



## 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 Jan 2010 to 31 March 2010

### 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 (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:

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 31 Mar 2010</b>	:	USD 1,838,930	USD 229,258	USD 65,885
<b>Commitments for next quarter</b>	:	USD 161,070	USD 150,000	USD 50,000
<b>Available Balance</b>	:	USD 732,240	USD 3,120,742	USD 3,384,115

## Budget and Expenditure Breakdown per LRF Category:

CATEGORY	CEDRO1		CEDRO2		CEDRO3	
	Total Budget (USD)	Total Exp. to date (USD)	Total Budget (USD)	Total Exp. to date (USD)	Total Budget (USD)	Total Exp. to date (USD)
1. Personnel (Incl. staff and consultants)	177,000	206,000	220,000	93,347	214000	0
2. Contracts (Incl. companies, professional services)	220,000	190,077	440,000	67,000	835700	65,885
3. Training (incl. AV printing / production)	22,000	16,142	40,000	6,610	50000	0
4. Transport (local)	30,000	38,800	10,000	373	25000	0
5. Supplies and commodities (Incl. IT equipment and rental & maintenance)	36,300	50,387	50,000	28,704	70000	0
6. Equipment (including installation)	2,030,000	1,349,923	2,450,000	13,200	2111500	0
7. Travel	14,000	6,055	15,000	-	25000	500
8. Miscellaneous	11,683	11,885	30,000	5,024	21000	0
9. Agency Management Support (7%)	191,257	130,848	245,000	15,000	147805	0
<b>TOTAL</b>	<b>2,732,240</b>	<b>2,000,117</b>	<b>3,500,000</b>	<b>229,258</b>	<b>3,500,000</b>	<b>66,385</b>

CEDRO Project	CEDRO 1 2.73 million USD	CEDRO 2 3.50 million USD	CEDRO 3 3.50 million USD
Activity Results	Indicators		
1 - Implementation of end-use energy efficiency and renewable energy demonstration projects for public sector buildings and facilities	➔ Identification and Implementation of 50-60 EE/RE demonstration projects in South, Bekaa and Akkar	➔ Identification and Implementation of 60-80 EE/RE demonstration projects the remaining regions of Lebanon	➔ Identification and Implementation of 60-80 EE/RE demonstration projects across Lebanon
2 – Outreach and technology transfer to enable the conversion of other public sector buildings and facilities into energy efficient modalities	➔ Development and implementation of technical workshops and awareness tools	➔ Development and implementation of technical workshops and awareness tools ➔ Development of GIS energy data base and EE/RE procurement specs	➔ Development and implementation of technical workshops and awareness tools ➔ Development of GIS energy data base and EE/RE procurement specs ➔ Validation of project results and development of replication schemes

<b>3 – Research and development to enable the formulation of a national sustainable energy strategy and action plan</b>	<p style="text-align: center;">-</p>	<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>
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**Progress in Project Implementation:**

Activity Results	Activity Actions	Targets for 2010	Status for 2010
<b>1 – Project Management</b>	1.1 Technical Management	✓ Organization of 2 technical workshops and end of year project board meeting	✓ ✓ One technical mission completed
	1.2 Financial Management	✓ Organization of 5 international backstopping missions;	✓
	1.3 Operational Management	✓ Issue a report on the status and results of the CEDRO I pilot projects that were already implemented	✓
		✓ Provide advisory support services on EE/RE policies and legislations	✓
		✓ Attendance of capacity building workshops by CEDRO team	✓
		✓ Preparation of regular progress reports;	✓ Quarterly reports submitted in timely manner;
Activity Results	Activity Actions	Targets for 2010	Status for 2010
<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;	✓ Undertaking second EOI for RE/EE suppliers ✓ ✓ Implementation of 32 demonstration projects; ✓ 15 for PV sites pending the acceptance of a donation of 30 kWp of PV modules by the owner of Suntech (which is expected);	✓ Completion of installation on 30 sites featuring photovoltaic systems and solar water heaters, and including: Public Hospitals; 20 Public Schools; 3 Municipalities; 2 Community centers; 3 public street lighting sites; ✓ Successful supervision of works for 30 sites; ✓ Launch of the ITB for Baalbeck institute (SHW project) ✓ Launch procurement of EE ITB (energy efficient lighting) ✓ Awaiting approval of winners for 5 SHW sites to issue contracts
	2.2 Develop tender documents and undertake bidding & procurement of goods/services;	✓ 10 energy efficient sites (ITB send); ✓ 7 SHW hospital sites	
	2.3 Undertake commissioning of works and	✓ Preparation of 20 new demonstration projects for implementation; Particularly 10 microwind sites and 10 thermal insulation ✓	

	supervision and monitoring of sites; 2.4 Undertake testing of performance & data collection;		<ul style="list-style-type: none"> <li>✓ Networking with potential beneficiaries for the identification of new sites;</li> <li>✓ New sites for potential microwind and PV projects currently being identified by CEDRO Team</li> <li>✓ EOI 2010 completed and new winners posted online.</li> <li>✓ Constant cooperation with LCEC and MEW to promote concept of net metering</li> </ul>
Activity Results	Activity Actions	Targets for 2010	Status for 2010
<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; 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>✓ Development and implementation of 2 technical workshops;</li> <li>✓ Continuation and expansion of CEDRO outreach and visibility;</li> <li>✓ Set-up of GIS database for 200 public sector sites;</li> </ul>	<ul style="list-style-type: none"> <li>✓ Updating project website: <a href="http://www.cedro-undp.org">www.cedro-undp.org</a> (En/Ar);</li> <li>✓ Issuance of third? edition of Newsletter (En/Ar);</li> <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>	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>✓ Completion of the Wind ATLAS for Lebanon</li> <li>✓ Initiation of a bioenergy assessment of Lebanon</li> <li>✓ Completion of a microwind potential assessmet in 10 different sites</li> <li>✓ Net metering pilot to be implemented and policy/legal legislation updated accordingly</li> </ul>	<ul style="list-style-type: none"> <li>✓ Launch of the tender to assess Lebanon's wind energy resources.</li> <li>✓ Winning company for wind atlas notified and contract signed</li> <li>✓ Launch of tender for bioenergy assessment of Lebanon</li> </ul>

\* EE/RE = Energy Efficiency and Renewable Energy

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

- ▶▶ The first quarter of 2010 was used to establish the foundation for the rest of the year, particularly preparing ITBs and RFPs and finishing works rendered from the first batch of CEDRO I projects.
- ▶▶ There are constraints faced in the ITB which are hindering the timely progress of projects and therefore undermining the reaching of budget targets. For example, companies that won the last ITB for 5 hospitals (SHW) more than a month ago have yet to sign their contracts. This may result in delays in the delivery of 2010 targets.

## IV. FUTURE WORK PLAN

### QUARTERLY WORK PLAN

Key Milestones Wks	April				May				June			
	1	2	3	4	1	2	3	4	1	2	3	4
<b>1. Project Management and Coordination</b>												
1.1 Technical, Financial and operational mgt.												
1.4 Promotion of synergies with other projects												
<b>2. Implementation of EE/RE applications</b>												
2.1 Contracts for 5 SWH sites to be signed and works initiated												
2.3 ITB for Baalback army institute preparation and bidding												
2.4 Implementation of work at Army Institute to begin												
2.5 EE ITB prepared and sent to shortlisted firms (Lot 4)												
2.6 Contract signed and work begins												
2.7 Roumieh Prison technical specification to be finalized and bidding initiated												
<b>4. Research and Development</b>												
4.1 Bioenergy assessment bid evaluation and selection of winning company												
6.2 Bioenergy assessment work commences												
6.3 RFP for wind anemometer assessment posted online												



ANNUAL WORK PLAN

Outputs and Activities	2010	2011	2012	2013
<p><b>1. Implementation of end-use EE/RE demonstration projects</b></p> <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>Implementation of 60 demonstration projects</p> <p>Monitoring of installations</p>	<p>Implementation of 30 demonstration projects</p> <p>Monitoring of installations</p>	<p>Implementation of 30 demonstration projects</p>	<p>Monitoring of installation</p> <p>Termination of project</p>
<p><b>2. Outreach and Technology transfer for the activation of EE/RE applications</b></p> <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>Implementation of 2 technical workshops</p> <p>Development of 70% of GIS database</p> <p>Development of EE/RE procedures</p> <p>Two media campaign for street lighting and PV projects to be carried out with high officials attending</p> <p>Implementation of school awareness campaign on RE</p>	<p>Implementation of 3 technical workshops</p> <p>Development of 100% of GIS database</p> <p>Development of EE/RE procedures</p>	<p>Implementation of 2 technical workshops</p>	<p>Validation of project results</p>
<p><b>3. Research and development for the formulation of a national EE/RE strategy and action plan</b></p> <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>	<p>Completion of wind energy resource assessment</p> <p>Launch of assessment of bioenergy potential</p> <p>Launch of assessment for Hydro potential</p> <p>Assessment of net metering potential</p>	<p>Completion of other RE resource assessment</p> <p>Identification of implementation mechanisms</p>		<p>Identification of national EE/RE strategy of Lebanon (putting together the studies initiated by CEDRO.</p>

### Adjustments to strategies, outcomes or outputs:

To major adjustments to the last Q4 (2009) report is administered. The following can be noted;

- Net metering is still going ahead and the CEDRO team is working with legal experts at the Ministry of Energy and Water to incorporate related concepts into the energy efficiency law.
- The number of projected sites of CEDRO have been reduced due to budget constraints and other constraints (for example, finding a suitable public facility in which to implement a PV project which is not too large so as not to consume a very high budget, is more difficult now that many of the smaller institutions have been utilised.)
- We have submitted a proposal to receive around 30 kWp of PV modules for free. The outcome of this proposal should be received in the second quarter of 2010. If this is realised, CEDRO has committed the budget to complete the project (i.e., the other system components and installation).

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 (60sites 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	No. of beneficiaries
<b>Akkar (CEDRO 1)</b>	Rajem Issa public school	PV - 1800 Wp	345
	Mashta Hammoud public school	PV - 1800 Wp	322
	Kherbet Daoud public school	PV - 1800 Wp	85
	El Tleile public school	PV - 1800 Wp	122
	Hekr El Dahiri public school	PV - 1200 Wp	134
	Ouyoun El-Samak public school	PV - 1800 Wp	124
	Kroum Arab public school	PV - 1200 Wp	83
	Ain Yaakoub mixed public school	PV - 1800 Wp	160
	Habsheit public school	PV - 1200 Wp	85
	Meniara public school for girls	PV - 1800 Wp	303
	El-Hakoor mixed public school	PV - 1200 Wp	388
	Abdallah Rassi public hospital	SWH – 4000 Lit	57
<b>Bekaa (CEDRO 1)</b>	Baalbak first elementary public school	PV - 1200 Wp	178
	Chmestar community center	PV - 1800 Wp	18
	Hosh el Harime intermediate school	PV - 1800 Wp	385
	Jeb Jennine Municipality and Library	PV - 1800 Wp	-
	Mdoukha public school	PV - 1800 Wp	75
	Hosh El-Oumara community center	PV - 1800 Wp	21
	Aana Intermediate public school	PV - 1800 Wp	21
	Tell Zounoub Intermediate public school	PV - 1200 Wp	70
Hermel public hospital	SWH – 4000 Lit	26	
<b>South (CEDRO 1)</b>	Ayteet public school	PV - 1200 Wp	315
	Kherbet Selem first public school	PV - 1800 Wp	213
	Kfarkela first public school	PV - 1200 Wp	171
	Kfarshouba Intermediate public school	PV - 1800 Wp	150
	Houla municipality	PV - 1200 Wp	-
	Ain Ebel municipality	PV - 1200 Wp	-
	Saida public hospital	SWH – 6000 Lit	64
	Jezzine public hospital	SWH – 2000 Lit	20
<b>Mount Lebanon (CEDRO 1)</b>	Jbeil municipality	EE lighting	-
	Assia municipality	EE street lights	-
	Batroun municipality	EE street lights	-

PV: Photovoltaic system SWH: Solar Water Heating system

