



## PROGRESS REPORT

<b>Reporting UN Organization</b>	:	United Nations Development Programme (UNDP)
<b>Country</b>	:	Lebanon
<b>Award ID</b>	:	00047251
<b>Award Title</b>	:	CEDRO II & III – “Country energy efficiency and renewable energy demonstration project for the recovery of Lebanon”
<b>Award Timeframe</b>	:	Oct 2009 – Oct 2013
<b>Award Components</b>	:	CEDRO 2 – 00060150 CEDRO 3 – 00071261
<b>Reporting Period</b>	:	1 Jan 2012 – 31 March 2012

### List of Acronyms

BDL	Bank du Liban
CDR	Council for Development and Reconstruction
CO	Country Office
GDP	Gross Domestic Product
EDL	Electricity of Lebanon
EE	Energy Efficiency
EIA	Environmental Impact Assessment
GSHP	Ground Source Heat Pump
ITB	Invitation to Bid
LCEC	Lebanese Centre for Energy Conservation
LED	Light Emitting Diodes
LRF	Lebanon Recovery Fund
MoET	Ministry of Economy and Trade
MoEW	Ministry of Energy and Water
MoF	Ministry of Finance
MoU	Memorandum of Understanding
PV	Photovoltaic
RE	Renewable energy
SHW	Solar hot water
UNDP	United Nations Development Program
WWTP	Waste Water Treatment Plants

## I. PURPOSE

### Project Summary:

The aim of the CEDRO project is to support Lebanon's recovery, reconstruction and reform activities and to complement the national power sector reform strategy through the implementation of end-use energy efficiency and renewable energy projects and through the removal of barriers for the promotion of sustainable energy applications in Lebanon. To achieve this, the project will work on three levels: the first involves the establishment of a demonstrative model addressing public sector building and facilities, the second involves the activation of the replication process, and the third involves the triggering of a national sustainable energy strategy and action plan. The CEDRO project is financed through the Lebanon Recovery Fund, and is in-line with Lebanon's ongoing efforts to improve national patterns of energy consumption and cost.

### Project Phases and Outputs:

---

<b>CEDRO 2</b> 3.50 million USD	<ul style="list-style-type: none"><li>➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (app. 60 sites across Lebanon)</li><li>➔ Technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities</li></ul>
<b>CEDRO 3</b> 3.50 million USD	<ul style="list-style-type: none"><li>➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (app. 60 sites across Lebanon)</li><li>➔ Technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities</li><li>➔ Research and development to enable the formulation of a national sustainable energy strategy and action plan</li></ul>

---

### **Project Linkages to National Priorities and Reconstruction Goals:**

Lebanon imports around 97% of its energy needs in the form of fossil fuel. In 2004, the national energy bill amounted to around 1.6 billion USD (around 20% of the annual public expenditure and around 7.8% of the national GDP), and in 2005 it reached 2.1 billion USD (around 26% of the annual public expenditure and around 10% of the national GDP).

The government of Lebanon has placed the reform of the power sector among its highest national priorities, as outlined in the recovery, reconstruction and reform paper submitted to the Paris 3 conference after the 2006 conflict. However, given the enormity of the challenges faced by the power sector, the power sector reform strategy has concentrated on addressing the energy supply side, without extending the scope to the demand side of energy management.

Knowing that reform on the supply side needs to be accompanied by reform on the demand side, the proposed CEDRO program has sought to complement the national power sector reform strategy by targeting end-use energy conservation and renewable energy demonstrations which will assist in the above categories of demand-supply imbalance, security of supply, diversification of energy sources, economic cost and the environment.

Moreover, the current Lebanese government has set itself a goal of achieving 12% of its total energy needs from renewable energy sources. CEDRO is seeking to assist in achieving this goal through its demonstration projects of various zero carbon to low carbon technologies and its analysis of renewable energy resources.

This project is an initiative by the Government of Spain to assist the Government of Lebanon in its recovery and reconstruction efforts with a clear focus on promoting sustainable energy services and concentrating on public sector buildings and facilities.

This project is in line with Lebanon's recovery, reconstruction and reform objectives, and falls within the Ministry of Energy and Water's main priority to meet national demand for electricity.

### **Project Implementation Partners:**

The CEDRO partners and their respective roles are indicated to in the Table below;

<b>Institution</b>	<b>Role</b>
Spanish Agency for International Cooperation	Funded the CEDRO project through the LRF. The agency simply observes the work of the CEDRO project and sends representations to any event or occasion that CEDRO launches.
Ministry of Energy and Water (MoEW) and Lebanese Center for Energy Conservation Project (LCEC)	CEDRO's works closely with the Ministry and the LCEC as they are the main players in the energy sector. CEDRO's work augments that of the Ministry and the LCEC, particularly in terms of knowledge-sharing through research activities for the energy sector.
Ministry of Finance	Part of the established Steering Committee for CEDRO.
Ministry of Economy and Trade	Part of the established Steering Committee for CEDRO.
Council for Development and Reconstruction	Part of the established Steering Committee for CEDRO, and monitors the works and finances of CEDRO.

- International Partners: - Spanish Agency for International Cooperation  
National Partners: - Ministry of Energy and Water (MoEW)  
and Lebanese Center for Energy Conservation Project (LCEC)  
✓ Ministry of Finance

- ✓ Ministry of Economy and Trade
- ✓ Council for Development and Reconstruction

## 1. Project Management

- Coordination and follow-up on a regular basis with the Technical Backstopping Agency, TTA, on all technical assessments for the selection of new sites, installation designs, supervision and monitoring of works;
- Preparation of regular progress reports and financial management of expenditures;
- Organization of stakeholder meetings (regular meetings with the Ministry of Energy and Water (MoEW) and with EDL) – leading to and following up on several projects to be implemented on hydropower assessment, bioenergy from wastewater treatment plants, and geothermal assessment, among others.
- Daily follow-up with site engineers and project staff;
- Providing technical and policy advice to decision-makers (MoEW) and UNDP CO on renewable energy issues.

## 2. Implementation of end-use energy efficiency and renewable energy demonstration projects for public sector buildings and facilities

In the first quarter of 2012, the focus has been on writing the technical specifications of a new set of projects to be launched and completing (budgeted) for year 2012. Effort was also done on finishing continuing projects.

Three main projects are in the final stages and have been closely monitored by CEDRO so that they will be completed by early Q2 of 2012.

- 36 PV sites are having their controllers installed, their systems programmed, and commissioning is on-going site after site. All PV sites undertaken are listed in the last Quarterly report and in Newsletter 5.
- The ground source heat pump (GSHP) project is almost complete. Work has been progressing well, yet some delays occurred due to the slow progress of constructing the Bejji municipality building by the Municipality – this delay is outside the scope/control of the CEDRO project.
- Roumieh Prison is still on-going. It is planned that the project finishes in Q2 of 2012 (kindly see 'Implementation Constraints and Lessons Learned' below).

The new projects that are in the process of being prepared are indicated below;

- 3 sites microwind; CEDRO has prepared the terms of reference of 3 sites for microwind. The bidding documents have been sent to the short-listed firms (short-listing of 2012-2013). Only 3 sites have been identified that allow microwind to completely satisfy the targeted load (demand) all year around. For the other sites, a combination of hybrid (PV and microwind) or purely PV systems will be installed.
- 
- The selected microwind sites are;

El Mkytea Intermediate Public school
Karha Public School
Ras Baalback Community Center

- Batroun Port; the municipality of Batroun approached the CEDRO project to assist in the newly expanded historic port of Batroun, by installing renewably lit lighting. CEDRO is in the process of writing the bidding documents of this project, given that the site is a highly sensitive and historic site, thereby the ideal lightning system that is in harmony with the surrounding must be recommended.
- Volleyball court; A newly constructed volley ball court is underway in Batroun. This court has yet to construct the roof. Given this fact, the CEDRO project is testing a new technology to Lebanon; thin-film PV, which is another form of solar energy (electricity) that is obtained by bendable and thin material (thin-film) that can be spread on the roof of the court to satisfy the

court's lightning requirements and export any surplus. The international consultant to write the specification for this first-time project has been hired and is undergoing the task.

- Military Academy School, Fayadieh; a 14,000 liter SHW system will be installed on one of the main dormitory buildings of the Military Academy in Fayadieh. This system is a repeat of earlier systems installed by CEDRO on hospitals and prisons and army barracks. This building was selected through a prior agreement with the army that indicated that only 2 buildings at the Baalbeck army barracks are to be implemented instead of 3, while the 3<sup>rd</sup> building be transferred to Fayadieh.
- Green Roof at the Central Bank; a green roof application, the first of its kind, on one of the buildings of the Central Bank of Lebanon, Hamra, is underway by CEDRO. CEDRO, in coordination with the Central Bank's technical staff, writing the terms of reference for this project. Green Roofs have many benefits, such as aesthetics, visual comfort, local ecosystem enhancement, air pollution reduction and so forth, however, for this application, the main aim is to assess the reduction in cooling and heating loads by the building upon which the roof will be installed.
- Pico-Hydro power; a pico-hydro power system is being investigated by CEDRO. The site, in the south, where the system will be installed, has been identified. A Surveyor has been hired to map the site and an environmental study is underway to ensure that this system will not, in any way, have negative impacts on the environment. When these studies are done, the full terms of reference will be undertaken.
- Larger PV sites; the international back-stopping firm, TTA, is writing the terms of reference for several sites that would require a larger PV system as the ones usually installed by CEDRO. The sites selected for this is not final yet – and therefore will be posted in the Q2 2012 report.
- As indicated in the last Quarterly report (Q4 of 2011), 3 winners of the 'Madinati khadraa Competition' were announced;
  - o A solar street lighting and energy efficiency application (energy saving light-bulbs to be distributed) project will be implemented in Qobeiyeet (North Lebanon)
  - o A hybrid PV (for electricity) and SHW (for hot water) system will be installed in Aley Prison where both of these (electricity and hot water) are hard to come by.
  - o Roumin pico-hydro; this project is the first of its kind, where a water network pipe will be used to turn a small turbine to light both the municipality of Roumin, and a public street. This will not affect the delivery of water.

The expected timeframes of the above project is shown in the Table below;

ID.	Type	ITB/RFQ delivered to bidders	Project commences	Project completion
1	Fayadiyi SHW	April 2012	June 2012	Nov 2012
2	Large PV sites	April 2012	June 2012	Nov 2012
3	Microwind	April 2012	June 2012	Nov 2012
4	Hybrid PV/u-wind	June 2012	Aug 2012	Feb 2013
5	Green Roof App.	June 2012	Aug 2012	March 2013
6	Volleyball Court	Sept 2012	Nov 2012	May 2012
8	Batroun Port	July 2012	Sep 2012	March 2013
9	Pico Hydro	July 2012	Sep 2012	April 2012

### 3. Setting an enabling environment for the conversion of public sector buildings and facilities into energy efficient modalities

- The CEDRO website ([www.cedro-undp.org](http://www.cedro-undp.org)) is running and is being continuously updated with new events and projects as they happen. However, a new local firm has been hired to completely revamp the CEDRO website. The outcome of this should be completed in Q2 of 2012.
- Newsletter 6 of CEDRO has been prepared and will be distributed early Q2 of 2012.
- The Theater awareness raising theatre production that targets all public school children in Lebanon on issues related to climate change, renewable energy, water conservation, and energy efficiency was launched on the 20<sup>th</sup> of February 2012 and is currently touring the

country targeting school children (both public and private). Regions presented in so far are: Saida, Mount Lebanon, Tyre and South Lebanon. Approximately 13,500 students have watched the play so far.



- The preparation of the marketing strategy for 2012 has been prepared to ensure the maximum exposure for the CEDRO project. Awareness and capacity building on RE and EE applications is a main part of this marketing. Kindly see Annex 1 for a concise overview of this strategy.

- Launching of the National Bioenergy Assessment took place on the 5th of March 2012 with the attendance of over 100 people and the presence of the Spanish Ambassador and the Minister of Energy and Water



- The presenting of Madinati Khadra Awards to the three municipalities has been undertaken on the 17<sup>th</sup> in the presence of the Spanish Ambassador and the Director General of the Ministry of Municipal Affairs.





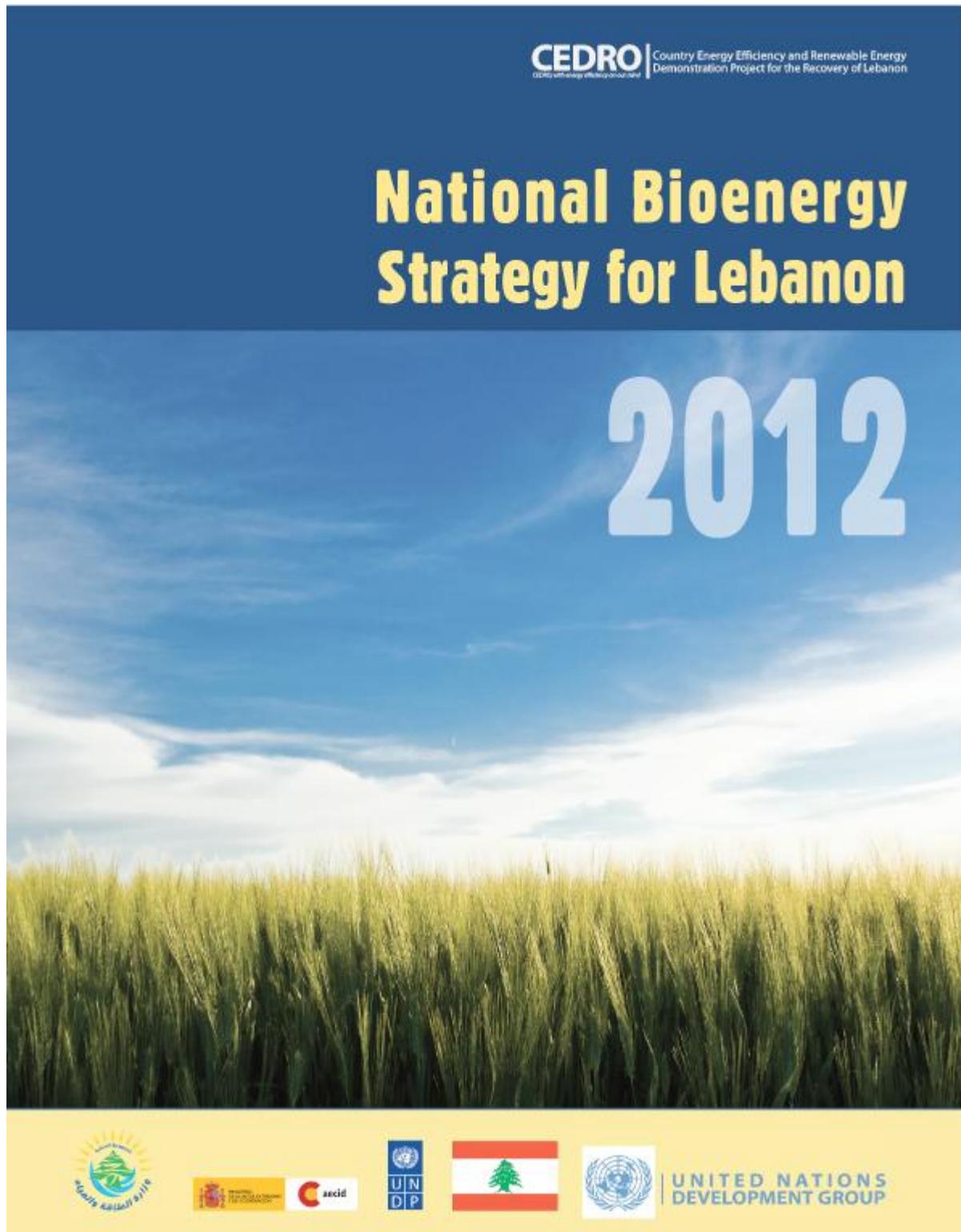
- Opening of 3 PV sites in the South of Lebanon was undertaken on 31 March 2012 in the presence of the Spanish Ambassador, the UNIFIL South East Commander, 2 Deputies of the region of Marjeyoun, and heads of municipalities of the region.



#### **4. Assisting the establishment of a sustainable Energy Strategy for Lebanon**

- The National Bioenergy Assessment for Lebanon has been published and distributed. This study scuds the entire country and filters 10 potentially very viable bioenergy streams. The study pushes the Lebanese policy makers to think in alternative ways, in

order to secure more energy from locally found biomass. The study can be collected at the CEDRO office or downloaded from the CEDRO website; <http://www.cedro-undp.org/en/downloads/>



- A study for energy from sewage sludge from wastewater treatment plants (WWTP) is under way in cooperation with the Ministry of Energy and Water and the Council for Development and Reconstruction and assessment. The expected end date of this study is June 2012. This study will push thinking towards synergizing the WWTPs in Lebanon so

that they make use of the energy production potential that these plants contain, and even include co-digestion of other wastes to increase energy production.

- The winning company for the national geothermal power assessment in Lebanon has been announced. The UNDP procurement is expected to sign the contract with this company and launch the study early Q2 of 2012.

All in all, CEDRO aims to assist the government in Lebanon in deciding which energy source to utilize to reach its objective of 12% of its energy mix to come from renewable energy sources by 2020 – an objective approved by the Council of Ministers and asserted in the Copenhagen Summit<sup>1</sup>.

## II. RESOURCES

		<b>CEDRO 2</b>	<b>CEDRO 3</b>
<b>Total budget approved</b>	:	USD 3,500,000	USD 3,500,000
<b>Total disbursements as for 31 Mar 2012</b>	:	USD 3,370,504	USD 637,728
<b>Available Balance</b>	:	USD 129,496	USD 2,862,272
<b>Commitments for next quarter</b>	:	USD 100,000	USD 300,000

### Budget and Expenditure Breakdown per LRF Category:

CATEGORY	CEDRO2		CEDRO3	
	Total Budget (USD)	Total Exp. to date (USD)	Total Budget (USD)	Total Exp. to date (USD)
<b>1. Personnel</b> (Incl. staff and consultants)	220,000	540,813	170,000	25,098
<b>2. Contracts</b> (Incl. companies, professional services)	440,000	504,838	440,000	434,393.29
<b>3. Training</b> (incl. AV printing / production)	40,000	0	40,000	0
<b>4. Transport</b> (local)	10,000	14,570	10,000	3,702.78
<b>5. Supplies and commodities</b> (Incl. IT equip and rental & maintenance)	50,000	835,898**	50,000	3,928.5
<b>6. Equipment (including installation)</b>	2,450,000	1,207,283	2,500,000	0
<b>7. Travel</b>	15,000	33,658	15,000	3,334.22
<b>8. Miscellaneous</b>	46,000	80,472	30,000	34,363.41
<b>9. Agency Management Support (7%)</b>	186,048	218,482	245,000	35,337.41
<b>TOTAL</b>	<b>3,500,000</b>	<b>3,436,014</b>	<b>3,500,000</b>	<b>540,157.61</b>

\* total expenditure for staff and consultants exceeds the total allocated budget because most of the technical design and supervision of works is being implemented by project personnel and not sub-contracted to third-party companies as originally planned. A budget revision is therefore being requested should this be necessary.

\*\* The expenditures being reported under this budget account not is only related to the "supplies and commodities" for project running costs but mostly for the installation of equipment; i.e. implementation activities. However, given the difference in budget line description between UNDP and the LRF accounts, the expenditure appears in this budget line

CEDRO Project	CEDRO 2 3.50 million USD	CEDRO 3 3.50 million USD
<i>Activity Results</i>	<i>Indicators</i>	
<b>1 - Implementation of end-use energy efficiency and renewable energy demonstration projects for public sector buildings and facilities</b>	<ul style="list-style-type: none"> <li>➔ Identification and Implementation of 60-80 EE/RE demonstration projects the remaining regions of Lebanon</li> </ul>	<ul style="list-style-type: none"> <li>➔ Identification and Implementation of 60-80 EE/RE demonstration projects across Lebanon</li> </ul>
<b>2 – Outreach and technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities</b>	<ul style="list-style-type: none"> <li>➔ Development and implementation of technical workshops and awareness tools</li> <li>➔ Development of GIS energy data base and EE/RE procurement specs</li> </ul>	<ul style="list-style-type: none"> <li>➔ Development and implementation of technical workshops and awareness tools</li> <li>➔ Development of GIS energy data base and EE/RE procurement specs</li> <li>➔ Validation of project results and development of replication schemes</li> </ul>
<b>3 – Research and development to enable the formulation of a national sustainable energy strategy and action plan</b>	-	<ul style="list-style-type: none"> <li>➔ Assessment of national renewable energy resources</li> <li>➔ Assessment of national energy efficiency potential</li> <li>➔ Development of national EE/RE strategy &amp; action plan</li> </ul>

## Progress in Project Implementation:

Activity Results	Activity Actions	Targets for 2012	Status for 2012
<b>1 – Project Management</b>	1.1 Technical Management	✓ Organization of 3 conferences and/or events and end of year project board meeting	✓ 2 conferences (have already occurred; Bioenergy dissemination event and Madinati Khadra event)
	1.2 Financial Management	✓ Opening of Baalbeck Army SHW sites	✓ 1 opening event of 3 PV sites in the South has been implemented
	1.3 Operational Management	✓ Organization of 2 international backstopping missions;	✓ Preparation of launching of Baalbeck SWH unit is underway.
		✓ Apply the issues raised in the report on the status and results of the CEDRO I pilot projects published in Q4 of 2012	Pending
		✓ Provide advisory support services on EE/RE policies and legislations	✓ Recommendations of CEDRO 1 Evaluation Report are under assessment by project manager
		✓ Attendance of capacity building workshops for CEDRO team	✓ Advisory services for MoEW and EDL on net metering has led to a successful outcome. EDL has now adopted new metering and this was announced in January 2012.
	✓ Preparation of regular progress reports	✓ CEDRO Project Manager attended The Qatar Alternative Energy Summit in Doha	✓ Q1 progress report prepared
Activity Results	Activity Actions	Targets for 2012	Status for 2012
<b>2 - Implementation of end-use energy efficiency and renewable energy demonstration projects for public sector buildings and facilities</b>	2.1 Undertake targeted assessment and identification of project beneficiary sites;	✓ Implementation of 30 demonstration projects; <ul style="list-style-type: none"> <li>✓ Launch 3 sites for micro-wind</li> <li>✓ Launch Army Fayadieh Military school (SHW)</li> <li>✓ Launch Batroun Port</li> <li>✓ Launch Batroun Volleyball court thin-film PV</li> </ul>	✓ Works on 36 PV sites almost done ✓ Works on 4 public hospitals done ✓ GSHP project is almost done ✓ Works on Roumieh has Jacketing of system only remaining. This was hoped to be done in Q1 of 2012 yet has been pushed to Q2 of 2012 due to security issues.
	2.2 Develop tender documents and undertake bidding & procurement of goods/services;	<ul style="list-style-type: none"> <li>✓ Launch three sites of Madinati Khadra competition</li> <li>✓ Launch pico-hydro</li> <li>✓ Launch larger PV sites</li> <li>✓ Launch hybrid PV/microwind sites</li> <li>✓ Launch Green Roof initiative at the Central Bank</li> </ul>	✓ Preparation of ITB for microwind has been completed ✓ Preparation of ITB for Army SHW has been completed. ✓ Preparation of ITB is underway for; ✓ - Batroun Volleyball Court ✓ - Batroun Port ✓ - Pico-hydro ✓ - hybrid PV/microwind
	2.3 Undertake commissioning of works and supervision and monitoring of sites;	<ul style="list-style-type: none"> <li>✓ Complete work on Beiji Municipality (GSHP)</li> <li>✓ Complete work on Roumieh Prison</li> <li>✓ Complete work on 4 SHW projects (final review)</li> <li>✓ Complete work on 36 PV sites (controllers and commissioning)</li> </ul>	✓ - Larger PV sites ✓ - Green roof at BDL
	2.4 Undertake testing of	✓ Continuous cooperation between CEDRO, the MoEW and the LCEC for on-going projects	

	performance & data collection;		
<b>Activity Results</b>	<b>Activity Actions</b>	<b>Targets for 2012</b>	<b>Status for 2012</b>
<b>3 – Outreach and technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities</b>	3.1 Develop and implement technical workshops and awareness activities;	<ul style="list-style-type: none"> <li>✓ Development and implementation of 2 technical workshops</li> <li>✓ Continuation and expansion of CEDRO outreach and visibility;</li> <li>✓ 2 newsletters to be produced in 2012</li> <li>✓ Complete revamping of CEDRO website to be implemented</li> <li>✓ Environment play to complete its tour across all public and private schools of Lebanon.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Microwind and Ground source heat pump technical workshops are being prepared by CEDRO</li> <li>✓ Updating project website: <a href="http://www.cedro-undp.org">www.cedro-undp.org</a> (En/Ar);</li> <li>✓ Articles on CEDRO in (1) Beyond magazine. (2) Environment and Development magazine, ...</li> <li>✓ Full press coverage for the Bioenergy Event</li> <li>✓ Full press coverage on the PV opening events (in the South)</li> <li>✓ Documentary has been prepared for CEDRO.</li> <li>✓ 1<sup>st</sup> newsletter of 2012 is out, 2<sup>nd</sup> newsletter will be distributed in Q3 of 2012.</li> <li>✓ Theatre (environment play) is touring Lebanon</li> </ul>
	3.2 Develop GIS energy data base and EE/RE procurement specs; 3.3 Validate project results and enable replication schemes;	<ul style="list-style-type: none"> <li>✓ Set-up of GIS database for 200 public sector sites;</li> <li>✓ Interactive Map for CEDRO sites to be installed on new webstie</li> </ul>	<ul style="list-style-type: none"> <li>✓ Set-up of GIS database for 109 public sector sites completed</li> </ul>
<b>4 – Research and development to enable the formulation of a national sustainable energy strategy and action plan</b>	4.1 Asses national renewable energy resources; 4.2 Assess national energy efficiency potential; 4.3 Develop national EE/RE strategy & action plan;	<ul style="list-style-type: none"> <li>✓ Publish Bioenergy Report for Lebanon and disseminate results</li> <li>✓ Continue with energy from waste water treatment plants study, and finalize results by Q2 of 2012</li> <li>✓ Continue with study on hydropower resources from non-river sources.</li> <li>✓ Continue with international consultant on the plant rehabilitation in Lebanon and the writing of specifcaiton documents</li> <li>✓ Launch and implement the national geothermal power assessment for the country.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Bioenergy report completed and disseminated in a conference in March 2012</li> <li>✓ WWTP study is nearly completed.</li> <li>✓ Small to micro-hydro has been awarded and work is under way.</li> <li>✓ International hydro-power consultant has been hired and assessment of rehabilitating old hydropower plants is underway.</li> <li>✓ Geothermal assessment study has been awarded and will launch in Q2 of 2012.</li> </ul>

\* EE/RE = Energy Efficiency and Renewable Energy

**Implementation Constraints and Lessons Learned during this quarter:**

- ▶▶ In this first quarter of 2012 (i.e., Q1), CEDRO has experienced the following;
  - Roumieh Prison; the continued unrest in Roumieh Prison has delayed works even further. The only remaining thing left is jacketing the system, however the workers of the contractor on site were put in danger and almost kidnapped in Q1 of 2012. CEDRO is closely monitoring the situation and hopes to complete this difficult project by Q2 of 2012.

#### IV. FUTURE WORK PLAN

Outputs and Activities	2012			
	Q1	Q2	Q3	Q4
<b>1. Implementation of end-use EE/RE demonstration projects</b> <ul style="list-style-type: none"> <li>- Identification of beneficiary sites</li> <li>- Development of tender documents</li> <li>- Procurement of goods / services</li> <li>- Site Supervision and hand-over</li> <li>- Monitoring of system performance</li> </ul>	<p>Launch microwind ITB</p> <p>Launch new PV project (larger sites) ITB</p> <p>Launch hybrid ITB</p> <p>Launch SHW ITB for army</p> <p>Prepare Pico hydro sites</p> <p>Monitor performance of earlier projects and collect data</p>	<p>Monitor implementation of microwind project</p> <p>Monitor implementation of larger PV sites</p> <p>Monitor implementation of SHW sites</p> <p>Launch pico hydro-sites</p> <p>Monitor performance of earlier projects and collect data</p>	<p>Monitor implementation of current works</p> <p>Monitor performance of earlier projects and collect data</p>	<p>Monitor implementation of works (commission sites of 2012)</p> <p>Record all data collected from sites</p> <p>Monitor all installations</p>
<b>2. Outreach and Technology transfer for the activation of EE/RE applications</b> <ul style="list-style-type: none"> <li>- Establishment of energy saving data base for public sector facilities</li> <li>- Development &amp; Implementation of capacity building &amp; awareness programs</li> <li>- Development of relevant EE/RE policies and procedures</li> <li>- Validation of project results</li> </ul>	<p>Launch Army SHW event</p> <p>Launch technical workshop on microwind and GSHP</p> <p>Award Madinati Khadra competition</p> <p>Launch bioenergy assessment event</p> <p>Launch theater event</p>	<p>Awareness activity to be determined</p> <p>Continue theater event</p>	<p>Technical workshop - to be determined</p> <p>Launch Energy manual for hospitals</p> <p>Continue theater event</p>	<p>Technical workshop - to be determined</p> <p>Launch Energy manual for banking sector with green roof application</p>

<b>3. Research and development for the formulation of a national EE/RE strategy and action plan</b> <ul style="list-style-type: none"> <li>- Assessment of national RE potential</li> <li>- Assessment of national EE potential</li> <li>- Identification of viable EE/RE actions</li> <li>- Identification of Implementation tools and funding mechanisms</li> </ul>	Launch Geothermal assessment	Monitor studies progress	Monitor studies progress	
	Launch Central Bank green roof study			
	Launch Energy Manual			

Outputs and Activities	2013			
	Q1	Q2	Q3	Q4
<b>1. Implementation of end-use EE/RE demonstration projects</b> <ul style="list-style-type: none"> <li>- Identification of beneficiary sites</li> <li>- Development of tender documents</li> <li>- Procurement of goods / services</li> <li>- Site Supervision and hand-over</li> <li>- Monitoring of system performance</li> </ul>	Monitor implementation of works  Record all data collected from sites  Monitor all installations  Prepare Operation and maintenance plan post-CEDRO	Monitor implementation of works  Record all data collected from sites  Monitor all installations  Prepare Operation and maintenance plan post-CEDRO	Terminate project  Prepare Operation and maintenance plan post-CEDRO  Prepare Operation and maintenance plan post-CEDRO	
<b>2. Outreach and Technology transfer for the activation of EE/RE applications</b> <ul style="list-style-type: none"> <li>- Establishment of energy saving data base for public sector facilities</li> <li>- Development &amp; Implementation of capacity building &amp; awareness programs</li> <li>- Development of relevant EE/RE policies and procedures</li> <li>- Validation of project results</li> </ul>	Awareness activity to be determined	Awareness activity to be determined	Closing event for CEDRO project	
<b>3. Research and development for the formulation of a national EE/RE strategy and action plan</b> <ul style="list-style-type: none"> <li>- Assessment of national RE potential</li> <li>- Assessment of national EE potential</li> <li>- Identification of viable EE/RE actions</li> <li>- Identification of Implementation tools and funding mechanisms</li> </ul>	No new studies possible  Put together all CEDRO's work on RE and EE in one document; a national document for RE and EE	Put together all CEDRO's work on RE and EE in one document; a national document for RE and EE	Put together all CEDRO's work on RE and EE in one document; a national document for RE and EE	

## CEDRO

### CEDRO 2

- ➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (60sites across Lebanon)
- ➔ Technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities

### CEDRO 3

- ➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (60-80 sites across Lebanon)
- ➔ Technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities
- ➔ Research and development to enable the formulation of a national sustainable energy strategy and action plan

## **Annex1. CEDRO Marketing Strategy (Concise Outline)**

### **Objective**

The marketing strategy for 2012-2013 aims at;

- Creating awareness about CEDRO past achievements and present and future plans
- Informing about various report's findings and how these can be beneficial on a National level
- Attracting new funding post-2013.

### **Corporate strategy**

- To tackle CEDRO's achievement's and reports' findings so far and benefits derived from them on a National scale
- Inform about vision, future plans and how these serve the energy sector in Lebanon
- Very brief and friendly presentations of executive summaries of different publications from a pragmatic perspective and benefits derived from each and every report/study e.g. Wind Atlas, EIA, bioenergy, etc...
- Testimonials of beneficiaries by segment and scientific evidence of savings e.g.: Saida hospital, jbeil municipality, school's principal, etc...

### **Brochure**

- Design a corporate brochure to be distributed during events
- The brochure to include the achievements of CEDRO to date
- Separate sheets summarizing major findings of different reports: wind atlas, EIA, bioenergy, etc....
- To include as well vision, future plans, target, etc...
- In line with the corporate strategy to summarize all achievements, findings of reports, testimonials of beneficiaries, etc....
- Include scientific evidence of benefits as far as the energy sector in Lebanon

### **Website**

- Design a new website reflecting the corporate image of CEDRO
- With flexible pages to be updated on a continuous basis
- The website to include the various reports executive summaries in the home page and the option of downloading the whole publication

### **Campaign information**

- The corporate event as well as all the tactical events to be coupled with TV releases, press releases, interviews, etc....
- The TV releases and interviews to host beneficiaries who will testify and show the benefits derived from the adopted energy conservation measures
- CEDRO newsletter to be published twice a year, as being done currently.

### **International Exhibitions**

- Participation in interesting international conferences and energy exhibitions
- Participation to the international conferences and presenting CEDRO's achievements on a national scale