renamed as Gesellschaft für Internationale Zusammenarbeit (GIZ), but the old acronym GTZ will be used throughout the report to avoid confusion.

⁶ The ProDoc mentions British Virgin Islands and Turks and Caicos Islands as participating, but were not eligible for GEF funding

CREDP/UNDP was implemented until April 2008 by a dedicated Project Management Unit (PMU), based at the CARICOM Secretariat (Georgetown, Guyana), and extended in a second phase (in a budget-neutral way) until December 2009, implemented by the newly created Energy Program⁷ at CARICOM. CREDP/GTZ was implemented in phase during 2004-2008. It has been extended also into a second phase, which is scheduled to end in March 2012.

A CREDP Project Steering Committee (PSC) was established in March 2003, to oversee project execution. It has provided oversight in relation to the monitoring and oversight of the PMU, guided the implementation of the work plan, reviewed the budget, and addressed specific implementation problems.

The PSC has consisted of representatives of the following organisations:

- Secretariat of the Caribbean Community (CARICOM)
- OECS (Organisation of East Caribbean States)⁸
- Representatives of the participating States
- CARILEC (Caribbean Electric Utility Service Corporation)⁹
- CEIS (Caribbean Energy Information System)¹⁰
- OAS (Organization of American States)
- GTZ

Each participating country has appointed a person to act as National Focal Point for the CREDP project.

1.3 Mid-term and final evaluation; structure of the report

In accordance with UNDP and GEF regulations, a Mid-Term Evaluation (MTE) of the project was carried out in December 2006. With CREDP operationally closed, a Final Evaluation was carried out in June 2011 by the international consultant, Mr. Van den Akker.

This report describes the findings and recommendations of this **final evaluation**. The terminal evaluation has focused on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation and project extensions in 2008 and 2009). The terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits. The evaluation officially concerns CREDP/UNDP, but will try to assess the project's results as outcomes of the joint efforts of CREDP/UNDP and CREDP/GTZ.

The Evaluator has applied the following **approach** in the collection of data:

⁷ The Energy Programme was established in April 2008 as one of the Programmes within the Directorate of Trade and Economic Integration (TEI). The Energy Programme was assigned the responsibility of implementing a programmatic approach to energy sector developments in the Region. This establishes a departure from the mere project-oriented approach to energy issues in the past.

⁸ Consisting of Antigua & Barbuda, Dominica, Grenada, Montserrat, St. Kitts & Nevis and St. Vincent & the Grenadines as Members and Anguilla and British Virgin Islands as Associate Members. The Secretariat is based in St. Lucia

⁹ Consisting of 33 utilities in the Caribbean region as full Members plus 53 Associate or Affiliate Members that representing suppliers, manufactures and other stakeholders operating in the electricity industry

¹⁰ Currently headquartered at the Scientific Research Council in Kingston, Jamaica, it has a membership of 18 Caribbean countries

- i) Review of project documentations, such as the Project Documents, APR-PIRs (annual project implementation reviews), technical reports and the project's website (see Annex B);
- ii) Meetings with UNDP Guyana and the CARICOM Secretariat as well as meetings with selected stakeholders from government and private sector. Given the limited time of the mission (one week only), it was only possible to visit Guyana. Fortunately, a government official in St. Kitts was met during a stopover flying back and fro to Guyana (see Annex B) as well as the principal advisor of CREDP/GTZ (based in St. Lucia, but who happened to be in Guyana). Nonetheless, the time constraint has limited the possibility of meeting stakeholders in the participating countries.

The evaluation has looked at the following main areas:

a) Achievement of results

Criteria	Description
Achievement of objective and outcome; Attainment of outputs; Overall impacts (sections 2.1, 2.2 and 3.1)	Assessment of the achievement of the objectives and main outcomes. Progress towards results is based on a comparison of indicators at project inception (baseline) and situation at the end of the project intervention. Assessments of longer-term impacts (greenhouse gas emissions, policy reform, replication and other effects)
Sustainability (sections 2.2 and 3.4)	Extent to which the benefits of the project will continue after it has come to an end.

b) Project formulation

Criteria	Description
Conceptualization and design (sections 3.3 and 3.4)	The approach used in design and an appreciation of the appropriateness of problem conceptualization and whether the selected intervention strategy addressed the main barriers. It also includes an assessment of the project's logical (results) framework and monitoring and evaluation (M&E) framework, partnership arrangements as well as the suggested timeframe of the project activities
Relevance and ownership (sections 1.1, 1.2, 3.3)	Extent to which the project had its origin in national plans and policies, reflects environmental and development issues as well as the involvement of stakeholders in the project design

c) Project implementation

Criteria	Description
Effectiveness of project management (section 3.2.1)	Quality and timeliness of inputs and efficiency and effectiveness of activities carried out. Use of adaptive management in response to evaluation recommendations and APR-PIR suggestions and. Project strategy followed to achieve expected results. Delays in project implementation

Monitoring and evaluation (<i>section 3.2.1</i>)	Assessment of monitoring tools used, including logical framework (and indicators). Risk management (financial, institutional, socio-political, other risks). Work planning. Progress reporting. Assessment of the role of UNDP
Budget and co-financing (<i>section 3.2.3</i>)	Assessment of budget planning and actual expenditures. Realization of promised co-financing.
Involvement of partners and other stakeholders (<i>section 3.2.2</i>)	Assessment of involvement of stakeholders (partners, governmental entities, NGOs, private sector, beneficiaries) in project implementation
External factors (<i>sections 3.3 and 3.4</i>)	Assessment of the underlying factors beyond the project's immediate control that have influenced outcomes and results.

These three main areas are given a rating (in chapter 3) that can range between:

- Unsatisfactory (US): major shortcomings
- Marginally unsatisfactory (MU): significant shortcomings
- Marginally satisfactory (MS): moderate shortcomings
- Satisfactory (S): minor shortcomings
- Highly satisfactory (HS): no shortcomings

2. FINDINGS

2.1 Achievement of project outcomes and outputs

For each of the four outcomes, as mentioned in paragraph 1.2, this section assesses the progress in the implementation of the project's outcomes and outputs. The numbering of outcomes and outputs follows the format as given in the UNDP Project Document. The number in italics at the bottom of each row refers to progress indicators as mentioned in the Annual Project Review – Project Implementation Report (APR-PIR).

The information is based on info provided by the CARICOM Secretariat (progress reports, final report and interview), the annual UNDP/GEF APR-PIRs (Annual Project Review-Project Implementation Reports), the mid-term review (MTE report, 2007) and interviews held during the mission. This section tries to provide a quantitative overview, while Section 2.3 will provide a more qualitative in-depth assessment of the project's impacts.

Note that terminology has changed over time. What is referred to in the Project Document as the 'immediate objective' of each component is now usually called 'outcome' in UNDP project documents.

2.1.1 Component 1 Policies, legislation and regulations

Outcome: Supporting the implementation of policies, legislation and regulations that create an enabling environment for renewable energy development

Outputs / Indicators	Achievements
1.1 Regional Policy Development Advisory Facility established (and functioning to advise and consult individual governments on the development of their energy policy) <ul style="list-style-type: none"> • Draft ToRs for policy advisors • List institutions, industry representatives, and experts • Contract regional advisors 	The Regional Policy Development Advisory Facility did not materialise as conceptualised in the project document. Instead, the PMU (and later the Energy Programme at CARICOM) together with consultants hired as required have acted as policy advisors and provided a wide range of advisory services to participating governments that are detailed below.
1.2 National Energy Policy Advisory Committee appointed and operating within each participating country to assist the governments in the formulation and implementation of energy policies <ul style="list-style-type: none"> • Draft ToRs for each 	Only one functioning National Energy Policy Advisory Committee was formally established in the participating countries (in Jamaica a multi-disciplinary National Energy Committee was formed in 2006) as an activity of CREDP. The MTE (mid-term evaluation, 2007) consultants attributed this lack of achievement to weakness in the implementation modality, low reliance on senior government officials at key ministries and a passive CREDP/PMU's role.

<p>government on national committees</p> <ul style="list-style-type: none"> • List institutions, industry representatives, and experts • Assist national committees in planning, RE resource assessment <p><i>Indicator 5:</i> Number of countries that have adopted a national policy framework</p> <p><i>Indicator 6:</i> Number of policies and legislation modified</p> <p><i>Indicator 7:</i> Number of RE assessments developed and approved</p> <p><i>Indicator 8:</i> Number of strategic plans developed and approved</p>	<p>On the other hand, support by governments to have RE policies, committees and action or strategy plans has been low. In fact, even at the time of the MTE many countries at that time did not have an ‘energy policy’, let alone a RE policy. Recently however, countries are showing more interest in formulating (sustainable) energy policies. For example, SVG (2009) and Jamaica (National Energy Policy 2009-2030). The Bahamas now have national policy committees and Trinidad & Tobago has actually established an RE Policy and Surinam has started formulating one.</p> <p>The indicators 5, 6 and 8 are discussed in the main text below. On indicator #7, CREDP/GTZ conducted resource assessments on hydro in Jamaica, Dominica and SVG and on wind in St. Lucia and SVG). CREDP/UNDP assisted Suriname in conducting wind resource assessments with additional RE assessment conducted in Jamaica (biomass), Dominica (hydro) and St. Vincent (hydro)</p>
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Further info on indicators 5, 6 and 8

The establishment of the Energy Program at CARICOM in 2008 has enabled to provide advice by regional consultants to various governments in the region in cooperation with the CREDP-GTZ, EU, IDB, etc. This has resulted in a number of documents formulated with CREDP support:

- Draft national policy frameworks (based on practices in Jamaica, Belize and Pacific island states (2006);
- Draft Renewable Energy Policy for OECS (2007), by R. Wright
- Draft Regional Policy Framework for the development of harmonisation legislation for the reform of the electricity sector (2009)
- Baseline Study of Energy Policies & Legislation in selected CARICOM Member States (Bahamas, Barbados, Belize, Guyana, St. Kitts & Nevis, Suriname, Trinidad & Tobago); Plan for Management of the Energy Sector (2009)
- Guidelines for National Energy Policies and Report on International Best Practices (2009), by D. Loy
- Power Sector Policy and Strategy for Jamaica (2009), by B. Sutherland
- Policy documents for Guyana and Belize (2009), by C. Watson.

Also the CREDP-GTZ has supported a number of policy-related activities:

- Recommendations for rules and regulations on the Energy Supply Act (Dominica)
- Assistance on implementation of the National Renewable Energy Initiative, the National Energy Policy and Sustainable Energy Plan and on amendments in the Electricity Supply Act (Grenada)
- Support given in drafting Energy Policy (St. Lucia; accepted in 2010)
- Support given in drafting Energy Policy (SVG; accepted in 2010)
- Support given to Surinam in drafting their national Energy Policy

2.1.2 Component 2 *Demonstrating innovative financing mechanisms for renewable energy products and projects*

Outputs and <i>indicators</i>	Achievements
<p>2.1 Development of a pipeline of RE investment projects (with GEF funding in the Caribbean Renewable Energy Fund, CRETAF)</p> <ul style="list-style-type: none"> • Define eligible projects (grid-connected, rural electrification, SWH) • Project identification and feasibility studies • Select feasible pipeline projects <p><i>Indicator 9</i> Number of projects in CREDP pipeline with identification of costs and valuation of government incentives;</p> <p><i>Indicator 10, 11 and 12</i> Number of project screened by CREDP, directed to and reviewed by CRETAF</p> <p><i>Indicator 13</i> Value of loans made by CRETAF</p> <p><i>Indicators 15 and 16</i> Number of developers and utilities assisted in PPA negotiations and in fulfilling banking criteria</p>	<p>CRETAF was conceptualised on the basis of a contingent loan system to cover project development expenses. Since invitations for project proposals for funding under the CRETAF loan scheme yielded minimal interest, a decision was taken between the UNDP and CARICOM Secretariat to manage CRETAF under grant modality during the extension period of the project.</p> <p>Eventually, some 36 projects were screened (indicator 10) of which 14 were directed and reviewed for CRETAF. In the end CRETAF (CREDP-UNDP fund) at a value of USD 1.5 million (with grants, not loans) have supported the development of 11 projects, which are detailed in Table 1. Most of the supported projects aimed to:</p> <ul style="list-style-type: none"> • Provide project developers with information about resources availability or some specific technical information about site characteristics; • Set the stage for full feasibility analysis; and • Develop bankable proposals in the case of the Dominica feasibility study of the Newtown Hydropower Plant and SVG Feasibility Study, Tender Design & Tender Documents and for the VINLEC hydropower stations.
<p>2.2 Establishment of mechanisms for financing renewable energy projects</p> <ul style="list-style-type: none"> • CREF (Caribbean Renewable Energy Facility) • Commercial loan guarantee mechanism (CLGM) with USAID/DCA support <p><i>Indicator 14</i> CREF implemented</p>	<p>Despite the detailed design of CREF and CLGM during the PDF B Phase II and the PMU's efforts to implement them, complex reasons and circumstances prevented the establishment of these mechanisms. For example, the envisaged partner, the Caribbean Development Bank (CDB) pulled out, while no new financial partner could be found. For more information, the reader is referred to Section 3.3 of this report</p>
<p>2.3 Funding and running of RE investment projects</p> <ul style="list-style-type: none"> • Select pipeline projects (output 2.1) • Finance selected projects (at least USD 10 million) • Disseminate info and lessons learned 	<p>None of the projects supported under Output 2.1 have proceeded to investment stage yet. This can be attributed in part to the fact the project preparation activities were only developed during the extension period (2008-2009). The time period has therefore been too limited to allow for evolution of the projects to investment stage, although in the two cases mentioned above, a bankable proposal has been completed</p>

Table 1 CREDP project pipeline (status 2010)

No.	Beneficiary Country	Budget (US\$)	Title of Project
1	Barbados	101,034	Cane Industry Restructuring Project – Sustainable Renewable Energy Component
2	Belize	242,000	Hydropower Feasibility Studies of the Central River
3	Dominica	122,250	Feasibility Study of the Newtown Hydropower Plant (DOWASCO)
4	Dominica	22,000	Stream Flow Gauging at Selected Rivers (5 stations)
5	Guyana	132,892	Grid Stability and Soil Test Studies for the Hope Beach Wind Farm, Guyana
6	Guyana	199,918	Hydropower Feasibility Study of the Chiung River
7	Jamaica	10,579	A Feasibility Study for an Alternative Energy biomass Fueled Cogeneration (CHP) System
8	Jamaica	105,000	Back Rio Grande Hydro Project Review
9	St. Vincent & the Grenadines	44,000	Inspection, Topographical Survey & Stream Flow Gauging for the St. Vincent Electricity Services Limited
10	St. Vincent & the Grenadines	463,859	Feasibility Study, Tender Design & Tender Documents for the Hydropower Stations of St. Vincent Electricity Services Ltd. (VINLEC)
11	Suriname	45387	Wind Speed Measurement in Suriname at Nickerie and Galibi
12	CARICOM	20,000	Consultant for CRETAF

Source: Final Report (March 2010)

After the end of CREDP-UNDP, the CREDP-GTZ has continued to provide technical support to develop RE projects:

- Technical Assistance (TA) for the identification of wind power potential (Antigua & Barbuda)
- TA for the development of the Lambert's Wind Farm and for the design of a PV system for BICO (Barbados)
- TA to DOMLEC for the identification of wind power potential (Dominica)
- TA for the design of a PV plant at Hardy's shop (Georgetown, Guyana)
- TA for Greater Laughland River Hydropower Project (Jamaica)
- TA for the development of the Sugar Mill Wind Farm, for the mini hydro power plant at the John Compton Dam and for the tendering and installation of three PV demonstration projects in Pigeon Island, Castries Craft Market and Vieux Fort Secondary School, Campus B (St. Lucia)
- TA for the development of the Ribishi Wind Farm, and to VINLEC for the tendering of two pilot PV projects (SVG)

It should also be noted that CREDP-GTZ funding has supported a number of energy efficiency activities, such as energy audits in hotels (in Antigua & Barbuda, Dominica, Grenada, St. Kitts and Nevis, St Lucia and SVG) in cooperation with CHENACT, which is an energy efficiency project financed, amongst others by: IDB, GTZ, UNEP and the Government of Barbados.

Further info

Grant support to cover technical assistance for the development of the CRETAF project pipeline under the grant scheme has been more successful than the loan-based scheme of the first phase. Many developers are pioneers and take additional risk that should not be burdened with loan repayments, while the end result (investment) is far from assured with little precedence. Grants to these pioneer developers may help them to cover project preparation cost. For example, wind data in a certain area will help developers to take a decision on to go forward with further preparation of a prospective site. If such data are not available, the developer has to do these measurements at additional cost.

In general, one can conclude that turning CRETAF into a grant scheme has better positioned the beneficiary countries with the base data that will help prospective investors to develop specific renewable energy projects in the future.

2.1.3 Component 3 Build capacity in the renewable energy field

Outputs and indicators	Achievements
<p>3.1 Capacity of the staff of utility companies and public agencies to evaluate and assess RET is strengthened</p> <ul style="list-style-type: none">• Design and select training materials• Train utility and public agency/ministry staff	<p>Training methods/mechanisms have included seminars and workshops, training courses, study tour (to Cuba), lectures, and internships. Workshops were held on wind power (Jamaica, SVG), hydro power (Dominica), solar energy (Florida.), RET Screen software (Jamaica), combined heat and power for bagasse systems (Barbados)</p> <p>According to the Final Report and 2010 APR-PIR, 179 people received training on formulating bankable proposals. Around 93 professionals have received training, as well as 80-90 staff from private enterprise, RE manufacturing and banking companies¹¹.</p>
<p>3.2 Private companies, RET manufactures and local banks are supported and trained in evaluating RET project proposals</p> <ul style="list-style-type: none">• Provide training to experts and expertise through existing channels like the Caribbean Technical Consultancy Service (CTCS)• The trained experts train staff of private companies, RET manufactures, and local banks	

¹¹ There are no data in the progress reports on the capacity development impact of the training activities. The APR-PIR indicators focus quantitatively on outputs, e.g. number of workshops organised, but do not report on the development impact. In general, the people interviewed during this evaluation regarded the capacity development activities as having had a positive impact. One of the interviewees mentioned that his current activities of setting up a wind mill (with private investors) were inspired by the workshops he attended.

Table 2 Overview of CREDP-UNDP supported activities

Activity	Training mechanism	Country	Date	Participants
Hydropower Development in the Caribbean”	Course	Dominica	1-3 June 2005	17
Photovoltaic Systems Course at the Florida Solar Energy Centre	Course	US	Aug 27-31 2007	13
CREDP Cuba Study Tour	Study tour	Cuba	15 - 27 Oct 2007	12
SWH Competency Standards for Installation and maintenance (TVET1)	Training	Barbados	17 -18 Jan 2008	17
SWH Competency Standards for Installation and maintenance	Training	Barbados	27 -29 Feb 08	17
SWH Competency Standards for installation and maintenance (TVET 3)	Training	Barbados	25/28 03 11	19
Seminar on solarwater heating for the Caribbean hotel sector	Seminar	Barbados	11-13 June 07	32
Seminar on market opportunities for Solar water heaters in Belize	Seminar	Belize	03 Oct 07	20
Solar water heaters and the hotel sector	Workshop	Belize	04 Oct 07	23
Seminar on windfarm operation and grid integration	Seminar	Jamaica	18-20 Oct 06	38
Seminar “Wind Power - An Attractive Energy Option for the Caribbean”	Seminar	SVG	Oct 18 - 21, 2005	9
Wind Power Development in the Caribbean	Workshop	Jamaica	30/11-02/12 2005	36
RET Screen Analysis of Biogas Powered Electricity Projects	Workshop	Jamaica	14-15 12 2005	19
Seminar Combined Heat & Power (CHP) for the Caribbean Sugar Cane Industry, Barbados	Seminar	Barbados	18-20 April 2006	33
Renewable Energy Project Analysis using the RET Screen	Course	Dominica	1-3 June 2005.	30
Transfer of energy information to Teachers of energy in the CXC/CAPE examinations	Lectures	Barbados, Guyana, St. Kitts & Nevis		

In addition, CREDP-GTZ (after 2008) has supported

- Regional training activities, such as First Caribbean Sustainable Energy Forum (CSEF), Grenada, 2008; Workshop on hydrometric measuring networks, St. Vincent, 2009; Second Caribbean Sustainable Energy Forum (CSEF-2), Jamaica, 2010
- National training activities, such as Study tour to Germany for staff members of the Ministry of Energy; Workshop on hydrometry with DOWASCO staff and staff of the Forestry Department (Dominica); Teachers Training for Secondary School Science and Technology Teachers in basics of Renewable Energy and energy Efficiency; in co-operation with CEIS, May 2009 Introduction of PV classes in the curriculum of the T.A. Marryshow Community College, 2010; Seminar on Photovoltaic Technology, November 2009 (Grenada); Assistance in the establishment of an annual National Energy Awareness Week, November 2009; Lecture about hydro power technology for students of the University of Guyana, December 2009 (Guyana); Teacher's Training of Secondary School Teachers about Renewable Energy Technologies and Energy Efficiency, November 2008 (St Kitts & Nevis); Contribution to Energy Awareness Week, November 2008; Contribution to Energy Awareness Week, November 2009; Introduction of PV classes in the curriculum of the Sir Arthur Lewis Community College, 2010 (St. Lucia); Introduction of PV classes in the curriculum of the St. Vincent Technical College, 2010 (St. Vincent)

<p><i>Indicators 17-21</i> Number of developers assisted in fulfilling bank criteria; Number of suitable training mechanisms designed; Number of persons and professionals trained (incl. number of persons from private sector)</p>	
<p>3.3 Regional initiative to introduce SWH into the hotel business of the Region is established and running</p> <ul style="list-style-type: none"> • Design and implement courses on SWH • Apply partial loan guarantee scheme <p><i>Indicators 22 and 23</i> Number of courses on SWH designed and implemented</p>	<p>Six courses/workshops on SWH (solar water heaters) were implemented (in Barbados and Belize) during 2006-2008</p>
<p>3.4 Public institutions are supported and trained on RE technologies</p> <p><i>Indicator 24</i> Number of public institutions receiving support and training in RE</p>	<p>Public institutions received support and training in RE. Personnel from fourteen institutions participated in CREDP training activities – UWI - Trinidad and Tobago; UWI-Barbados; UWI-Jamaica; Adek University, Suriname; Anton de Kom University, Suriname; University of Guyana; Barbados Community College; CF Bryan Community College, St. Kitts; Caribbean Institute of Meteorology & Hydrology; University of Trinidad & Tobago; CUJAE, Cuba; St. Vincent Tech. College; Samuel Jackman Prescod Polytechnic, Barbados; and Barbados Vocational Training Board</p>

Further info

A wide cross section of stakeholders/ key players benefitted from the implemented actions in this component. The capacity building activities covered most of renewable technologies of interest for the region and were attended by a relatively large number of diverse participants. An overview is given in Table 2.

2.1.4 Component 4 Improved regional renewable energy information network

Outputs and indicators	Achievements
<p>4.1 Improved RE infrastructure</p> <ul style="list-style-type: none"> • Strengthening of the existing national renewable energy information and 	<p>The Caribbean Information Portal on Renewable Energy (CIPORE) developed by CEIS and launched in April 2009 fits within the goals of planned Renewable Energy Web Portal and Virtual Regional Demonstration Center projected by project documents. The 2010 APR-PIR further mentions that this Regional RE Web Portal is</p>

<p>awareness networks</p> <ul style="list-style-type: none"> Establishing virtual regional demo centre (in coop with CEIS) <p><i>Indicator 25</i> Number of RE templates designed and posted on website</p> <p><i>Indicator 28</i> Number of technologies in demo center</p>	<p>capable of facilitating teleconferencing, videoconferencing, instant messaging and utilises bulletin boards and online database. CIPORE can be accessed via www.cipore.org¹²</p>
<p>4.2 Greater capacity to facilitate regional renewable energy information system.(with CEIS, CARILEC)</p> <ul style="list-style-type: none"> Web-based access point on RE and virtual communication platforms Compile info on best practice and disseminate <p><i>Indicator 26</i> Website functional</p>	<p>A web page was established that contains relevant information regarding CREDP activities (see www.caricom.org/jsp/projects/credp.jsp?menu=projects). CREDP-GTZ has an additional website (available at www.credp-gtz.org)</p>
<p>4.3 Improved awareness on RE programs</p> <ul style="list-style-type: none"> Design and implement awareness activities (workshops, videos, posters) <p><i>Indicator 27</i> Number of outreach activities</p> <p><i>Indicator 29</i> Number of collateral documents created</p>	<p>Two 16-minute DVDs were produced on ‘Renewable Energy in the Caribbean’ with the assistance of CARICOM’s Communications Unit, as well as brochures on CREDP and CRETAF. One DVD entitled “Securing Renewable Energy” highlights CRETAF, its role and functioning, usefulness and importance and the other “Banking on Energy” highlights how three renewable energy projects in the region obtained their financing. These DVDs have been shown on national television in the Bahamas, Guyana, Jamaica and Suriname and have been widely distributed. The CC Energy Newsletter and Energy Programme Brochure were developed in 2009</p>

Further info

CIPORE is the information and communication system for the exchange of Renewable Energy information for the Caribbean, which currently has 13 member countries¹³ and was

¹² The CIPORE portal consists of an Info Centre (with info on documents, articles, policies and regulations as well as a project database), Communications Centre (with a RE directory, chat room and mailing lists), Demo Centre (pictures, videos and downloads) News Centre and information on participating countries. The Evaluator checked the site and considers it quite informative, although no data was made available on the actual web site usage and operationalization of the interactive facilities, such as the chat room.

¹³ Barbados, Belize, Cuba, Dominica, Grenada, Guyana, Jamaica, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines, Suriname, The Bahamas and Trinidad & Tobago

set up by CARICOM and CEIS (at SRC) with CREDP support. It was established to provide for information on renewable energy in the region and to assist the local ministries responsible for energy to build their capacity in this area (see www.cipore.org).

The progress in component 1 can be partly a result of the activities of the awareness raising activities of component 3 and info dissemination of component 4, but also reflects international developments, such as progress in the climate change negotiations (Kyoto Protocol), the global expansion of the markets for renewable energy technologies and rising oil prices.

2.2 Assessment of the project's impacts

Policy and regulatory reform

During the first phase of project implementation (2004-2008) the progress towards (renewable) policy and regulatory development was slow. The MTE report mentions that only one country, Barbados, had asked for assistance. This can be attributed to a number of reasons. The MTE report mentions certain flaws in the implementation modalities, which are discussed further in Section 3.2.1.

The establishment of the Energy Program at the CARICOM Secretariat has allowed for a more continuous dialogue over time with the governments concerned. This is important as policy development involves many time-consuming stages including identification of issues and options, the definition of policy, decision by policy makers through various governmental procedures, consultation of stakeholders, and drafting and eventual passage of policies, plans and legislation.

To date, a number of countries have formulated (renewable) energy policies. St Vincent & the Grenadines approved a national energy policy (Feb. 2009) and so did Jamaica (National Energy Policy, 2009-2030). Such policy documents are currently being drafted in The Bahamas, Barbados, Dominica, Grenada, St. Lucia, and St. Kitts & Nevis, while work on renewable energy policy has started in Belize, Guyana and Surinam.

All this activity has taken place against the international background of increased climate change discussions and adverse impact of high conventional fuel prices on local economies of participating countries during the last years of CREDP. This has contributed to heightened awareness by governments in the region about security of energy supplies and the need to increase contribution from renewable energy and generally improve sustainability and performance of the energy sector.

Project development and finance

At present, the project has made some advancement in the exploitation of RE since the conceptualization of CREDP as evidenced by the 11 studies that have been undertaken in 7 of the 13 participating countries with CREDP-UNDP support (and other studies with CREDP-GTZ support).

Whilst these and other opportunities for renewable energy projects have been identified and supported with project grants, these projects have not yet reached financial closure. No progress was made in implementing financial mechanisms (loans, guarantees) that were meant to make financing of the pipeline projects easier, but were abandoned in the second

phase (2008-2009). In general, one can conclude that lack of appropriate policy and regulatory frameworks, the need for RE-specific power purchase negotiations and need for (initial) premium tariffs, assessment of financial viability and the bureaucratic machinery for environmental permits are examples of challenges that still must be resolved before commercially operating investors are interested. Based on financial and other risks remaining, definition of appropriate financing support mechanisms can take place.

Emission reduction

The 2010 APR-PIR (progress report) mentions the following figures:

- 212,187 tCO₂ emission reduction
- Installed hydropower capacity:
 - Belize - Mollejon Hydropower (25.3 MW), Chalillo (7.3 MW) and Toledo (3 MW)
 - Dominica - Hydropower facilities at Laudat, Trafalgar and Padu (6.42 MW)
 - Haiti - Seven hydropower plants (55 MW);
 - Jamaica (6.37 + 6 MW Maggotty hydro plant)
 - St. Vincent & the Grenadines - South Rivers (1.1 MW) and Richmond 1.2 MW
 - Suriname (278 MW of hydropower installed at Afobaco and Paranam)
- Installed wind capacity of 20+18 MW (Jamaica) and 2.2 MW in Nevis
- Installed biomass of 10 MW in Guyana and 3.5 MW in Belize in progress

It is to be acknowledged that these figures indicate that the region has made some advancement in the exploitation of RE in the last decade. However, CREDP was not directly involved in these projects. Thus, these emission reduction and energy production impacts should not be claimed therefore. At most, indirect impacts of the project can be claimed due to the project's awareness raising activities, but then the figures should be multiplied by applying a 'causality factor', i.e. a percentage that indicates CREDP's influence on decision-makers to go ahead with these projects. On the other hand, if the projects mentioned in Table 1 would be realized in the near future, the energy savings (and the resulting emission reduction, as mentioned above) might be claimed as 'post-project direct emission reduction'. Without specific details on installed capacity and project energy generation (and fossil fuel replacement), it is difficult to assess the emission reduction impact in this Evaluation report. In fact, a more detailed impact analysis should have been carried towards the end of CREDP as part of an 'end-of-the-project assessment' report.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Achievement of development objectives

The Mid-Term Evaluation Report (MTE, 2007) had the following main observations regarding progress towards achieving the project’s objective and outcomes of the first phase of CREDP-UNDP:

- “The policy component of CREDP has failed to move forward. After more than two years of operation, CREDP has yet to expend funding for policy initiatives in any of the CREDP participating countries:
- The innovative financing component of the Project is in similar condition. The Renewable Energy Project Development Facility (CRETAF), a keystone of the CREDP project, is not yet operational. Two other elements of the innovative financing component of the Project, the Caribbean Renewable Energy Fund (CREF), and the Guaranteed Loan Program have not been initiated;
- Training activities have been undertaken in support of attainment of all of the outputs desired. Performance to date, as measured by the indicators in the Logical framework, reflects satisfactory progress.
- Efforts to establish an improved regional energy information network have progressed in certain areas and need additional focus in others”.

Not surprisingly, the performance of the project in the UNDP/GEF progress reports (known as APR-PIRs) was rated at ‘*unsatisfactorily*’ in 2007.

Following the analysis of Section 2.1, this report concludes that more results can be seen in the second phase, as detailed in the table below:

Recommendations MTE report	Findings final evaluation
<p><i>Component 1:</i></p> <ul style="list-style-type: none"> • CREDP/PMU and the CARICOM Secretariat should take a more proactive approach to policy implementation initiatives. • Dialogue, led by the CARICOM Secretariat, should be initiated with member countries at the Ministerial level to secure commitment and support to policy development, the establishment of National Policy Advisory Committees and the focused involvement of the focal points. • The CREDP/PMU should assess each member country's status with respect to the development of energy policy reform and strategic plans and identify specific initiatives CREDP could undertake to help move reforms forward. • CREDP/PMU should immediately compile a comprehensive list of national institutions, industry representatives and experts in each country that could be engaged in the National Advisory Committees. • The PMU should coordinate policy initiatives with GTZ/CREDP and focus on countries where GTZ/CREDP has not been active. 	<p><i>Component 1:</i></p> <p>The project has wisely abandoned the straightjacket approach of establishing new institutional arrangements, such as national and regional energy policy advisory committees or facilities. In the end only country, Jamaica, established a type of energy policy advisory committee.</p> <p>As suggested by the MTE report, the CARICOM has then focussed on supporting policy or regulatory reform on an as-needed basis in closer cooperation with GTZ/CREDP supported activities. This has been more successful, although taking advantage maybe of a trend of Caribbean countries to have more interest in formulating (sustainable) energy policies. A number of countries have received targeted technical advice in the formulation of policies, plans or strategies, of which details are mentioned in Section 2.1.1</p>

<ul style="list-style-type: none"> It is unlikely that significant policy reform can be initiated by CREDP in all participating countries by the end of the Project. The PMU should therefore focus reform expenditures in those countries that express the strongest interest in policy reform on a first-come, first-serve basis. 	
<p><i>Component 2:</i></p> <ul style="list-style-type: none"> It is doubtful that such a fund could be created in the remaining timeframe for the CREDP project. Funding for clean energy and renewable energy projects has grown considerable since the project inception reducing the need for a special fund in the region. The Caribbean Development Bank has indicated an interest in funding RE projects in the region if they meet bankable standards. Continued efforts by the PMU on this activity divert resources from more immediate and pressing needs of the CREDP project. Creation of investment funds is outside the core competence of the PMU and CARICOM. A project pipeline assessment report should be completed in the next 60 days that includes the following information, status of project development, identified measures needed to move projects forward and specific assistance that CRETAF could provide to move projects toward financial closure 	<p><i>Component 2:</i></p> <p>The Evaluator observes that the need for a fund is not only reduced because of increased funding availability, but that without appropriate regulatory frameworks in each country private sector investments will not materialize and no application to any Fund will be made. Indeed, creation of investment funds is outside the PMU and CARICOM, so after the MTE report, CREDP did abandon the idea of using CREDP funds for loan and/or guarantee facilities for project preparation and investment. Instead, GEF funds (through CREDP-UNDP) have supported 11 RE investment projects, which are now in various stages of project development, although none has reached financial closure yet (see Section 2.1.2 for details). In addition, CREDP-GTZ funds are supporting a number of RE project development in addition.</p>
<p><i>Component 3:</i></p> <ul style="list-style-type: none"> CREDP/PMU should engage in a dialogue with regional institutions at the tertiary and secondary levels, with a view to designing and establishing training courses in RE. CREDP/PMU should adopt the use of a questionnaire for a course assessment at the end of each training session, and seek to establish a methodology for assessing the impact of the training provided in building capacity. More avenues for training through apprenticeship should be explored; CREDP/PMU should consider establishing a special intensive training program for public officials in the area of renewable energy policy and project implementation. 	<p><i>Component 3:</i></p> <p>Various seminars, workshops and trainings at national and regional level have been supported with CREDP-UNDP and CREDP-GTZ funding, of which details are given in Section 2.1.3.</p> <p>The progress reports gives details on how many people received training, but no further effort has been carried out to assess the capacity development impacts of the training activities supported by CREDP. There may be a linkage between the Component 3 and Component 1, in the sense that the series of workshops and training have improved awareness on RE amongst government decision-makers, thus resulting in more efforts in (renewable) energy policy and planning. Although it may also reflect international developments, such as a perceived higher importance of RE due to climate change negotiations (e.g. Kyoto Protocol) and rising oil prices.</p>

<p><i>Component 4:</i> The PMU is in negotiations with CEIS to transfer major portions of Objective #4 to the CEIS. This effort should be accelerated and finalized in the near future to free up PMU resources for other activities</p>	<p><i>Component 4:</i> The MTE recommendation was followed up. The Caribbean Information Portal on Renewable Energy (CIPORE) was developed by CEIS and launched in April 2009 and covers the goals of the Renewable Energy Web Portal and Virtual Regional Demonstration Centre (see Section 2.1.4)</p>
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In the second phase, one can conclude that activities finally started going and has produced some results in terms of getting a pipeline of potential investment projects, policy formulation support and raising awareness and capacity on RE. Nonetheless, in terms of achieving the original goals, the financial issues have not been properly analysed (and could not have been tested anyhow as none of the CREDP-supported RE project has reached financial closure yet). Some countries have formulated (renewable) energy plans and strategy, but have only recently done. What is lacking is a clear analysis of the policy-regulatory and financial barriers still remaining at the end of the project and what could or should be done in future to mitigate these as a condition to bring the pipeline proposals to actual implementation stage. Based on this, the Evaluator rates the **achievement of the project's objective and outcomes** (after the mid-term evaluation) as '*marginally satisfactory*', based on the framework of outcomes as reformulated after the mid-term evaluation.

3.2 Effectiveness of project implementation

3.2.1 Management, monitoring and evaluation

Regarding the lack of progress in the policy component of the project in the first phase (2004-2008), some weaknesses in the implementation modality were identified in the MTE report. First, there was a reliance on local focal points to move the processes forward, rather than senior government officials at key Ministries. The continuous change in focal points making it challenging for new persons to familiarize themselves with the project; demanding workload of focal points in their primary areas of responsibility and limited mandate provided to focal points by Governments were additional challenges. Second, CREDP/PMU's role was judged in the MTE report as being passive, as assistance was provided only in response to requests. In general, the MTE report mentions that 'the underperformance of the Project to date is not due primarily to a lack of staff resources but to a lack of focus, project design and execution'. Also, in view of the general lack of progress in achieving outcomes (see Section 3.1), the implementation of the project has been described in the APR-PIRs also as '*unsatisfactory*'.

The MTE report provides a number of recommendations:

Recommendations MTE report	Findings final evaluation
<p><i>Monitoring and evaluation:</i></p> <ul style="list-style-type: none"> The current system of reporting by the PMU to the Implementation and Executing Agencies and the Project Steering Committee is unsatisfactory. The PMU Quarterly Reports fail to distinguish between cumulative efforts and efforts for the reporting period. It is therefore difficult to determine what specific progress has been made 	<p><i>Monitoring and evaluation:</i></p> <p>Rather than focusing on the nitty-gritty details in Quarterly Reports, this final evaluation is more concerned with reporting of impacts. The APR-PIRs as well as the final report (Project Manager's Review Report, March 2010) focus on outputs. The project would have benefitted from a</p>

<p>to advance Project objectives during the reporting period. The Quarterly reports should be revised accordingly.</p>	<p>detailed impact analysis, encompassing a description of baseline, barrier analysis (which barriers or gaps still remain and how these should or could be addressed) and analysis of impacts (energy savings and emission reduction estimates of the portfolio of investment activities assisted) as well as capacity development impacts.</p>
<p><i>Budget and resources:</i></p> <ul style="list-style-type: none"> • According to the PMU, Project expenditures are not tracked or reported by component or line item in the Project Document. It is therefore difficult to determine if funds for specific Project activities are being expended in a timely and appropriate manner. The PMU should work with CARICOM accounting office to provide Project budget and expenditure reports by line items in the Project Document • Given the proposal to terminate efforts to establish the CREF and the need to refocus the Project, PMU travel activities for the balance of the Project should be focused exclusively in the region and on specific Project activities. 	<p><i>Budget and resources:</i></p> <p>The Evaluator notes that after approval of the ProDoc, UNDP's financial management system changed to the current ATLAS system with differences in expenditure and budget line and groups, which makes reporting against the original budget lines difficult. An overview of expenditures and realized co-financing is given in Section 3.2.3.</p>

3.2.2 Partnership strategy and cooperation with stakeholders

The project has partnered with a number of stakeholders:

- National government and utilities in the beneficiary countries,
- Regional organizations (CARICOM, OECS)
- CARICOM Environmental Health Institutes
- CARILEC
- CEIS
- NGOs; training institutes.

In general one can conclude that the partnership strategy has worked. More info and details on the partner organizations the project has worked with is presented in Section 1.2, while cooperation with training institutions is mentioned in Section 2.1. The project has supported utilities and private developers in developing a pipeline of RE investment project opportunities in its second phase.

3.2.3 Financial planning and delivery of co-financing

The following table gives an overview of original budget and co-financing as committed in the UNDP Project Document as well as disbursement figures of CREDP-UNDP in the first phase of project implementation (2004-2007) and in the extension period (2008-2009). Not surprisingly, budget expenditure more or less follows the implementation of the project's activities, as described above with low expenditures in Component 2, while expenditures in Component 1 during 2004-2007 appear to be high in view of the results achieved. In Component 2 GEF funding has been used to support RE project formulation with grants in the second phase.

Co-financing has mainly been forthcoming from the CREDP-GTZ activities. With the envisaged RE project implementation in Component 2 not forthcoming (yet), co-financing by project developers or financiers (equity and debt) has not been realized.

Table 3 Budget and co-financing of the CREDP-UNDP project

Budget lines (in USD)	Budget 2004 (ProDoc)	Expenditures 2004-2007	Total expenditure (2004 - 2009)	Reported co-financing (in million USD)	Committed (ProDoc)	2004-2007	2004-2009
Policy & legislation	250,000	240,153	630,436	GEF	3.276	1.045	3.657
Financing & projects	1,965,000	209,063	1,697,466	Governments/CARICOM (in-kind)	5.130	0.380	0.840
Capacity Building	370,000	270,219	395,902	GTZ (cash)	2.200	2.200	3.726
Information networks	117,000	3,225	117,396	OAS	0.500	0.600	0.600
Management, M&E	1,024,000	485,062	816,131	Caribbean Dev Bank	4.981		0.000
				Equity (bank/investors)	6.000		
Total	3,726,000	1,207,723	3,657,332	Total	22.087	4.225	8.823

Source: APR-PIR (2010, 2008); spreadsheet 'Project expenditures 2004-2009'

3.2.4 Concluding remarks

The opinion of the Evaluator in this final evaluation is that the discussions at the end of the first phase (2007), including the evaluations by UNDP and GTZ, have resulted in a better project implementation strategy. The 'white elephant' financial mechanisms were abandoned and the GEF funds have been diverted in a better way to support the development of a portfolio of potential investment projects. Institutionalization of 'energy' within the CARICOM Secretariat and capacity building has also resulted in an 'energy unit' that can undertake activities with a longer term vision in mind than a temporary 'project management team' can. The new unit at CARICOM that implements the Energy Program has apparently taken a more proactive approach, and together with efforts from the CREDP-GTZ advisors, this has resulted in a series of policy-related support initiatives during 2008-2011 and a pipeline of potential RE projects (as detailed in Section 2.1). **Implementation** (in the period after the mid-term evaluation) can be rated as '*satisfactory*', given the limited period of implementation time remaining, but with the observation that the reporting of impacts of the project could have been much better.

3.3 Project design

The CREDP project was initiated in 2004 aiming at removing barriers to renewable energy production in fifteen Caribbean nations. The project seeks to achieve this by removing policy-regulatory, information and awareness and capacity barriers as well as by setting up financial schemes for project formulation and development.

Most progress has been achieved in the first phase (2004-2007) in capacity building only, with little progress in the energy policy Component 1 and info networking Component 4 and no progress in the project formulation and financing Component 2. In the second phase, the two constituent parts of CREDP (UNDP and GTZ funded) have caught up in terms of achievements in the Components 1 and 4. Eleven project ideas have been supported by CREDP-UNDP and more with CREDP-GTZ support. Lack of progress in the first phase can be attributed to low support by government decision-makers at the start of CREDP and implementation problems (as discussed in Section 3.2.1).

Unfortunately, the envisaged partners, Caribbean Development Bank (CDB) for CREF (the loan facility) and USAID (for the loan guarantee mechanism) pulled out. The full reasons for CDB and USAID to pull out are not fully known to the Evaluator other than ‘changing priorities’ (as mentioned in some of the document). The GEF-funded CRETAF did disburse funds, but only after it changed from a loan into a grant scheme.

In fact, the failure of the loan (guarantee) mechanisms may not be not for the following reasons:

- The Project Document states that for CREF a Facility Manager would be sought, after CDB pulled out. Without clarity on CREF the Project Document should have been put on hold or the financial Component 2 should have been left out or re-formulated (which eventually was done after the mid-term evaluation) or sliced off as a separate project as to not to endanger the progress of the other components;
- In the design of CREDP the underlying barriers and interdependence of barriers had not been properly analyzed. For example, neither the need for new ‘regional funds’ versus supporting existing regional or local financial institutions is explained in the Project Document nor how such a fund would address the different financing needs of a diverse range of technologies, The differences between technologies, type of end-users and finance needed is glossed over and therefore the envisaged mechanism have had too broad a focus ranging from large on-grid wind systems, to rural electrification and individual solar water heater systems.
- The project design focuses on establishing ‘national advisory committees’ without the Project Document explaining what would be the on-the-ground support in the various countries for such (new) institutional setups and how their recommendations would be translated into approved (renewable) policies and plans. In the end, these Committees were not established and the MTE report rightly recommended more country-focused target interventions to support existing policy making and planning on an as-needed basis.

Given the above observations, the rating for project design is ‘*unsatisfactory*’.

Lessons learnt

The project designers rightly identified lack of policy, legislation and regulation as one of the main barriers, but the original set of assumption has been severely flawed. Designing a project with duration of 4-5 years, assumes that these barriers can all be addressed in that short timeframe and can be addressed simultaneously. The following can be observed:

- Mitigating barriers may take different timeframes. Capacity building and awareness creation events (consisting of a series of workshops, seminars or course participation) can be quickest organized. However, effecting changing in the mindsets of policy and decision-makers needs a longer timeframe in practice. Policy development involves many stages including identification of needs, the definition of policy, decision by policy makers through various governmental procedures, consultation of stakeholders, and drafting and eventual passage of legislation.
- When initial awareness or willingness in the policy environment is low, it takes a long time, just not only to get the policy makers on board, but to translate this in policy formulation and formulation of practical regulations that are attractive for foreign/regional or local investors and to build the appropriate institutional frameworks. The process to formulate, review and discuss drafts, and integrated opinions requires sustained commitment and time of different stakeholders and actors of energy development. The timeframe is longer than a typical GEF-UNDP climate change project of 4-5 years and, in this case, has hampered CREDP.

- Only if the appropriate policy goals have been formulated and an appropriate regulatory environment for RE investments has been established, investors will be seriously interested. Only then financial mechanisms as a partial solution to mitigate financial or other risk factors, such as the perceived high risk in EE investments. In the Caribbean there are also specific problems, such as the small energy demand in some nations and lack of interconnection (options) between the various islands, making investments too small in size to attract large investors. Thus financial schemes should be tailored to the country's needs, type of technology and investors' needs.
- Experiences of renewable energy project implementation in the region has shown that preparation work to produce a bankable proposal takes more time and resources than foreseen during project planning. Also the issue of permitting and siting must be given serious attention. All this requires considerable effort, and as time is money, it requires additional funds from prospective project developers. This may be one reason that the concept of the contingent loan scheme for project preparation did not work (and was later converted into a grant scheme; this seems a better way to reduce the higher risk of the 'early bird' RE developers);
- Project conceptualization has been weak in the sense that the barrier analysis glosses over a wide range of technologies, technology end users and groups of countries, while assuming that all barriers can be addressed simultaneously in the time period of a typical GEF project of 3-5 years. Clearly, this is somewhat in conflict with:
 - The large diversity between countries in terms of size and population, e.g. Jamaica, 2.8 million; St. Kitts & Nevis, 43,000)
 - Type and cost of RE technologies involved, complexity and size of the market for RETs. For example, solar water heaters should be able to pay themselves back from the end user's point of view, while electrification of the jungle areas in Guyana or Belize will almost certainly need some form of subvention. Some countries have a potential for hydropower, others more for wind and/or for biofuel production;
 - Groups of (end)-users. Developing grid-connected power (with one client, namely the utility) faces a different set of issues and options than developing the market for a large number of clients (e.g., individual solar home system or solar water heaters).

3.4 Recommendations

Project design

a) In a multi-country project, the various barriers and associated barrier removal activities should be grouped together in technology-market-user clusters. Regional activities would focus on cooperation and issues at the regional level, but the project document needs to describe each cluster, as these face different barriers and have different needs in terms of capacity building and financial support needs and require different approaches by the government and other institutions involved. This allows a more focussed approach from the onset, rather than waiting for a more detailed design after the inception of the project.

For example, Barbados has made progress in solar water heater. This experience could have been analysed with recommendations how this can be replicated in other Caribbean countries and under which conditions. The scheme could be aided by a financial mechanism that provides guarantees or soft loans, but then the conditions for its proper functioning should be well defined and experiences from other countries in the world incorporated.¹⁴

¹⁴ The reader is referred to the Mid-Term evaluation (which the Evaluator carried out an evaluation of the UNDP/GEF NAMREP project in 2006, which included a functioning a guarantee mechanism with a private bank (supported with GEF funding) for loans for solar water heaters (available from the website <http://erc.undp.org>).

In other cases, a number of barriers proved to be more complex and intractable than anticipated, some barriers are more important than others and not all barriers can be addressed within the same timeframe¹⁵

b) Where possible, links should be made with energy efficiency considerations. For example, solar water heaters are perfect to promote in the tourist sector in these sunny islands, but the message may come around more convincing when solar water heaters are promoted as part of a range of energy saving options that result from energy audits in hotel buildings.

c) Rather than focussing on one-time 4 to 5 years interventions, one option for GEF is to allow a more long-term programmatic approach with a country or region, which would consist of several modules (smaller projects) that address specific issues and barriers, of which some would be in parallel and other ones implemented in a consecutive order. This would allow for flexibility in defining outputs and activities and fine-tune to the specific characteristics of the technology or intervention and the country's needs (changing over time). Rather than defining a package of activities worth several millions of dollars from the onset, this would also allow for more targeted, bottom-up, based budgeting per module and teaming up with projects and programmes of other bilateral and multilateral donors.

Acknowledging that the overall budget commitment for a longer-term programme could be risky, breakpoints could be inserted in the programme at some stage allowing for modules to start, depending on progress in other projects and depending on the context as the situation is evolving. In this concept, the current practice of co-financing in a 1:3 or 1:4 ratios should also be critically looked at and more flexibility built in. In some modules, e.g. technical training and capacity building, co-fin would be small or in-kind only, while in others, e.g. technical and advisory support to investors, co-financing could be much higher.

Sustainability and replicability

d) Continued and enhanced regional energy networking among National Ministries, Departments and Agencies in charge of energy and CARICOM Secretariat should be pursued. Cooperation and collaboration among international development and donor organizations (such as UNDP and GEF), national governments (such as GIZ) and regional organizations, such as CARICOM and OECS to take advantage of synergies and complementarities of their activities in the energy field is fundamental for sustainable energy development in the region. These should agree on a longer-term cooperation framework on sustainable energy and climate change.

e) However, it should be acknowledged that policy development is ultimately the responsibility of national governments (and fortunately Caribbean nations seem to be more supportive of sustainable energy initiatives than they were five or ten years ago). Depending on the national situation, a case-by-case approach for cooperation should be designed within an overall regional framework. Future capacity building activities should be planned programmatically, ensuring its medium term sustainability and focused on prioritized goals.

¹⁵ For example, the reader is referred to the Mid-Term and Final Evaluations of the Kazakhstan Wind Energy project carried out in 2007 and 2011 respectively. In this case, some barriers (policy-regulatory) were more important than others and could not be fully addressed in the timeframe of 4 to 5 years of a typical GEF climate change project. However, addressing these barriers turned out to be a condition for any grid-connected wind farm to be developed commercially. Thus, despite financing from investors, banks and funds potentially being available, investment has been on hold until the political-regulatory barriers would be fully removed (e.g., setting long-term targets for wind energy would give a good indication to investors that the Government had serious plans in developing renewable energy; A fixed feed-in-tariff for a fixed period of time should be available to attract serious wind farm developers). The evaluation reports are available at <http://erc.undp.org>

Once a conducive environment for sustainable energy investments has been created, it may be easier to enhance existing financing mechanisms through development and commercial banks, rather than setting up new schemes.

Country office

The project's manager has produced a Final Project Report (2010). The latter reflects the project manager's assessment of the functioning of CREDP. In addition to assessment of CREDP's implementation, the project would have benefitted from a more detailed 'End-of-Project Impact Assessment Report' detailing progress towards achievement of outcomes and objective, which should have included¹⁶:

- Status of legal and regulatory frameworks (on renewable energy) in the participating Caribbean countries and future prospects;
- Overview of potential benefits of renewable energy technologies, differentiating between type of technology (e.g. grid-connected, thermal applications, rural applications); beneficiary (utilities, company, urban or rural household), size of technology and size of beneficiary country). Overview of latest experiences with renewable energy at the project's end (CREDP and non-CREDP supported);
- Estimation of energy production and/or savings and resulting greenhouse gas emission reduction (direct, i.e. of investments supported with technical assistance by the project; indirectly, i.e. as a result of the project's capacity building and institutional strengthening activities);
- Quantification and qualitative analysis of the indicators based on the projects' logical or project results framework.
- Overview of barriers and risks (before the project's initiation as well as a description of the remaining barriers at the project's end)
- Lessons learned and recommendations (including suggestion on how to mitigate the remaining barriers).

As such, an impact study of this kind was not really foreseen in the original Project Document. However, it would be useful if future GEF projects to include such an impact study (and a corresponding baseline study at the beginning of a project, to be able to measure progress) and that GEF makes adequate funds available for this purpose.

¹⁶ A good example of such an 'end-of-project' assessment is the report "Kazakhstan Wind Power Market Development, Final Publication; by K. Lettice, Energy Services (2011)

ANNEX A. TERMS OF REFERENCE (TOR)

INTRODUCTION

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

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives:

- i) to monitor and evaluate results and impacts;
- ii) to provide a basis for decision making on necessary amendments and improvements;
- iii) to promote accountability for resource use;
- iv) to document, provide feedback on, and disseminate lessons learned.

A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project – e.g. periodic monitoring of indicators -, or as specific time-bound exercises such as mid-term reviews, audit reports and terminal evaluations.

In accordance with UNDP/GEF M&E policies and procedures, all full and medium-sized projects supported by the GEF should undergo a terminal evaluation upon completion of implementation.

1

2 The current Terms of Reference of the Terminal Evaluation (TE) of the ... Project outline what is expected from the Evaluation Team and briefly reflect key aspects of the project and its background. For any description on methodology, procedures and content of the evaluation report reference is made to the UNDP Evaluation Guidance for GEF Financed Project (Annex 6).

Brief project description

In 1998, 14 Caribbean countries and 2 British dependencies agreed to work together to prepare a regional project to remove barriers to the use of renewable energy (RE) and thereby foster its development and commercialization. The following countries were involved:

Antigua and Barbuda	Guyana
The Bahamas	Jamaica
Barbados	St Kitts and Nevis
Belize	St Lucia
British Virgin Islands	St Vincent and the Grenadines
The Republic of Cuba	Suriname
Dominica	Trinidad and Tobago
Grenada	Turks and Caicos Islands

The population of the countries in the region is small compared to the rest of the world. There is therefore a benefit for regional cooperation and regional delivery of some energy related activities. According to the 1998 census, the group of 16 Caribbean countries participating in the Caribbean Renewable Energy Development Programme (CREDP) has a total population of 18.5 million people, ranging from extremes like Cuba that accounts for 65% of this population (12 million people) to the small islands of Turks and Caicos with only 12,000 people.

The Caribbean region is currently heavily dependent on fossil fuel combustion, with petroleum products accounting for an estimated 93 percent of commercial energy consumption. Conventional methods of electricity production through fossil fuel plants are among the most significant contributors to air, land and water pollution. They are the primary source of greenhouse gas (GHG) emissions, and a major cause of a balance of payments problem. At the same time, the expansion of electricity generation is a key aspect to economic development in the Caribbean countries. Cuba and Trinidad and Tobago possess the largest installed capacities, 4300 and 1253 MW, respectively. Since the Caribbean region has relatively high electricity coverage, off-grid RE systems for rural electrification would apply only for a small group of countries such as Guyana, parts of Belize, and Suriname.

Caribbean countries are relatively small and insular which often indicates their vulnerability. Most Caribbean countries are net importers of energy which is almost entirely in the form of petroleum. Income elasticities of energy demand are high which results in a faster growth of energy imports than Gross Domestic Product. This makes balance-of-payments management progressively difficult as the national economy expands. Energy imports have, therefore, become a critical element in the countries' of the Region balance of payments management. Generally, in the Region, the patterns of energy demand in the countries are largely influenced by the structure and stages of economic development.

In the business-as-usual scenario, renewable energy technologies (RETs) are likely to provide less than 2 percent of the region's commercial electricity by 2015. The baseline scenario showed that in 1997 the total commercial electricity generation in the 16 Caribbean countries was about 23,000 GWh of which 93% came from fossil fuels, resulting in emissions of approximately 21 million tons of CO₂. Despite the Caribbean's substantial RE resources, exploitation lags far below their potential, due to policy, financing, capacity and awareness barriers.

The Caribbean Renewable Energy Development Programme (CREDP) was initially a four-year project, financed by the Global Environmental Facility (GEF) with additional support provided by the Government of Germany through its aid agency the GTZ. UNDP is the GEF Implementing Agency and the CARICOM Secretariat is the Executing Agency.

RET considered in CREDP include grid-connected renewable power (e.g. wind farm, bagasse cogeneration, and small hydro), renewable rural electrification (e.g. photovoltaics), and solar water heating. RET is particularly pertinent to developing countries, where climatic conditions, such as sunlight, and infrastructure arrangements favour its expanded use. Thus, some would argue that Caribbean countries could leapfrog across the entire stage of energy sources to a RET development path. The irony, however, is that while the more significant opportunities for utilizing RET now lie heavily in the developing countries, it is the developed countries that have access to the technology and financial resources to utilize RE sources. Few of the governments in the Caribbean region have developed policies to promote the use of RET, or have even assessed their inventories of renewable resources. Thus it is the aim of the project to provide the means of doing so.

There were two evaluations conducted during the life of the project – a mid term evaluation and an evaluation aimed at reformulating the project during the (original) final year of the project. The project budget is \$ US 3.72 M funded from the Global Environment Facility.

Caribbean countries participating in the Project are: The Bahamas; Barbados; Belize; The Republic of Cuba; Dominica; Grenada; Guyana; Jamaica; St. Kitts and Nevis; St. Lucia; St Vincent and the Grenadines; Suriname; Trinidad and Tobago; and the Turks and Caicos Islands.

The Project focused on the removal of the barriers to renewable energy in the Caribbean Region. Among the main barriers highlighted were policy, finance, human and institutional capacities, awareness and information. These barriers were recognized to be interrelated and cannot be

removed as independent components. The project was expected to contribute to the reduction of use of fossil fuels by allowing utilities and private investors to economically develop renewable energy projects in areas such as wind, hydropower, geothermal, biomass and to some extent solar options for power generation with significant impact on the national energy balance, thus reducing GHG emissions.

The main objectives of the Project were:

- Supporting the implementation of policies, legislation and regulations that create an enabling environment for renewable energy development;
- Demonstrating innovative financing mechanisms for renewable energy products and projects;
- Building the capacity of selected players in the renewable energy field;
- Putting in place an improved regional renewable energy information network.

CREDP's design in the financial area was to establish CREF (Caribbean Renewable Energy Facility) to provide loans to RE projects. CREF's funding was initially envisaged to come from the Caribbean Development Bank. Later on, when CDB decided to finance RE projects on a case-by-case basis, rather than setting up a dedicated facility, The funding for CREF was expected to come from the Inter-American Development Bank (IADB) through a "private regional development bank." Also, CREDP was to work on facilitating the completion of a partial guarantee facility for commercial loans to RE projects which would be funded by USAID/DCA scheme. CREF did not materialise.

OBJECTIVES OF THE EVALUATION

The TE (terminal evaluation) will be conducted according to guidance, rules and procedures for such evaluations established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects (Annex 6). A key principle of the evaluation is that it must provide clearly documented evidence and analysis, and unbiased assessment.

The overall objective of the TE is to analyze the implementation of the project, review the achievements made by the project to deliver the specified objectives and outcomes. It will establish the relevance, performance and success of the project, including the sustainability of results. The evaluation will also collate and analyze specific lessons and best practices pertaining to the strategies employed, and implementation arrangements, which may be of relevance to other projects in the country and elsewhere in the world.

The main stakeholders of this TE are GTZ, UNDP CO and UNDP/GEF regional support Centre (GEF), the stakeholders and beneficiaries such as the government agencies and Ministries in the beneficiary countries, private sector, CARICOM Secretariat, University of the West Indies, CEIS office.

SCOPE OF THE EVALUATION

The evaluation will cover the five major criteria which are relevance, effectiveness, efficiency, results and sustainability. These five evaluation criteria should be further defined through a series of questions covering all aspects of the project intervention, broken out in three main sections:

- a) Project Formulation: Logical framework, Assumptions and Risks, Budget (co-finance) and Timing
- b) Project Implementation: IA/EA supervision and support, monitoring (including use of tracking tools) and evaluation, stakeholder participation, adaptive management.
- c) Achievement of Results: Outcomes, Impacts, Catalytic effect, Sustainability, Mainstreaming (e.g. links to other UNDP priorities, including related support programmes set out in the UNDAF and CPAP, as well as cross cutting issues)

The Guidance in Annex 6 details which of the project components need to be rated as well as a definition of the six point rating scale (from Highly Satisfactory to Highly Unsatisfactory).

PRODUCTS EXPECTED FROM THE EVALUATION

The evaluation team is expected to deliver three products as described in the Guidance (Annex 1)

- A Work Plan
- Oral presentation of the main findings of the evaluation to UNDP CO and Project Team before the mission is concluded in order to allow for clarification and validation of evaluation findings.
- Evaluation Report which is to be in line with the Report Outline described in the Guidance in Annex 6.

METHODOLOGY OR EVALUATION APPROACH

The EF methodology is to follow the Guidance in Annex 6 and the Evaluation Team is to present a fine-tuned proposal in the Inception Report which is to be discussed with the UNDP-Country Office and the project's Coordination Unit.

A list of documents to be reviewed by the Evaluation Team is attached in Annex 2.

EVALUATION TEAM

The consultants in charge of the TE will be held to the ethical standards referred to in the Guidance (Annex 3) and are expected to sign the Code of Conduct (Annex 4) upon acceptance of the assignment.

The Team will comprise an international and a regional consultant in order to cover technical expertise, expertise with project implementation, development experience, and have a political/contextual sensitivity. The team leader needs to take into account that the evaluation exercise had been started by another consultant and missions were conducted to Jamaica, St. Vincent, Barbados and Guyana. The assignment has however not been finalized. The regional consultant visited St. Vincent, Barbados and Guyana and thus possesses information which is to serve as input for the overall assessment.

The roles respectively of the international and the regional consultant are as follows:

International consultant and Team Leader

Responsibilities:

- Evaluate the project design, the defined objectives and the achieved results
- Evaluate aspects related to sustainability, ownership, M&E and efficiency
- Evaluate project strategy and development
- Evaluate the achievement of project results, objectives and impact
- Evaluate management aspects and financial planning (in line with Annexes 4 and 5)
- Evaluate the executing capacity of the various parties involved, verifying the capacity is in line with their specific responsibilities
- Evaluate the intersectoral relations and the institutional and social context that have facilitated or hindered the success of the project
- Compile findings of the evaluation team and edit and prepare the final report

Profile:

- Vast M&E experience with similar projects
- Experience with evaluation of regional projects, preferably in the Caribbean
- Experience with evaluation of GEF and/or UNDP project will be a strong asset

- Knowledge of renewable energy
- Knowledge of Logical Frameworks
- Knowledge of government, non-government and private sectors actors that are key in similar projects

Regional consultant:

Responsibilities:

- Briefing of the international consultant at start of his assignment and on the work completed and information previously gathered
- Share with the consultant the report prepared for review
- Fill any gaps identified in the report by the lead consultant
- Before the arrival of the international consultant, assist in the organization of the interviews
- Participate in the interviews and assist in information gathering if needed
- Assist the international consultant in formulating the evaluation report

Profile:

- Have experience with similar projects
- Knowledge of project socio-economic and political context of the project
- Good impartial relationship with government, private sector and non-government actors.

IMPLEMENTATION ARRANGEMENTS

Management Arrangements

The TE is a requirement of UNDP and GEF and solicited and led by the UNDP Guyana Country Office (UNDP-CO) as project Implementing Agency. The UNDP-CO has overall responsibility for the coordination and logistical arrangements of the evaluation as well as day-to-day support to the evaluation team (travel, accommodation, office space, communications, etc) and timely provision of per diems and contractual payments. The UNDP-CO will also organize the site missions (travel arrangements, meetings with key stakeholders and beneficiaries, interviews, field trips). The evaluation team will be briefed by the UNDP Country Office and the RCU upon the commencement of the assignment, and will also provide a terminal briefing. Other briefing sessions may be scheduled, if deemed necessary.

Payment modalities and specifications: The evaluators will be contracted directly from the project budget. Payment will be 50% at the submission of the first draft to the UNDP-CO, UNDP-GEF RCU and PT, and the other 50% once the final report has been completed and cleared by both the UNDP-CO and UNDP-GEF RCU. The quality of the evaluator's work will be assessed by the UNDP-CO and UNDP-GEF- RCU. If the quality does not meet standard UNDP expectations or UNDP-GEF requirements, the evaluators will be required to re-do or revise (as appropriate) the work before being paid final installments.

These Terms of Reference follow the UNDP-GEF policies and procedures, and together with the final agenda will be agreed upon by the UNDP-GEF Regional Coordination Unit, UNDP Country Office and the Project Team. The final report must be cleared and accepted by UNDP before being made public, therefore, the UNDP-CO and UNDP-GEF-RCU will have to formally clear the report (please see Annex 6).

Timeframe, resources, logistical support and deadlines

The total duration of the evaluation will be 18 days for the international consultant according to the following plan:

Preparation before field work: (6 days)

- Acquaintance with the project document and other relevant materials with information about the project (PIRs, TPR reports, Mid-term Evaluation report and other evaluation report, etc)
- Review of all available materials with focused attention to project outcomes and outputs
- Briefing by the regional consultant on her visits and findings so far.
- Familiarization with overall development situation of the beneficiary countries (based on reading of UNDP- Common Country Assessment and other reports on the country). Approximately 12 beneficiary countries are expected to provide reports or other input.
- Detailed mission programme preparation, including methodology, in cooperation with the UNDP Country office and the Project team.
- Initial telephone discussion with UNDP-GEF Regional Technical Advisor
- Initial telephone /SKYPE discussion with CARICOM Secretariat and an appropriate sample of beneficiary countries based on the list provided by the Secretariat
- A preliminary draft of the report based on the above

Mission: (9 days including travel days)

- Meeting with UNDP –CO team and Project Team;
- Meetings with key stakeholders in Guyana, and telephone conference with key stakeholders and beneficiaries in the other countries
- Final interviews / cross checking with UNDP CO, UNDP RCU and Project team.
- Present to Project Team and UNDP CO the preliminary findings

Draft and final report (3) days

- Drafting of report in proposed format and submission of Draft within two weeks after the mission. The draft will be circulated and UNDP CO will collate feedback from UNDP RCU, the Project Team and send it back to the evaluators 3 weeks after the draft submission.
- Elaboration of the final report that is to be presented within 2 weeks after feedback round.

ANNEX B. ITINERARY OF THE EVALUATION TEAM AND LIST OF DOCUMENTS

B.1 Mission schedule and list of people met

Tue 14/06	<ul style="list-style-type: none"> Meeting with Mr. Malcolm Knight (CREDP national focal point), St. Kitts
We 15/06	<ul style="list-style-type: none"> Travel to Guyana; security briefing UNDSS
Thu 16/06	<ul style="list-style-type: none"> Meeting at UNDP (Ms. Patsy Ross, Program Analyst; Mr. Carlos del Castillo, officer-in-charge)
Fri 17/06	<ul style="list-style-type: none"> Meeting at CARICOM Secretariat (Mr. Joseph Williams, Program Manager energy; Ms. Nichelle Foo, project developer:) Meeting at CARICOM with Mr Thomas Scheutzlich (Principal Advisor CREDP-GTZ) Meeting with Mel Pollard (project developer)
Mon 20/06	<ul style="list-style-type: none"> Meeting at UNDP (Mr. Kenroy Roach, M&E analyst) Meeting at Office of Prime Minister (Mr. Horace Williams, electrical engineer/energy economist; Ms. Morsha Johnson, electricity regulator advisor) Meeting at Guyana Energy Agency (Mr. Mahender Sharma)
Tue 21/06	<ul style="list-style-type: none"> Meeting at UNDP (Ms. Ross; Mr. Roach and Mr. Henri Horn, Clean Energy and Climate Change Specialist) Departure from Guyana

B.2 List of documents reviewed

Project Document “Caribbean Renewable Energy Development Programme (CREDP)”

APR-PIRs (annual performance report – project implementation review)
2010, 2008, 2007

Mid-Term Evaluation (MTE) report (2007), and CARICOM’s Response Reformulation

Final Project Report (2010)
Project Manager’s assessment of the performance of CREDP

CARICOM and CREDP-GTZ websites

CREDP Quarterly Reports from the period 2004-2008

Evaluation Summary Notes, by the Regional Consultant (2010)

Project expenditures (2004-2009), Excel spread sheet

Websites, www.credp-gtz.org and www.caricom.org/jsp/projects/credp.jsp?menu=projects