



## PROGRESS REPORT

<b>Reporting UN Organization</b>	: United Nations Development Programme
<b>Country</b>	: Lebanon
<b>Award ID</b>	: 00047251
<b>Award Title</b>	: CEDRO – “Country energy efficiency and renewable energy demonstration project for the recovery of Lebanon”
<b>Award Timeframe</b>	: Oct 2007 – Oct 2012
<b>Award Components</b>	: CEDRO 1 – 00056604 CEDRO 2 – 00060150 CEDRO 3 – 00071261
<b>Reporting Period</b>	: 01 April 2009 to 30 June 2009

### 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 1</b> 2.73 million USD	<ul style="list-style-type: none"> <li>➔ Implementation of end-use energy efficiency and renewable energy demonstration projects for public sector buildings and facilities (50-60 sites in South, Bekaa and Akkar)</li> </ul>
<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 (60-80 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 (60-80 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). Despite major steps taken by the Government of Lebanon since 1990 towards improving the electricity sector, the sector is still facing major challenges including inability to meet increasing national energy demand and large financial subsidies for Electricite du Liban (around 1.0 billion USD in 2006).

As a result of the July 2006 conflict, the situation of the energy sector in Lebanon was further aggravated, resulting in a reduction of electricity supply on a national level and an increase in electricity rationing. This only added to the existing electricity supply challenges faced by Lebanon and further deteriorated the living conditions in the country.

Indeed, 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. 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.

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:

International Partners: - Spanish Agency for International Cooperation

National Partners: - Ministry of Energy and Water  
and Lebanese Center for Energy Conservation Project (LCECP)  
- Ministry of Finance  
- Council for Development and Reconstruction

## II. RESOURCES

		<b>CEDRO 1</b>	<b>CEDRO 2</b>	<b>CEDRO 3</b>
<b>Total budget approved</b>	:	USD 2,732,240	USD 3,500,000	USD 3,500,000
<b>Total disbursements as for 30 Jun 2009</b>	:	USD 458,330	USD 16,650	-
<b>Commitments for next quarter</b>	:	USD 200,000	USD 100,000	-
<b>Available Balance</b>	:	USD 2,273,910	USD 3,483,350	USD 3,500,000

### Budget and Expenditure Breakdown per LRF Category:

CATEGORY	CEDRO1		CEDRO2	
	Total Budget (USD)	Total Exp. to date (USD)	Total Budget (USD)	Total Exp. to date (USD)
1. Personnel (Incl. staff and consultants)	177,000	184,260	220,000	4,778
2. Contracts (Incl. companies, professional services)	220,000	122,953	440,000	-
3. Training (incl. AV printing / production)	22,000	11,210	40,000	3,080
4. Transport (local)	30,000	30,657	10,000	-
5. Supplies and commodities (Incl. IT equipment and rental & maintenance)	36,300	38,567	50,000	8,792
6. Equipment (including installation)	2,030,000	34,452	2,450,000	-
7. Travel	14,000	4,746	15,000	-
8. Miscellaneous	11,683	11,885	30,000	-
9. Agency Management Support (7%)	191,257	19,600	245,000	-
<b>TOTAL</b>	<b>2,732,240</b>	<b>458,330</b>	<b>3,500,000</b>	<b>16,650</b>

### III. RESULTS

CEDRO Project	CEDRO 1 2.73 million USD	CEDRO 2 3.50 million USD	CEDRO 3 3.50 million USD
<b>Activity Results</b>	<b>Indicators</b>		
<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 50-60 EE/RE demonstration projects in South, Bekaa and Akkar</li> </ul>	<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> </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> </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	Progress up to 31 Dec 2008	Targets for 2009	Status for 2009
<b>1 – Project Management</b>	1.1 Technical Management	✓ Development of Project Documents for CEDRO 1 and CEDRO 2;	✓ Development of Project Document for CEDRO 3;	✓ Complete
	1.2 Financial Management	✓ Set-up of Project office premises and project management unit;	✓ Recruitment of Technical Backstopping for CEDRO 2;	✓ Request for proposal prepared and issued;
	1.3 Operational Management	✓ Recruitment of Technical Backstopping Agency for CEDRO 1;	✓ Organization of PCC meeting;	✓ Planned for Q3 / 2009
		✓ Set up of Project Coordination Committee (PCC);	✓ Organization of three technical workshops;	✓ Planned for Q4 / 2009
		✓ Organization of PCC meeting in July 2008;	✓ Organization of 5 international backstopping missions;	✓ 2 missions successfully completed (Feb & Apr), and 3 missions planned for Q3 & Q4;
		✓ Preparation of regular progress reports;	✓ Preparation of regular progress reports;	✓ Quarterly reports timely submitted;
<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;	<ul style="list-style-type: none"> <li>✓ Preparation of targeted assessment and identification of beneficiary sites including: <ul style="list-style-type: none"> <li>– Development of site identification strategy;</li> <li>– Carrying out of detailed field visits to assess the compatibility of potential building types with EE/RE applications;</li> <li>– Analysis of site features and Identification of site selection filters and criteria;</li> <li>– Development and posting of Needs Identification Form to assess the public sector needs for EE/RE systems;</li> </ul> </li> <li>– Receipt of over 600 Forms and analysis of data including energy consumption data;</li> <li>– Coordination with LCEC on energy audits;</li> <li>– Carrying out of outreach and coordination including stakeholder meetings and one-on-one consultation meetings;</li> <li>– Preparation of the related evaluation report and list of beneficiary sites;</li> </ul>	✓ Implementation of 30 demonstration projects;	<ul style="list-style-type: none"> <li>✓ Issuing of invitations to bid and Award of Contracts for 30 sites featuring photovoltaic systems and solar water heaters, and including: 4 Public Hospitals; 20 Public Schools; 3 Municipalities; 2 Community centers; 1 public street lighting;</li> <li>✓ Supervision of works for 30 sites;</li> </ul>
	2.2 Develop tender documents and undertake bidding & procurement of goods/services;		✓ Preparation of 20-30 new demonstration projects for implementation;	<ul style="list-style-type: none"> <li>✓ Preparation and posting of a second Expression of Interest (EOI) for the supply and installation of EE/RE systems;</li> <li>✓ Analysis of 20 new potential sites;</li> <li>✓ Preparation of needs identification forms for second public sector announcement;</li> <li>✓ Coordination with LCEC on Energy audit results;</li> </ul>
2.3 Undertake commissioning of works and supervision and monitoring of sites;				
2.4 Undertake testing of performance & data collection;		<ul style="list-style-type: none"> <li>✓ Preparation and posting of an Expression of Interest for the supply and installation of EE/RE systems;</li> <li>✓ Evaluation and posting of short-listed companies;</li> <li>✓ Development of Technical specifications for solar water heater systems and photovoltaic systems;</li> </ul>		

Activity Results	Activity Actions	Progress up to 31 Dec 2008	Targets for 2009	Status for 2009
<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>✓ Oct 2007 - Development and dissemination of the first project brochure (English/Arabic) ;</li> <li>✓ Oct 2007 - Arrangement of the official Project Signature event at the Council for Development &amp; Reconstruction;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Development and implementation of three technical workshops;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Planned for Q4 / 2009</li> </ul>
	3.2 Develop GIS energy data base and EE/RE procurement specs;	<ul style="list-style-type: none"> <li>✓ Oct 2007 - Outreach to around 150 engineers through participation in the annual Energy Week at the Order of Engineers and Architects, Beirut;</li> <li>✓ Apr 2008 - Outreach to around 200 municipalities through participation in the Omsar municipalities workshop at the Grand Serail;</li> <li>✓ Apr 2008 - Outreach to around 100 stakeholders through the organization of the cedro first Stakeholder meeting ;</li> <li>✓ Issuing of newspaper releases and magazine articles (national coverage);</li> <li>✓ Feb - Sept 2008 - One-on-one consultation meetings with stakeholders and beneficiaries;</li> <li>✓ Nov 2008 – Organization of press conference for the launch of the cedro implementation phase;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Continuation and expansion of CEDRO outreach and visibility;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Apr 2009 - Outreach to around 50 professionals through participation in LCEC energy audit workshop;</li> <li>✓ Jun 2009 - Outreach to around 400 professionals through participation in Project Lebanon exhibition;</li> <li>✓ Preparation of website content and award of contract for website development (En/Ar);</li> <li>✓ Preparation of Newsletter (En/Ar)</li> <li>✓ Development and dissemination of a second project brochure (En/Ar);</li> <li>✓ Development of a targetted marketing plan;</li> </ul>
	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> </ul>	<ul style="list-style-type: none"> <li>✓ Set-up of GIS database for 100 public sector sites;</li> </ul>
<b>4 – Research and development to enable the formulation of a national sustainable energy strategy and action plan</b>	<p>4.1 Asses national renewable energy resources;</p> <p>4.2 Assess national energy efficiency potential;</p> <p>4.3 Develop national EE/RE strategy &amp; action plan;</p>	<ul style="list-style-type: none"> <li>✓ Planned to start in Q4 / 2009</li> </ul>	<ul style="list-style-type: none"> <li>✓ Preparation of Terms of reference for the assessment of Lebanon's wind energy resource potential;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Planned for Q4 / 2009</li> </ul>

\* EE/RE = Energy Efficiency and Renewable Energy

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

- ▶▶ With respect to the second quarter of 2009 (Apr-Jun 2009): with the increasing work load with the initiation of CEDRO 2 having a target of an additional 60 demonstration sites, the number of engineers was found to be insufficient, particularly given they are all juniors. . As such, a decision was taken to recruit a mid-level engineering coordinator to support in site supervision and build the capacity of the more junior team members.
- ▶▶ With respect to the first quarter of 2009 (Jan-Mar 2009): No major constraints. But a strategic decision was taken to group target projects by technology in order to optimize cost. This would imply that the renewable energy projects under CEDRO 2 may be launched directly after the renewable energy projects of CEDRO 1 and before the energy efficiency projects of CEDRO 1; and the energy efficiency projects of CEDRO 1 and 2 could be launched together.
- ▶▶ With respect to the fourth quarter of 2008 (Oct-Dec 2008): The major constraint was a three months delay from the side of the technical backstopping agency in the delivery of the Tender documents which shifted the issuing of request for proposals by three months.
- ▶▶ With respect to the third quarter of 2008 (Jul-Sept 2008): One of the key implementation constraints continues to be security clearance for field visits, particularly to the North area (Akkar). This is affecting the finalization of the list of beneficiary sites and the finalization of the Tender documents.
- ▶▶ With respect to the second quarter of 2008 (April-Jun 2008): The site visits and the field missions of the international consultants had to be rescheduled several times due to the security situation in the country. This will unavoidably delay the posting of tenders whose preparation is dependent on detailed field visits for the finalization of the feasibility studies and technical specifications.
- ▶▶ With respect to the first quarter of 2008 (Jan-Mar 2008): The implementation of the project activities is dependent on the recruitment of a Technical Backstopping Agency, hence any shift in the commencement of the Technical Backstopping Agency automatically reflects in a shift in the implementation of activities. In this regards, the contract was awarded in November 2007, and the contract start date was 21 January 2008. This has caused a shift in the implementation of the project activities.
- ▶▶ With respect to the last quarter of 2007 (Oct-Dec 2007): The original LRF project proposal did not incorporate the UN requirement of obtaining security clearance for the project office premises. As such, the related processes as well as the budget and timeframe to implement the required security safeguards were not originally factored into the project design. This has caused a few months shift in the set-up of the project office premises.

## IV. FUTURE WORK PLAN

Outputs and Activities	2009	2010	2011	2012
<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>	Implementation of 30 demonstration projects	Implementation of 70-80 demonstration projects  Monitoring of installations	Implementation of 70-80 demonstration projects  Monitoring of installations	Monitoring of installations
<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>	Implementation of 3 technical workshops  Development of 10% of GIS database	Implementation of 3 technical workshops  Development of 50% of GIS database  Development of EE/RE procedures	Implementation of 3 technical workshops  Development of 100% of GIS database  Development of EE/RE procedures	Implementation of 2 technical workshops  Validation of project results
<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>	Development of TOR for wind energy resource assessment	Completion of wind energy resource assessment  Launch of assessment of national EE potential	Completion of other RE resource assessment  Identification of implementation mechanisms	Identification of national EE/RE action plan

**Adjustments to strategies, outcomes or outputs:**

With the approval of the LRF CEDRO 2 and CEDRO 3 project proposals, CEDRO became part of a larger project framework which aims not only at supporting Lebanon’s recovery activities, but also at supporting Lebanon’s recovery, reconstruction and reform activities, namely the power sector recovery, reconstruction and reform plan.

Indeed, 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. 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 programme has sought to complement the national power sector reform strategy by targeting end-use energy conservation. To achieve this, the CEDRO programme has planned a three phase approach, whereby the first foundation phase, CEDRO 1, has targeted the development and implementation of model energy efficiency and renewable energy applications for public sector buildings and facilities. The second phase, CEDRO 2 has supplemented this by an additional objective which targets the setting of an enabling environment for the conversion of other public sector buildings and facilities into energy efficient modalities. The proposed CEDRO 3 project further supplements the afore mentioned two cedro objectives, by a third key objective which is the setting of an enabling environment for the development of a national sustainable energy strategy and detailed action plan. The CEDRO 3 project is the third and final key component to enable sustainability and a nationwide multi sectoral scope.

The overall CEDRO project now benefits from an overall budget of 9.73 million USD and an overall timeframe of five years (Oct 2007 – Oct 2012).

CEDRO		
CEDRO 1	CEDRO 2	CEDRO 3
<ul style="list-style-type: none"> <li>➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (50-60 sites in South, Bekaa and Akkar)</li> </ul>	<ul style="list-style-type: none"> <li>➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (60-80 sites across Lebanon)</li> <li>➔ Technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities</li> </ul>	<ul style="list-style-type: none"> <li>➔ Implementation of end-use energy efficiency and renewable energy applications for public sector buildings and facilities (60-80 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>



## V. ANNEX A – First list of Beneficiary sites

Region	Site	System
<b>Akkar</b>	Rajem Issa public school	PV - 1800 Wp
	Mashta Hammoud public school	PV - 1800 Wp
	Kherbet Daoud public school	PV - 1800 Wp
	El Tleile public school	PV - 1800 Wp
	Hekr El Dahiri public school	PV - 1200 Wp
	Ouyoun El-Samak public school	PV - 1800 Wp
	Kroum Arab public school	PV - 1200 Wp
	Ain Yaakoub mixed public school	PV - 1800 Wp
	Habshit public school	PV - 1200 Wp
	Meniara public school for girls	PV - 1800 Wp
	El-Hakoor mixed public school	PV - 1200 Wp
	Abdallah Rassi public hospital	SWH – 4000 Lit
<b>Bekaa</b>	Baalbak first elementary public school	PV - 1200 Wp
	Chmestar community center	PV - 1800 Wp
	Hosh el Harime intermediate school	PV - 1800 Wp
	Jeb Jennine Municipality and Library	PV - 1800 Wp
	Mdoukha public school	PV - 1800 Wp
	Hosh El-Oumara community center	PV - 1800 Wp
	Aana Intermediate public school	PV - 1800 Wp
	Tell Zounoub Intermediate public school	PV - 1200 Wp
	Hermel public hospital	SWH – 4000 Lit
<b>South</b>	Ayteet public school	PV - 1200 Wp
	Kherbet Selem first public school	PV - 1800 Wp
	Kfarkela first public school	PV - 1200 Wp
	Kfarshouba Intermediate public school	PV - 1800 Wp
	Houla municipality	PV - 1200 Wp
	Ain Ebel municipality	PV - 1200 Wp
	Saida public hospital	SWH – 6000 Lit
	Jezzine public hospital	SWH – 2000 Lit
<b>Mount Lebanon</b>	Jbeil municipality	EE lighting

PV: Photovoltaic system    SWH: Solar Water Heating system