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AFRICAN DEVELOPMENT FUND

PROJECT : LOM-PANGAR HYDROELECTRIC PROJECT

COUNTRY : REPUBLIC OF CAMEROON

PROJECT APPRAISAL REPORT

Date : 10 November 2011

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**CURRENCY EQUIVALENTS, WEIGHTS AND MEASURES,
ACRONYMS AND ABBREVIATIONS
JUNE 2011**

UA 1	CFAF 732.048
UA 1	USD 1.585
UA 1	EUR 1.116

Fiscal Year
1 January – 31 December

WEIGHTS AND MEASURES					
m	metre	1 m	V	Volt	1 V
cm	centimetre	0.01 m	kV	Kilovolt	1000 V
mm	millimetre	0.001m	kVa	kilovolt-ampere	1000 VA
km	kilometre	1000 m	W	Watt	1 W
m ²	square metre	1 m ²	kW	Kilowatt	1000 W
cm ²	square centimetre	0.01 m ²	MW	Megawatt	1000 kW
mm ²	square millimetre	0.001 m ²	GW	Gigawatt	1000 MW
km ²	square kilometre	1 000 000 m ²	kWh	kilowatt-hour	1000 Wh
ha	hectare	10 000 m ²	MWh	megawatt-hour	1000 kWh
kg	kilogramme	1 000 g	GWh	gigawatt-hour	1 000000 kWh
t	tonne	1 000 kg	koe	kilo of oil equivalent	

ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
ADF	African Development Fund
AER	Rural Electrification Agency
AES-SONEL	AES-Cameroon National Electricity Corporation
AFD	French Development Agency
ARSEL	Electricity Sector Regulatory Agency
BDEAC	Development Bank of Central African States
CAA	Autonomous Sinking Fund
CNIC	Cameroon Shipyard and Industrial Engineering Ltd
CSP	Country Strategy Paper
DPL	Lom-Pangar Project Management
ECCAS	Economic Community of Central African States
EDC	Electricity Development Corporation
EIB	European Investment Bank
EU	European Union
GDP	Gross Domestic Product
GESP	Growth and Employment Strategy Paper
GHG	Greenhouse Gas
TNM	Transport Network Manager
HV	High Voltage
IsDB	Islamic Development Bank
JICA	Japan International Cooperation Agency
LV	Low Voltage
MDGs	Millennium Development Goals
MINEE	Ministry of Energy and Water Resources
MINEPAT	Ministry of the Economy, Planning and Regional Development
MV	Medium Voltage
GLC	Geographic Level of Cameroon
NGO	Non-Governmental Organization
PANERP	National Energy Action Plan for Poverty Reduction
PDER	Rural Electrification Master Plan
PEFA	Public Expenditure and Financial Accountability
PRSP	Poverty Reduction Strategy Paper
SDFC	Finance and Accounting Division
UAM	Unit of Account Million
UNDP	United Nations Development Programme
WB	World Bank

LOAN INFORMATION

Client Information Sheet	
Borrower	Cameroon
Executing Agency	Ministry of Energy and Water Resources

FINANCING PLAN		
Sources of Finance	Amount in UAM	Instrument
ADF	44.93	Loan
BDEAC	27.72	Loan
WB	55.03	Loan
AFD	58.41	Loan
EIB	29.21	Loan
GVT	48.54	Counterpart Contribution
Subscribers	0.66	Beneficiaries
Total Project Cost	264.49	

ADF LOAN KEY FINANCING INFORMATION	
Loan Currency	Unit of Account (UA)
Interest Type	Not applicable
Interest Rate Margin	Not applicable
Commitment Charge	0.50% per year on the undisbursed loan amount outstanding.
Service Charge	0.75% on the disbursed amount, commencing 120 days after signature of the Loan Agreement.
Interest Type	Not applicable
Tenor	50 years
Grace Period	Ten years, with effect from the date of signature of the Agreement. The principal will be repaid in forty (40) years at the rate of one percent (1%) per year from the eleventh to twentieth year and three percent (3%) per year thereafter.
FIRR: 12.3%	NPV CFAF 113.96 billion
EIRR: 28.8%	NPV CFAF 318.79 billion

DURATION AND KEY STAGES	
Concept Note Approval	23 March 2011
Project Approval	5 October 2011
Effectiveness	22 December 2011
Last Disbursement	31 December 2016
Completion	31 March 2016
Last Repayment	31 December 2066

EXECUTIVE SUMMARY

- 1. *Project Overview:*** The Lom-Pangar Hydroelectric Project is an overarching project that underpins the strategy to tap the hydroelectric power potential of the Sanaga River. The project comprises the construction of an impounding dam to supply water during low-flow period to the Song-Loulou power plant (335 MW) and boost the output of the Edea plant (224 MW), thus increasing the dependable power of the two plants located downstream from 450 MW in 2010 to 729 MW in 2015. A 30 MW hydroelectric plant will be constructed at the foot of the dam and connected to the Bertoua thermal plant by a 105 km long 90 kV line. This line will be extended by 200 km to the localities of Batouri and Abong-Mbang to make the transmission and distribution systems more reliable and to provide power to 150 localities in the East Region. Lastly, the project also includes the conduct of a study on the Cameroon Electricity Transmission Network Master Plan so as to enhance the country's hydroelectric potential. The total project cost is estimated at UA 264.49 million. Its implementation will span 48 months as from 2011.
- 2. *Needs Assessment:*** The energy sector in Cameroon is facing both technical and structural difficulties to which special attention is being paid by the Government and its financial partners. Investments in the sector have not kept pace with demographic changes or economic recovery which began in 1996. The sector suffers from inadequate power generation capacity due to delays in investment and obsolete generation, transmission and distribution installations. The capacities of key institutional actors in terms of technical qualifications and appropriate working tools are weak. The cost of service entrances is prohibitive. The resources allocated by the State for electrification projects are insufficient, and the country lacks appropriate tools and incentives to attract private investors. The Government has, within the framework of the 2035 Development Vision which ambitions to make Cameroon an emerging country, designed a Growth and Employment strategy. All planned operations in the energy sector, including this project, seek to support Government's actions to achieve these objectives.
- 3. *Value Added for the Bank:*** The Bank's approach in designing the project included all the consultations necessary to define a project consistent with the priorities of the national electrification programme, the development plan of the private operator, AES-SONEL, and the operations of other donors in the sector. The Bank's experience in implementing this type of projects, particularly the Dibamba and Kribi projects, has contributed to the rigorous planning of project activities, optimal coordination of actors involved in its implementation and adequate technical and human capacity building of the Lom-Pangar Project Management. Lastly, the value added for the Bank concerns its contribution to financing measures to mitigate project impacts on the population, thus ensuring their smooth implementation while reducing the financial burden borne by the Government.
- 4. *Knowledge Management:*** Upon project start-up, the executing agency will establish a baseline situation for the monitoring/evaluation system to enable the Bank and other stakeholders to monitor its implementation and draw lessons therefrom. The executing agency will make an inventory of data that will serve as indicators and an alert system in quarterly and periodic monitoring and evaluation reports. The data will also be checked against the outcomes of socio-economic surveys to assess the project's impacts. This information will be used by the country and stakeholders, including the Bank, during monitoring and supervision missions. The establishment of the monitoring/evaluation system within the executing agency, as well as adequate project management tools, has been factored into the project costs. Lastly, the conduct of a study on the Cameroon Electricity Transmission Network Master Plan will help to improve planning of infrastructure development in the sector.

RESULTS-BASED LOGICAL FRAMEWORK

- **Country and Project Name** : **Cameroon – Lom-Pangar Hydroelectric Project.**
- **Project Goal** : **Increase the availability of electricity and meet the country's growing electricity needs.**
- **Start-up and completion Date** : **October 2011 – March 2016**
- **Design Team** : **J. B. NGUEMA-OLLO, O. FALL, J. FRANSSSEN, V. ZONGO**

OUTPUTS CHAIN		PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS/MITIGATION MEASURES	
		Indicator (including ISC)	Baseline Situation in 2009	Target i			
Impacts	Rate of access to electricity increased	• Rate of access to electricity	18%	29% by 2020	Reports •Ministry of Energy •Activities of AES-SONEL •Activities of EDC	Assumptions	
	Population purchasing power increased	• Number of income-generating activities created • Number of income-generating activities created by women	Not indicated	Listing and evaluation during supervision at project end. Listing and evaluation during supervision at project end.			
Outcomes	Capacity in electricity generation increased	• Installed power in MV	1 548	1 873 by 2017		Risks • Political stability. • Vulnerability of the economy to external shocks. • Continuation of sector reforms. • Financial stability of the sector.	
	HV transmission networks increased	• Number of km of HV transmission lines	2 415	3 426 by 2017			
	MV transmission networks increased	• Number of km of LV transmission lines	13 583	19 268 by 2017			
	LV transmission networks increased	• Number of km of MV transmission lines	15 287	21 684 by 2017			
	Rate of electrification increased	• Electrification rate • Rural electrification rate	22% 3.5%	37% by 2017 10% by 2017			
	Technical losses reduced	• Technical loss rate	17%	12% by 2017			
	Commercial losses reduced	• Non-technical loss rate	10%	5% by 2017			
Outputs	Component A: Hydroelectric Development	• Construction of impounding dam. • Construction of power plant.	• The impounding dam is constructed. • The hydroelectric plant is installed.	The dam is opened in 2014. The 30 MW hydroelectric plant is installed in 2014.		<ul style="list-style-type: none"> • Appraisal report; • Loan agreement; • Contracts signed with consulting engineer; • Contracts signed with contractors; • Status reports; • Supervision reports; • Completion reports; • Audit reports. 	Risks
	Component B: Construction of 90 kV HV Transmission Line	• Construction of 90 kV HV transmission line.	• Number of km of 90 kV transmission line.	1311 1 616 by 2016			
	Component C: Electrification of 150 Localities in the East Region	• Construction of HV/MV substations.	• Number of HV/MV substations.	Not available 3 more by 2016			
		• Construction of MV transmission lines.	• Number of km of MV transmission lines.	18468 19 268 by 2016			
		• Construction of LV transmission lines.	• Number of km of LV transmission lines.	21484 21 684 by 2016			
		• Construction of MV/LV substations.	• Number of MV/LV substations.	Not available 190 more by 2016			
		• Service entrances.	• Number of service entrances.	Not available 10000 more by 2016			
		• Street lighting.	• Number of street lighting areas.	Not available 100 more by 2016			
	Component D: Environmental and Social Impact Mitigation Measures	• Living conditions of populations improved	• Number of household appliances acquired • Number of women trained for the optimal use of power energy	Not indicated Not indicated	Listing and evaluation during supervision at project end. Listing and evaluation during supervision at project end.		
		• Resettlement Plan.	• 73 houses to be constructed.	73 houses are constructed, and resettlement is completed in December 2012.			
		• Compensation. • Collective compensation. • Specific agricultural activities. • Supervision, auditing and IEC control.	• Compensation of people and families.	The Compensation Plan is completed in December 2012.			
	Component E: Studies, Control and Supervision	• Network Master Plan Study.	• The recruitment process is completed in March 2012.	The action plan is completed in 2014. Master Plan is available in 2013. Quarterly progress report.			
		• Works control and supervision.	• Annual auditing of accounts.	Report submitted each year not later than 30 June			
		• Auditing of accounts.	• Half-yearly audits.	Audit and quarterly progress reports are submitted.			
		• Environmental and social audit.	• Procurements.	All procurements are completed in 2012.			
Component F: Project Administration and Management	• Logistic support to executing agency. • Training activities.	• Training programme.	The training programme is completed in 2013.				
Key Activities	Components	Activities	Financial resources in UAM	Sources of Finance	Human Resources <ul style="list-style-type: none"> • Contractors; • Consultants; • Executing agency; • Bank monitoring team; • Other financial partners. 	<ul style="list-style-type: none"> • Recruitment of a consulting engineer for Bank components. • Recruitment of a single contractor for construction of the dam and plant. • Government's bonded loan and execution of financing plan. • Capacity building for Project Management. 	
	A: Hydroelectric Development		186.11	WB; EIB; AFD; ADF; GoC			
	B: Construction of the 90 KV HV Transmission Line	• Works execution.	54.76	ADF; BDEAC			
	C: Electrification of 150 Localities in the East Region		14.88	ADF; BDEAC; GoC			
	D: Environmental and Social Impact Mitigation Measures	• Environmental and social management • Information, Education. • Communication. • Judicious consumption of energy. • Environmental and social audit.	0.95	ADF; GoC			
	E: Studies, Control and Supervision	• Implementation of Master Plan • Control and supervision • Audit of project accounts	4.33	ADF; GoC			
	F: Project Administration and Management	• Prepayment metering systems. • Batch of prepayment metering equipment. • Logistic support to executing agency • Training activities	3.46	ADF; GoC			

REPORT AND RECOMMENDATION OF BANK GROUP MANAGEMENT TO THE BOARD OF DIRECTORS CONCERNING A PROPOSAL FOR AN ADF LOAN TO THE REPUBLIC OF CAMEROON

Management hereby submits this report and recommendation concerning a proposal for an ADF loan of UA 44.93 million to the Republic of Cameroon to finance the Lom-Pangar Hydroelectric Project.

1. STRATEGIC ORIENTATION AND JUSTIFICATION

1.1 Project Linkages with Country Strategy and Objectives

1.1.1. In 2009, the Government of Cameroon adopted a vision for the country's development, with a strategy to make Cameroon an emerging country by 2035. This vision is accompanied with a Growth and Employment strategy which constitutes the baseline situation for: (i) reducing poverty to a socially acceptable level; (ii) advancing to middle-income country status; (iii) becoming an industrialized country; (iv) consolidating the democratic process and strengthening national unity. Without adequate energy infrastructure, it will be difficult to achieve these objectives since availability of energy is an essential condition for improving growth and economic competitiveness. That is why the Government has elaborated for an energy policy, an Electricity Sector Development Plan (ESDP).

1.1.2 In the aforementioned documents, the Government has undertaken to facilitate access to energy for all, particularly by: (i) implementing the National Energy Action Plan for Poverty Reduction (PANERP); (ii) developing rural electrification programmes; (iii) enhancing access to other forms of energy; and (iv) increasing the rate of access to modern energies. By building its energy capacities, Cameroon intends to reduce its structural deficit so as to achieve the expected growth objectives, become an exporter of electricity, and improve its trade balance equilibrium. The target of generating 3 000 MW in 2020 will be pursued by: (i) implementing hydroelectric dam projects; (ii) developing renewable energy; and (iii) expanding and modernizing electricity infrastructure.

1.1.3 The project falls within the framework of the implementation of the strategy to develop the country's hydroelectric potential estimated at 13 700 MW so as to accelerate economic growth and poverty reduction. The Lom-Pangar Hydroelectric Project is an overarching project that underpins the strategy to tap the 5 665 MW hydroelectric potential of the Sanaga River. The project's impounding dam will be constructed to supply water during low-flow to turn the turbines of the Song-Loulou power plant (335 MW) and the Edea plant (224 MW). The project is consistent with the GESP objectives to enhance the performance of the energy sector, and hence attract investments and boost growth. The reduction of generation deficit, the strengthening of electricity infrastructure and the interconnection of three isolated transmission grids are among the country's infrastructure development priorities.

1.2. Rationale for Bank's Involvement

1.2.1. The present project is a component of a package comprising an impounding dam, a hydroelectric plant, transformer stations, transmission and distribution lines and the electrification of the East Region. The construction of the dam started with the recruitment of a consulting engineer and works contractor. The components financed by the Government are

currently being implemented. These include the construction of access roads, the relocation of Lom-Pangar village and other measures to mitigate the negative impacts of the project, the identification of all persons affected by the project, and the assessment of their property so as to pay them compensation. All donors have agreed to submit the project to their respective Board of Directors no later than November 2011. The Bank's operation should therefore be in line with the general project implementation schedule, which provides for the commissioning of the dam in July 2014.

1.2.2. The main constraint on the energy sector is inadequate supply and poor service quality to respond to an ever-growing demand. Within this context, the Bank has focused its assistance to the energy sector on the construction of electricity generation and transmission infrastructure to overcome this constraint as quickly as possible. Indeed, in 2009, Cameroon reduced its energy deficit with the commissioning of the 86 MW Dibamba plant. The current level of supply will improve with the construction of the Kribi 216 MW gas-fired thermal plant and the Lom-Pangar 30 MW hydroelectric dam, whose reservoir will help to increase the generation capacity of the Edea and Song-Loulou plants by 170 MW. The dam will also help to increase the potential of the Nachtigal site, run by private operators, to 330 MW. The project is a follow-up to the support provided by the Bank to increase the availability of energy and improve service quality.

1.2.3. Lastly, the project is consistent with the Bank Group's assistance strategy in Cameroon which seeks to contribute to achieving the growth and poverty reduction objectives contained in the GESP. The Bank's 2010-2014 CSP for Cameroon prioritizes infrastructure development and partnership with the private sector. The Bank's intervention strategy focuses on two pillars: (i) strengthening governance to improve strategic management by the State; and (ii) developing infrastructure to contribute to the strengthening of basic infrastructure needed for private sector development and improvement of the framework for the country's economic and social development. An increase in the availability of energy services at low cost will enable Cameroon to achieve the Millennium Development Goals (MDGs). The Bank's operations in the sector are aimed at supporting Government's actions to achieve the aforementioned objectives.

1.3. Aid Coordination

1.3.1. In Cameroon, the General Directorate for Cooperation and Regional Integration (DG. Coop) monitors cooperation with donors. DG. Coop comprises four departments, including the Department of Regional Integration (DIR) and the Department of North-South Relations, which are responsible for relations with the ADB Group and the World Bank respectively. Despite its limited human and material resources, DIR's activities have a significant impact on the quality of ADB's portfolio. The Department organizes quarterly portfolio monitoring meetings, and review the implementation status of activity matrices jointly with the Cameroon Regional Office during their periodic meetings. In general, this unit prepares the Bank's missions beforehand, discusses mission programmes, participates in field missions, and chairs wrap-up meetings. The last portfolio review conducted in July 2011 called on national authorities to strengthen the institutional capacity of the DIR, the Preparation, Programming, Budgeting and Monitoring-Evaluation Units (PPBME), and the Project and Programme Preparation, Planning and Projection Division.

1.3.2. Donor support in all sectors of the poverty reduction strategy in Cameroon is coordinated by the Multi-Partner Committee (MPC), a suitable framework for harmonizing and aligning aid as defined in the Paris Declaration. The MPC, which comprises thematic sub-groups including the Public Financial Sector Committee, is currently chaired by the

Cameroon Regional Office. Co-chaired by MINEPAT and a representative of TFPs, the MPC brings together, twice a month, the technical and financial partners involved in PRSP implementation and/or preparation, HIPC initiative and macro-economic programme monitoring, governance and the fight against corruption.

1.3.3. The key donors in the energy sector in Cameroon include France, Spain, China, Japan, IDA, IFC, ADB, IsDB, BDEAC, EU and UNDP. Their various operations have led to the establishment of a Rural Electrification Agency (AER) and the adoption of decrees to: (i) privatize SONEL, which has become AES-SONEL; (ii) establish ARSEL, EDC and the Rural Energy Fund (FER), the construction of electricity generation, transmission and distribution facilities, and the implementation of rural electrification and energy sector support projects. This project forms part of the energy sector development programme financed by the ADB (UA 31.64 million), WB (UA 43.48 million), IsDB (UA 6.35 million), EU (UA 14.1 million), JICA (UA 20.91 million) and Spain (UA 4.79 million). Recent operations are presented in Table 1.1 below.

Operations	Agencies			Government	
		Foreign Exchange	UA	CFAF Million	UA Million
Energy Sector Development Plan	WB	65.00 USD	43.48	3 810.0	5.42
Project to Electrify 33 Rural Localities	IsDB	9.49 USD	6.35	509.7	0.72
Project to Electrify 28 Localities in the Far-North Region	EU	5.34 EUR	4.76	3 600.0	5.12
Electrification of Peri-urban Areas		5.88 EUR	5.23	3 572.0	5.08
Project to Electrify 26 Localities	Spain	4.65 EUR	4.14	1 215.6	1.73
Study on Mini and Micro Hydroelectric Power Plants	UNDP	0.50 USD	0.33	225.0	0.32
Cameroon's Energy Information System	IEPF	0.20 USD	0.13	50.0	0.07
Study on Mini Hydroelectric Power Plants	JICA	1.60 USD	1.07	190.7	0.27
Project to Strengthen and Extend Power Transmission and Distribution Grids		ADF	20.91 UA	31.64	4 556
AES-SONEL Investment Project	ADB Private Sector	51.30 UA	51.30	0.00	0.00
Environmental Impact Assessment of the Thermal Power Plant		5.90 UA	5.90	0.00	0.00
Dibamba Thermal Power Plant Project		23.10 UA	23.10	0.00	0.00
Kribi Gas-fired Plant Project		22.7 EUR	25.33		
Total			192.03		25.21

2. PROJECT DESCRIPTION

2.1 Project Description and Components

2.1.1. The project comprises the construction of an impounding dam and a 30 MW hydroelectric plant at the foot of the dam, and a 105 km long 90 kV transmission line to link the plant to HV/MV substation in Bertoua. This line will be extended by 200 km to two other substations to be constructed in Batouri and Abong-Mbang. One hundred and fifty localities in the East Region, of which nine chief towns of administrative units, will be electrified and 10 000 new subscribers will be connected. Lastly, the project includes a study on the Transmission and Distribution Network Master Plan which will provide a reference tool for planning and developing power generation and transmission units throughout the country to tap the country's huge hydroelectric potential and reorganize the electrical grid structure. Table 2.1 below presents the project cost by component.

Table 2.1			
Project Cost by Component in UA Million			
No.	Component Name	Cost	Component Description
A	Development of a 30 MW hydroelectric dam	186.11	113.01 Construction of the impounding dam.
			50.14 Civil engineering works, access roads, living environments, etc.
			22.96 Construction of the hydroelectric plant
B	Construction of a 305 km long 90 kV Transmission Line	54.76	Construction of HV output substation.
			Construction of a 90 kV line from Lom-Pangar to Bertoua (105 km), from Bertoua to Abong-Mbang (100 km), and from Bertoua to Batouri (100 km).
			Construction of a 90/30 HV substation in Bertoua and Abong-Mbang
C	Electrification of 150 Localities in the East Region	14.88	Installation of twenty-five 50 kV substations
			Installation of one hundred and seventy 25 kV substations
			Installation of 40 IACM and 160 one-phase direct current installations.
			Construction of 800 km of MV and 200 km of LV lines
			Establishment of 10 000 one-phase and three-phase service entrances.
			Installation of 100 street lighting units
D	Environmental and Social Impacts Mitigation Measures	0.95	Individual compensation and resettlement
			Collective compensation for villages and camps
			Specific agricultural activities
			Environmental monitoring control
			IEC and judicious consumption of energy
E	Project Studies, Control and Supervision	4.33	Services of the Consulting Engineer
			Auditing of project accounts
			Environmental and social impact assessment
			Electricity Transmission and Distribution Network Master Plan
F	Project Administration and Management	3.46	Prepayment metering systems
			Batches of prepayment metering systems
			Land transport (1 4-wheel drive vehicle).
			Vehicle operation and maintenance equipment
			Air travel by unit staff
			Staff training (workshop and seminar)
Overall Project Cost		264.9	

N.B.: The exchange rates used are indicated in the introduction of the report (page (i))

2.1.2. The technical design of structures, the detailed costs and financing arrangements are presented in Paragraph C.8 of the Technical Annexes. The ADF loan to be granted to the Republic of Cameroon will cover 17.02% of the project cost. The ADF loan resources will be used exclusively to finance: (i) the construction of the power plant at the foot of the dam; (ii) the construction of a 90 kV line; (iii) the extension and reinforcement of MV and LV grids; (iv) the electrification of the East Region; (v) the implementation of the Electricity Transmission and Distribution Network Master Plan; and (vi) the compensation for persons affected by the project components financed by the Bank.

2.2. Technical Solutions Adopted and Alternatives Explored

2.2.1. The project alternatives were thoroughly explored, but none of the alternatives explored yielded positive results in terms of consolidation of generation, environmental and social aspects, as well as access to electricity by the majority of the population. Table 2.2 below presents the alternatives explored and reasons for their rejection within the present context.

Alternative	Description and Characteristics	Reasons for Rejection
Hydroelectric sites in the Sanaga Basin	The Sanaga Basin comprises several reservoirs: Nachtigal, Bankim / Mape Nyazom, Song-Dong, Song-Bengué, Kikot, and Bayomen with much greater potential that should have been tapped as a matter of priority.	The Lom-Pangar site is located upstream all the other exploitable sites. Some of these sites will become technically and economically feasible after the construction of the impounding dam. None of the sites presents the same results. The planned extension of the other sites has been postponed pending the completion of the Lom-Pangar Hydroelectric Project, and all technical and environmental studies are still to be conducted
Hydroelectric sites in the Nyong and Ntem Basins	Dam across the Nyong, Mouila Mouque, Makai, Njock, Mpoumé. The Ntem and Memve'ele Rivers.	The operation of these sites without a head dam across the Nyong River poses risks of high cost overrun and lack of regulation. All the studies are still to be conducted. On the other hand , preparations for implementation of the Memve'ele Project are at an advanced stage.
Gas-fired Thermal Power Plant	The construction of natural gas-fired and flare gas power plants in Kribi (150 MW) and Limbe (25 MW).	The natural gas-fired plants in Kribi and Limbe have been included in the Government's priority programme, and being considered with donors. From the environment standpoint , however, there is a high greenhouse gas emission (690-730 gCO ₂ /kWh) rate. The flare gas utilization concept is still only in embryonic form owing to lack of experience.
Isolated Diesel Plants	Rehabilitation and construction of diesel electric power plants in isolated centres. These plants can be set up in consumption centres like Limbe and Logbaba.	Availability limited by fairly low yield and fuel supply difficulties; very high operating costs; outage in case of failure; complicated maintenance and complex repairs; greenhouse gases emissions, production of GHG, H ₂ S (gCO ₂ /kWh 690-730).
Photovoltaic Generators	Installation of solar kits in isolated localities. Used at any place with sufficient sunshine throughout the year.	Availability limited by weather conditions and the diurnal and nocturnal conditions of the location; consumption is limited by the system used and high investment costs; low yield from the localities selected.
Wind Generators	Used at any place with sufficient average wind throughout the year.	Availability limited by the rate of biomass production; high initial investment cost for compatible power supply.
Biomass-digester Generators	Use of fuelwood, agro-industrial and forest waste. Installation near the biomass used to reduce transportation costs.	Availability limited by the rate of biomass production; high initial investment cost for compatible power supply, low yield for the size of the localities selected; greenhouse gas emissions.

2.3. Project Type

2.3.1. The operation is an investment project and the proposed financing instrument is an ADF loan. The project is financed jointly by other donors, such as the World Bank, the French Development Agency (AFD) and the European Investment Bank (EIB) which use concessional loan instruments, as well as the Development Bank of Central African States (BDEAC).

2.4. Project Cost and Financing Arrangements

2.4.1. **Project Cost:** The total project cost, net of taxes and custom duties, is estimated at UA 264.49 million, comprising UA 185.15 million in foreign exchange and UA 79.35 million in local currency. This cost includes a 7% provision for technical and physical contingencies and a 3% annual provision for price escalation. Project costs by component and expenditure category are presented in Tables 2.3 and 2.4 below.

Components	CFAF Million			UA Million			% Foreign Exchange
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
Lom-Pangar Hydroelectric Development	86 450	37 050	123 500	118.43	50.76	169.19	63.97
Construction of 90 kV Transmission Line and HV/MV Substations	25 438	10 902	36 340	34.85	14.94	49.78	18.82
Electrification of the East Region	6 913	2 963	9 875	9.47	4.06	13.53	5.11
Environmental and Social Management	440	188	628	0.60	0.26	0.86	0.33
Project Studies, Control and Supervision	2 013	863	2 875	2.76	1.18	3.94	1.49
Project Administration and Management	1 608	689	2 297	2.20	0.94	3.15	1.19
Total Base Cost	122 861	52 655	175 515	168.31	72.13	240.45	90.91
Provision for Physical Contingencies (7%)	8 600	3 686	12 286	11.78	5.05	16.83	6.36
Provision for Price Escalation (3% per year)	3 686	1 580	5 265	5.05	2.16	7.21	2.73
Total Project Cost	135 147	57 920	193 067	185.15	79.35	264.49	100.00
Percentage (%)	70.00	30.00	100	70.00	30.00	100.00	

Expenditure Category	CFAF Million			UA Million			%
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
Goods (supplies and equipment)	1 617.00	693.00	2 310	2.22	0.95	3.16	1.20
Works	130 678.33	56 005.00	186 683	179.02	76.72	255.75	96.70
Services	2 213.75	948.75	3 163	3.03	1.30	4.33	1.64
Operating costs	292.55	125.38	418	0.40	0.17	0.57	0.22
Miscellaneous	342.75	146.89	490	0.47	0.20	0.67	0.25
Total Project Cost	135 144.39	57 919.02	193 063	185.14	79.35	264.49	100.00
Percentage (%)	70.00	30.00	100	70.00	30.00	100.00	

2.4.2. **Project Financing Arrangements:** The project will be financed jointly by five donors. The national counterpart contribution will be provided by the Government and beneficiaries. The construction of the dam will be financed jointly by AFD, WB, EIB and the Government for UA 163.15 million. The construction of the power plant and power grids, and the electrification of the East Region will be financed jointly by BDEAC, ADF, the Government and subscribers for UA 101.34 million. BDEAC has accepted to use the Bank's rules and procedures for procurement of works, goods and services. Furthermore, the conditions for Bank and BDEAC intervention are identical. The project financing plan by component, expenditure category and source of finance, as well as the expenditure schedule by component are presented in Tables 2.5 and 2.6 below.

Component	ADF	BDEAC	WB	AFD	EIB	Gov't	Subs.	Total
Lom-Pangar Hydroelectric Development	10.00	2.00	49.34	53.10	26.55	28.20	-	169.19
Construction of 90 kV Line and HV/MV Substations	21.77	20.67	-	-	-	7.34	-	49.78
Electrification of the East Region	3.08	2.53	-	-	-	7.32	0.60	13.53
Environmental and Social Management	0.86	-	-	-	-	-	-	0.86
Project Studies, Control and Supervision	2.72	-	0.68	-	-	0.53	-	3.94
Project Administration and Management	2.41	-	-	-	-	0.739	-	3.15
Total Base Cost	40.85	25.20	50.02	53.10	26.55	44.13	0.60	240.45
Provision for Physical Contingencies	2.86	1.76	3.50	3.72	1.86	3.09	0.04	16.83
Sub-total	43.71	26.96	53.53	56.82	28.41	47.22	0.64	257.28
Provision for Price Escalation	1.23	0.76	1.50	1.59	0.80	1.32	0.02	7.21
Total Cost	44.93	27.72	55.03	58.41	29.21	48.54	0.66	264.49
Percentage (%)	16.99	10.48	20.80	22.08	11.04	18.35	0.25	100.00

Expenditure Category	ADF	BDEAC	WB	AFD	EIB	Gov't	Subs.	Total	%
Goods (supplies and equipment)	0.54	0.33	0.66	0.70	0.35	0.58	0.01	3.16	1.20
Works	43.45	26.80	53.21	56.48	28.24	46.94	0.64	255.75	96.70
Services	0.74	0.45	0.90	0.96	0.48	0.80	0.01	4.33	1.64
Operating costs	0.10	0.06	0.12	0.13	0.06	0.11	0.00	0.57	0.22
Miscellaneous	0.11	0.07	0.14	0.15	0.07	0.12	0.00	0.67	0.25
Total Project Cost	44.93	27.72	55.03	58.41	29.21	48.54	0.66	264.49	100.00
Percentage (%)	16.99	10.48	20.81	22.08	11.04	18.35	0.25	100.00	

2.4.3. The Government will provide UA 48.54 million as counterpart contribution to the project to cover the total cost of construction of access roads and premises for the Project Owner, the implementation of resettlement plans, creation of the Deng-Deng National Park, security and control of the project area, part of the environmental and social impact mitigation measures, installation of public lights, as well as operating costs of the Project Implementation Unit. About UA 43.72 million of this amount has, to date, been used for contracts relating to the implementation of the above-mentioned activities. The balance of the expected Government contribution will be used as the project progresses. Beneficiaries will contribute UA 0.66 million to finance the cost of connection services.

2.5. Project Area and Beneficiaries

The Lom-Pangar Hydroelectric Project is located in Lom-et-Djérem Division in the East Region of Cameroon. This region has a low population density and uneven distribution. In 2010, the region's population was estimated at 1 067 000, 67% of whom live in rural areas and 33% in urban centres. The sub-divisions closely concerned with the project are Belabo and Betaré Oya, which account for half of the urban population of the East Region. The project will electrify 150 localities selected on the basis of the following objective criteria: (i) be located within a 12 km long corridor of the transmission and distribution networks; (ii) have educational and socio-economic infrastructure; and (iii) be one of the chief towns of administrative units and villages with over 200 inhabitants. The main project beneficiaries will be the local population and communities, farms, industries and businesses, as well as public and private health and educational institutions.

2.6. Participatory Approach

2.6.1. One of the cross-cutting objectives in the context of the project design phase was to ensure project compliance with both Cameroon's and the Bank's environmental and social policy provisions. Summaries of the ESMP and PAR posted on the Bank's website describe the mitigation, monitoring, optimization and consultative measures required to prevent, minimize, mitigate or offset the negative impacts, or amplify the project's positive impacts. Socio-economic surveys were conducted among 4 000 people. The validation seminars that were organized brought together all the stakeholders identified. These actions helped to clarify the expectations of the population, protect the environment, minimize damage to farms and natural sites, and assess the determination of Cameroonian authorities to whom this project is a vector for changing the economic and social development framework of the communities concerned.

2.6.2. The population, local authorities, civil society, and regional NGOs were consulted and their views on the project were considered. The grievances of beneficiaries were recorded in registers opened for this purpose. Work sites, access roads to be opened, the location of construction sites, and the construction of substations were identified and assessed. The list of persons affected by the project was validated and approved by administrative and traditional

authorities. A regional development and population accommodation programme was established, and includes the construction of social facilities. The aim is to reduce the negative impacts on farmers, and ensure that compensation is paid before the relocation or occupation of land. The participatory approach adopted during the project design phase will be pursued during the implementation phase through Information, Education and Communication (IEC), and Energy Consumption Control (ECC) campaigns. Measures will also be implemented to mitigate the negative environmental and social impacts.

2.7. Bank Group Experience and Lessons Reflected in Project Design

2.7.1. **Bank Group Operations:** Since it started operating in Cameroon in 1972, the Bank has financed seven (7) operations in the energy sector for a total amount of UA 159.32 million. The operations, which are presented in Table 2.7 below, include: (i) the Mape Dam Project approved in 1985; (ii) the Rural Electrification Master Plan approved in 1997; (iii) the Project to Reinforce and Extend Electricity Transmission and Distribution Networks financed jointly with JICA, approved in September 2010. Lastly, the Bank's private sector window contributed to financing the AES-SONEL Investment Project approved in 2006, the Environmental Impact Assessment of the Dibamba Thermal Power Plant (86 MW) and 90 kV Transmission Line approved in 2008, the Dibamba Yassa Thermal Power Plant approved in April 2010, and the Kribi Gas-fired Thermal Power Plant (216 MW) recently approved in July 2011. At the regional level, in 2003 the Bank financed the study on the interconnection of the electrical grids of member countries of the Economic Community of Central African States (ECCAS). This study, which was completed in 2010, serves as basis for designing projects for the interconnection of the Cameroon-Chad and Cameroon-Gabon-Equatorial Guinea electrical grids, which are linked to the Memve'ele Hydroelectric Plant under the ADF-12 loan programmes.

Projects	Dates	Amounts in million	
Mape Dam	2/5/1985	23.40	UA
Rural Electrification Master Plan	18/11/1997	0.82	UA
AES-SONEL Investment Project	6/2/2004	51.30	UA
Environmental Impact Assessment of the Dibamba Thermal Power Plant	6/5/2008	3.73	UA
Dibamba Thermal Power Plant Project	28/4/2010	23.10	UA
Reinforcement and Extension of Electricity Transmission and Distribution Networks	13/9/2010	31.64	UA
Kribi Gas-fired Thermal Power Plant	15/7/2011	25.33	UA
Total		159.32	UA

2.7.2. Apart from the Mape Dam Project approved in 1985 and the Rural Electrification Master Plan approved in 1997, the other projects have not yet been completed and are ongoing. Nevertheless, some lessons can be drawn from the implementation of these operations. The main lesson to be drawn from implementing these projects by the Bank is the special attention that should be paid to: (i) quality at entry assessment in order to take into account, in particular, constraints arising from the legal framework governing the energy sector for private sector operations; (ii) procurement procedures in order to select competent contractors for the execution of works and avoid slippages during their execution; (iii) the Government's capacity to pay compensation to displaced persons on time; and (iv) the best practices of the PIUs of Bank-financed projects.

2.7.3. Overall, the Bank's ongoing operations in Cameroon concern 18 operations, comprising 11 public sector projects, 4 private sector projects, and 3 multinational projects, for a total net commitment of UA 545 million. To these should be added the operations financed under the Congo Basin Forest Fund (CBFF) for USD 6.65 million, or UA 4.20 million. The portfolio covers several sectors, but in recent years and in line with its strategy and ADF guidelines, the proportion of the transport and community facilities sectors has increased in national and multinational projects, and now accounts for 90% of commitments. On the whole, portfolio performance since 2009 is satisfactory. However, the portfolio comprises 36% of projects at risk (PAR). The disbursement rate of the national public sector is 36.5%. A review of the Bank's experience in Cameroon also shows that the EDC has the required skills for the implementation of projects entrusted to it by the Government. Indeed, the EDC is quite familiar with the rules of procedure of the various institutions operating in the country's energy sector, and has established mechanisms to monitor them in line with donor requirements. Many measures have been initiated with the Government to improve the efficiency of the portfolio, namely the design of plans to improve the performance of PAR, the review and close monitoring of Procurement Plans (PP) and the award of incentive prices to best projects.

2.7.4. Under its country strategy during the ADF-12 period, the Bank will continue to support Cameroon through operations in the energy sector to develop generation capacity with special emphasis on renewable and clean energies, such as the Lom-Pangar and Memve'ele hydroelectric projects, the construction of the Kribi gas-fired thermal plant, and the interconnection of the electrical grids of ECCAS member countries. To reduce slippages observed earlier on in project implementation, the technical and human capacity of the executing agency will be strengthened with the services of consulting firms specialized in dam construction and electricity generation, transmission and distribution, and the requisite expertise for implementing environmental and social impact mitigation measures. The agency will be equipped with adequate computer hardware and software for the management of project activities. The project will be monitored regularly, with the fielding of two Bank supervision missions each year, as well as constant monitoring by the Bank's Regional Office in Cameroon.

2.8. Key Performance Indicators

2.8.1. MINEE has an energy information system (EIS), which produces annual reports and serves as a useful tool for decision-making. This document is based on all the technical and socio-economic information required for implementing an efficient energy policy, as well as on a national framework for consultation on the energy policy involving public and private stakeholders in the sector. The key indicators presented in Table 2.8 below will help to assess the performance of this project.

Table 2.8 Performance Indicators	
Impact Indicators	Expected Progress in 2016
Country electrification rate	From 22% in 2009 to 37% in 2016
Rural electrification rate	From 3.5% in 2009 to 10% in 2016
Electricity access rate	From 18% in 2009 to 29% in 2016
Outcome Indicators	Expected Progress in 2016
Number of km of HV line constructed	Additional 305 km of 90 kV line
Number of HV/MV/LV substations constructed	3 HV/MV/LV substations (Bertoua, Batouri, Abong-Mbang)
Number of MV/LV substations constructed	190 MV/LV substations
Number of km of MV and LV lines constructed	800 km of MV and 200 km of LV networks
Number of localities electrified	150 localities electrified
Number of public lighting units	100 public lighting units will be installed
Number of service entrances and new subscribers	10 000 subscribers will be connected to the network
Rate of reduction of technical losses	From 17% in 2009 to 12% in 2016
Rate of reduction of non-technical losses	From 10% in 2009 to 5% in 2016

2.8.2 These indicators will help, in particular, to ensure timely identification of factors likely to affect project implementation; furthermore, appropriate corrective measures will be taken to guarantee achievement of the set objectives, namely timely fulfilment of loan conditionalities, implementation of the resettlement plan, compensation of persons affected by the project, recruitment of consulting engineering firms and work contractors, as well as availability of resources of financial partners and the Government's counterpart contribution.

3. PROJECT FEASIBILITY

3.1 Economic and Financial Performance

Table 3. 1 Key Project Economic and Financial Performance Indicators		
Baseline Scenario	FIRR: 12.3%	NPV: CFAF 113.96 billion
	EIRR: 28.8%	NPV: CFAF 318. 79 billion

3.1.1 **Financial Performance:** The project's financial internal rate of return (FIRR) and net present value were calculated based on costs and income relating to the construction and operation of the project facilities. Additional project income will be derived from the sale of energy to new consumers valued at the 2011 average rate. Project costs comprise investment costs, excluding price escalation, and annual operating and maintenance costs estimated at an average of 3% of the investment cost and cost price of energy supplied.

3.1.2 **Economic Performance:** The economic costs used for calculating the economic internal rate of return (EIRR) and the economic net present value (ENPV) are investment costs, net of taxes and price escalation, adjusted by the appropriate conversion factors for equipment, works, services and labour. Maintenance and other operating costs have been similarly adjusted. The economic benefits of the project are savings on fuel consumption due to the closure of small thermal plants, steady reduction in technical and commercial losses, and the sale of energy to new consumers benefitting from cheaper energy for which they agree to pay.

3.1.3 The sensitivity of the project's economic and financial performance was analyzed in relation to: (i) a 10% increase in investment costs; (ii) a 10% increase in operating costs; and (iii) a 10% fall in the average selling price of energy. This analysis shows that the project rate of return and net present value, although sensitive to changes in these different factors,

remain at acceptable levels, thus confirming the project's economic and financial viability. Indeed, the economic and financial internal rates of return remain above the weighted average cost of capital and the opportunity cost of capital in all the cases considered (see Annex 7).

3.2 Environmental and Social Impacts

3.2.1 *Environment:* The project is classified under Environmental and Social Category 1, and has been the subject of several studies financed by the World Bank. These studies include an Environmental Impact and Social Assessment (ESIA), an Environmental and Social Management Plan (ESMP), Special Environmental and Social Conditions, a Compensation and Resettlement Plan (CRP), and a Regional Development Plan (PDR). These documents were summarized and posted on the PIC. ADF-financed components will produce very few negative impacts which, to enable the passage of the HV transmission line, concern the displacement of 16 families within their own three villages, the temporary deterioration of 43 hectares of crops and the clearing of 530 hectares of forest.

3.2.2 *Climate Change:* Energy supply in Cameroon largely depends on hydroelectricity. Given its huge forest resources, the country is considered as a real "CO₂ pump". The project is designed to enhance the development of the hydroelectric potential of the Sanaga Basin and minimize greenhouse gas (GHG) emissions. Although the project will produce more CO₂ than a thermal alternative during the first 15 years due to the decomposition of vegetation in the reservoir, the CO₂ emission levels in 100 years will largely be in favour of the project. In addition, the commissioning of the Lom-Pangar plant will reduce the country's dependence on EDC's or individual thermal generators. To offset the loss of CO₂ fixation by vegetation in the reservoir, the project has developed a reforestation plan under the project compensation plan.

3.2.3 *Gender Issues:* Surveys conducted during the environmental and social impact assessment and project preparation among the direct beneficiary communities helped to identify disparities in terms of energy requirements and outcomes between men and women. This approach gave the opportunity to women and men to voice their opinions on their own energy needs. Besides contributing to the improvement of energy services in localities that will be electrified, the project will also serve as an integrated development project in which energy plays an important role in improving the living standard and conditions of villagers, particularly women. Indeed, energy supply security will enable women, who generally work late in the evening, to enjoy better lighting conditions, have more time and simplify their daily chores by using household appliances and modern energy technology, thus enabling them to develop new, profitable gender-specific activities and gain access to informal education and literacy training. The development of public facilities requiring the use of energy will improve living conditions: food and body hygiene, security, access to the media, etc. Women will also benefit from Information, Education and Communication (IEC) and Energy Consumption Control (ECC) campaigns carried out under the project.

3.2.4 *Social Issues:* The project area is relatively poor. The direct social impact of rural electrification will be gradual improvement of the living environment and enhanced cohesion of the family unit. These will be reflected in improved quality of education for children, with the electrification of schools, and enhanced quality of health care. Health centres will be able to better preserve drugs and receive electrical equipment. The project will slow down rural-urban migration by the youths, and encourage them to return to the villages, as well as diversify small handicraft activities, whose incomes will be injected into the local economy. Electrification will help to improve food and body hygiene, reduce the prevalence of water-borne diseases, with attendant impacts on household and State budgets.

3.2.5 **Forced Resettlement:** Overall, the project will cause the expropriation of 57 houses in Lom-Pangar village for the construction of the dam, as well as the displacement of 16 families in three villages located along the transmission line route. Concerning the construction of the impounding dam, a resettlement plan, with appropriate modern infrastructure, is being implemented with State financing. The houses will be ready in December 2011. The area concerned with the construction of the transmission line and rural electrification poses low environmental and social risks. The 16 families affected will receive the same benefits as those in Lom-Pangar village. There were no land-related problems in their community; there is no need for a specific relocation site and special preparation. The reconstruction of houses will have no specific environmental and social impacts. The total amount of compensation to be paid to persons affected by the project components financed by the ADF is UA 914 000. It will be borne entirely by the ADF loan. The resources will be managed through the special account, which will be replenished in accordance with revolving fund provisions in force. The opening of this account is a condition precedent to the first disbursement of the loan.

4. PROJECT IMPLEMENTATION

4.1 Implementation Arrangements

4.1.1. The project implementation arrangements were discussed in detail during project appraisal, and are presented in paragraphs B.3 of the Technical Annexes. The Ministry of Energy and Water Resources (MINEE) will be the project executing agency. A Project Steering Committee (PSC) will be established within the Ministry and chaired by the Minister in charge of Energy. It will comprise representatives of MINEE, MINEPAT/DG.Coop/DIR and the Directors-General of AER, ARSEL, AES-SONEL, CAA and EDC. The committee will take decisions, ensure compliance with project objectives and conditions, and will be responsible for: (i) providing guidance and strategic orientations to the Project Implementation Unit; (ii) approving the annual work plan and budget, as well as periodic progress reports; and (iii) assessing the performance of the Project Implementation Unit. Concerning this project, the Lom-Pangar Hydroelectric Project Manager will provide secretarial services for the PSC.

4.1.2. The Electricity Development Corporation (EDC) will, through its Lom-Pangar Project Management (DPL), act as the Project Executing Agency. EDC is an asset management company, whose capital is entirely owned by the Government. According to the decree establishing it, EDC is mainly responsible for managing, on behalf of the State, the public property of the electricity sector, ensuring the construction and operation of basin water control structures, in particular the Lom-Pangar dam. The Terms of Reference signed on 13 November 2009 between the Government and EDC define the specific terms and conditions for managing the assets. EDC is currently implementing three major projects satisfactorily, namely: the Emergency Thermal Programme (PTU) financed by the Government, the Project to Reinforce and Extend Electricity Transmission and Distribution Networks, jointly financed by the Bank and JICA, and the Energy Sector Development Project (PDSEN) financed by the World Bank. Besides the PDSEN project, which is monitored by three consultants recruited by the World Bank, the implementation units of the other two projects essentially comprise the same EDC staff. The entire staff has already been trained in the Bank's rules of procedure for the procurement of goods, works and services, disbursement and project administrative, accounting and financial management. This same staff will form the core team for the management of the Lom-Pangar Project. This team will comprise an electromechanical engineer, two electrical engineers (one transformer engineer

and one network engineer), one civil engineer, one computer engineer, one environmentalist, one procurement expert, one administrative and financial officer, and one accountant. The CVs of the staff have been approved by the Bank based on their qualifications and experience in the required fields of expertise.

4.1.3. The Lom-Pangar Project Management (DPL), placed under the supervision of the EDC General Manager, will be responsible for the technical, administrative and financial management of the entire project. The DPL comprises four sub-departments, namely: (i) Finance and Accounting Division (SDFC); (ii) Civil Engineering and Hydrology; (iii) Electromechanics; and (iv) Safety, Environment and Regional Development (SDSEDR). It will be responsible for the day-to-day monitoring of project activities, the management of various contracts, administrative, financial and accounting management, coordination between various consultants and all concerned public entities and services, as well as the periodic evaluation of project implementation. The DPL will be supported by two consulting engineering firms, the first, specialized in dam construction, has already been recruited with financing from the World Bank and EDC, and the second, specialized in electricity generation, transmission and distribution, will be financed by the Bank. Furthermore, EDC has already recruited an international environmentalist to strengthen the Sub-Department of Safety, Environment and Regional Development (SDSEDR) in charge of monitoring environmental and social aspects, as well as the project compensation plan. This arrangement will help to ensure concerted project implementation, backed by proven expertise. Apart from the services of the consulting engineering firms, specialized consulting firms and NGOs will carry out IEC and ECC activities. The engineering firms and contractors will provide on-the-job training at their head offices for experts who will be placed at their disposal.

4.1.4. **Donor Coordination:** Throughout the project preparation and appraisal phase, the Bank maintained regular dialogue with co-financiers and the Government. The dialogue helped to allow for consensus on the legal and regulatory framework governing the energy sector in Cameroon, and define the terms and conditions for joint supervision and monitoring/evaluation. The project provides for biannual donor consultation and coordination meetings to ensure proper orientation and achievement of all its objectives, and the efficacy of project implementation arrangements.

4.1.5 **Procurement:** All Bank-financed procurements will be conducted in compliance with Bank Rules of Procedure for Procurement of Goods and Works or Rules of Procedure for the Use of Consultants, as applicable, using standard Bank bidding documents. Indeed, given the ongoing revision of Cameroon's Procurement Code initiated in September 2004 under the auspices of the World Bank to align it with international standards, and differences between certain provisions of the code and the Bank's rules of procedure, the conditions for the use of national procedures are yet to be met. The DPL will be responsible for the procurement process, particularly the preparation of bidding documents for all procurements of goods, works and services for the implementation of the project under the supervision of EDC Management, which will ensure strict compliance with the Bank's rules of procedure. Members of the Project Implementation Unit have gained wide experience in procurement, and could successfully undertake all project procurements as described in Technical Annex B5. Obviously, they will continue to receive the necessary support from experts of the Bank's Field Office in Cameroon. The procurement plan is attached to Technical Annex C.15.

4.1.6. **Financial Management:** Following the assessment of the fiduciary risks, the recommended arrangements for financial management to reinforce the capacity of EDC are presented hereafter. The SDFC/DLP will be responsible for administrative, financial and

accountant management of all the project components' in order to harmonize with the World Bank's organisational arrangement. An accountant and an administrative & financial assistant of the Finance and Accounting department (DAF) of EDC will be placed at the disposal of SDFC and will work in close collaboration with the World Bank consultants' to allow knowledge transfer; they will be trained on the rules and procedures of the Bank in financial management. The World Bank consultants' and the staff of EDC which will be affected to the SDFC/DLP will be all under the supervision of the chief in charge of the SDFC/DLP which will report to the Director of the DAF of EDC (budget, reporting and audit report) and will have to work using IT network with this latter. The accounting software that was just acquired by the SDFC/DLP will have to be duly parameterized to meet the specific needs of information management for all EDC projects'. The handbook of administrative, financial and accountant procedures which has just been elaborate by a consultant will be without delay validated by EDC and will comprised all the procedures of internal control for EDC including those of its central structure and its projects. An Annual Program of Activities will be elaborate each year by the SDFC/DLP to ensure the budgetary control of the resources of the project; it will have to be communicated to the chief in charge of the DAF of EDC for information; the chronogram of activities which it will contain will be also exploited for a planning of treasury of the project. Besides the internal control of the project which could, if necessary, be ensured by the General Inspection of Finances (Higher Control of State), the external control of the project will be ensured by an independent audit firm which will audit the annual accounts of the project and whose report will be submitted in the six months after the fiscal year under review for Government's and Bank's approval. Given the moderate level of the total fiduciary risk, the project will be supervised once a year on site in financial management. This periodicity as well as the total fiduciary risk of the project integrating the risk of non-control, will be re-examined immediately after the project's entry in force. The supervision in financial management will attempt to check that the whole of the system in the field remains operational throughout the life of the project. It will understand the visits on site, the reviews as well as the capacity building of financial and accounting staff of the SDFC/DLP in charge of the project. The precise details in the financial management of the project are given in the B.4.1 paragraphs and B.6 of the Technical Appendices.

4.1.7. **Disbursements:** Loan resources will be disbursed in accordance with the Bank's rules and procedures. The disbursement methods that will be used are:(i) the direct payment method for payment of contracts with large amounts relating to works, goods and services signed with contractors, suppliers and service providers; (ii) the reimbursement method, which will be used to pay eligible expenditures with loan resources, incurred by the Borrower with its own resources; and (iii) the special account or revolving fund method to cover expenditures such as operating costs, training expenses, field mission expenses, compensation to persons affected by the project, etc. Funds will be disbursed by the Bank in the form of advance paid into a special account in the name of the project. The Government's counterpart contribution will be paid into another account opened for this purpose. The opening of the two accounts will be a condition precedent to the first disbursement of the loan. Concerning compensation to persons affected by the project which will be covered by the ADF resources, the third special account to receive only the related amounts will also be opened. The opening of this account will be a condition precedent to disbursement of amounts for the compensation.

4.1.8. **Audit Arrangements:** Annual project financial statements, as well as the special account, will be audited annually by independent external auditors deemed acceptable to the Bank. The auditor will be recruited according to the shortlist procedure on a competitive basis. The shortlist will comprise firms duly registered with the Association of National

Chartered Accountants with recent attestations authorizing them to conduct audits. External auditors will certify annual accounts, including expenditures on the special account and certified expenditure statements.

4.1.9. ***Institutional Arrangements:*** According to the decree establishing the Electricity Development Corporation (EDC), the infrastructure that will be built under the project will be owned by the Government through the EDC. EDC will operate and manage the dam and the hydroelectric plant. The level of qualification of EDC staff is appreciable with 66% university graduates, 16% of whom are design engineers. Most of the EDC technical supervisory staff are from AES-SONEL and thus have solid experience in the operation and management of electrical infrastructure. This level of staff skills justifies EDC's capacity and current satisfactory performance in the execution of all the missions assigned to it by the Government to increase electricity supply in the country. In addition, EDC will, under ongoing restructuring, strengthen its workforce with new expected skills, particularly from AES-SONEL. The Project Development and Operation Department will be one of the main beneficiaries of such staff upgrade. The planned institutional support under the project, with the training programme and capacity building for the operation and management of facilities, will help to guarantee good performance of sector operators. The dam and hydroelectric plant will be operated and managed by EDC or, failing that, by an operator selected on a competitive basis through international competitive bidding.

4.1.10. Furthermore, the Government is currently trying to set up a Transmission Network Operator (TNO) before the end of 2011 that will operate and manage HV/MV transmission lines. Lastly, under the supervision of the Electricity Sector Regulatory Agency (ARSEL), EDC will hold negotiations with AES-SONEL to extend the perimeter conceded to new localities covered by the project, in accordance with clause 7.2 of the concession contract relating to the approval of projects for new assets conceded under conditions and terms acceptable to the ADF. These two provisions are conditions precedent to the first disbursement of the loan.

4.2 Project Monitoring

4.2.1 The key project implementation milestones are presented in Table 4.1 below:

Duration	Milestones	Monitoring Activities/Feedback Loop
90 days	Approval and effectiveness	Loan approval
		General Procurement Notice
		Signing of loan agreement
		ADB launching mission
		Effectiveness of loan agreement
150 days	Recruitment of consulting engineer	Preparation of Requests for Proposals
		Selection process and award of contracts
950 days	Services of consulting engineer	Support to project implementation unit for works control and supervision, and implementation of the Electricity Transmission Network Master Plan
150 days	Recruitment of contractors	Preparation of bidding documents
		Invitations to Bid and award of contracts
610 days	Project physical implementation	Execution of supplies and works contracts
		Preparation of periodic project status reports
		Bank supervision missions
		Project environmental and social monitoring
		Bank Mid-Term Review
120 days	Audit of project accounts	Recruitment of auditor
		Audit of annual accounts
70 days	Project completion	Borrower's Project Completion Report
		Preparation of Bank's Project Completion Report

4.3 Governance

4.3.1. The country's inherent fiduciary risk is high owing to the current quality of public finance management. The country is not well ranked by Transparency International in terms of corruption and good governance. In order to address this situation, the Government, with donor backing, has implemented public finance management reforms, in particular the adoption in 2007 of the law instituting the new financial system. The other risk mitigation measures concern particularly the intervention of various State Control entities, the implementation of the Public Finance Modernization Plan based on the Public Expenditure and Financial Accountability (PEFA) assessment approved in 2008, the revision of the Procurement Code, the ongoing implementation of the Change Habits, Oppose Corruption (CHOC) Project, the Governance Reform Support Project, and the institution of legal proceedings against officials committing economic and financial crimes. The Government has already prepared a number of instruments to generalize programme budgets.

4.3.2 The governance risk that could arise in the procurement process and project financial implementation would be mitigated by the fact that the Bank will ensure strict compliance with its relevant rules of procedure. In this regard, it is necessary to underscore the role of the Bank's Field Office which will be strengthened in 2011, in line with the Bank's decentralization process. In addition, the Bank supervision missions and technical and financial audits will help to ensure conformity between the specifications, effectively executed services and works, disbursements and the loan agreement. Lastly, it should be noted that the Bank plays the lead role on the Public Finance Sector Committee and is, therefore, involved in all the implementation arrangements of the Public Finance Modernization Plan.

4.4 Sustainability

4.4.1 Project sustainability depends mainly on the extent of ownership of the project and its objectives by the Government and EDC.. In this regard and with respect to the counterpart contribution, the Government, with a contribution of UA 48.54 million, is strongly involved in the project financing plan. Out of this amount, about UA 43.90 million has been used for contracts completed or being implemented, as indicated in paragraph 2.4.3. EDC Management has already recruited an international expert to support it in the day-to-day monitoring of project environmental and social aspects. The DLP has qualified and competent staff that will be reinforced by two engineering firms, the first specialized in the civil engineering aspects of dam construction and the second in electricity generation, transmission and distribution. AES-SONEL will provide staff for quality control and compliance of infrastructure constructed under the project with standards, in accordance with the concession contract signed with the Government. The project mid-term review in 2013 will help to confirm the implementation of investments, and envisage possible corrective measures.

4.4.2. Project sustainability will depend on the capacity of EDC to operate and manage the dam and the hydroelectric plant, the Transmission Network Management Company (TMC) to manage transmission lines, and AES-SONEL, for distribution, to ensure maintenance of the facilities. Based on AES-SONEL experience, it is estimated that the annual maintenance of project facilities represents about 3% of the investment amount that is CFAF 7.92 billion. This expenditure level does not pose any risk of unavailable financial resources. The existence of operating instructions, rules and procedures for renewing certain components

will ensure sustainability of investments and control the related recurrent costs. The Bank will ensure that EDC has the technical and financial capacity to guarantee project sustainability. The same will hold for the TMC. Concerning distribution, in 2001, the Government signed a concession contract with AES-SONEL for the operation, maintenance and development of Cameroon's electricity grid. AES-SONEL has sufficient and competent technical personnel for the regular operation and maintenance of HV/MV/LV networks, as well as great technical capacity to operate and maintain project facilities. An amendment to the concession contract will be signed between AES-SONEL and EDC based on a proposed amendment to be prepared by ARSEL and deemed acceptable to the Bank. The summary of AES-SONEL performance in 2009 is presented in paragraphs C. 4 of the Technical Annexes

4.5 Pricing

4.5.1. *The tariff structure* applied by AES-SONEL since 2008 for low voltage users comprises three categories of consumers for domestic usage; businesses, services and artisanal industry; and public lighting, the consumption of which is billed to municipalities. Apart from public lighting, staggered billing is applied to LV customers with four tariff bands for residential customers compared to three tariff bands for professional customers. However, for residential and commercial users, a social band with a tariff of CFAF 60/kWh has been introduced. This band is for customers consuming less than 110 kWh per month for residential users and less than 200 kWh per month for commercial and professional users. Lastly, AES-SONEL has a few high voltage customers for whom tariffs are structured in a similar manner to medium voltage tariffs, with two additional factors, namely a fixed annual amount per kW and a proportional tariff per kWh consumed. This tariff structure permits the recovery of investment and operating costs, and the social tariff adequately protects the most vulnerable segments of the population.

4.5.2. *Tariff Policy:* Pursuant to the provisions of the concession contract, AES-SONEL will propose new rates for the sale of medium and low voltage electricity, within the confines of the tariff control and related revenue formulae, and submit the proposal to ARSEL for approval. Indeed, Law No. 98/22 of 24 December 1998 governing the electricity sector set up the Electricity Sector Regulatory Agency (ARSEL) to ensure the regulation, control and monitoring of electricity sector operators. ARSEL is empowered to handle disputes among operators in the electricity sector; it arbitrates disputes upon referral by the parties. ARSEL implements, monitors and controls the tariff system.

4.6 Risk Management

4.6.1. The plant and network extension works and consumer connections do not pose any major implementation-related risks. The technologies to be applied have been tested and recognized by EDC and AES-SONEL. The arrangements made to ensure project sustainability will help to mitigate risks related to inadequate expertise of consulting engineers, project sustainability, and availability of counterpart contribution and completion of the financing plan. Capacity building for the DLP by consulting engineering firms, the supply of project management tools, the implementation of training programmes, including training on Bank rules and procedures, as well as the monitoring/evaluation system will guarantee timely implementation of the project and mitigate risks of poor performance of the Executing Agency and technical coordination between project contractors. Minor financial risks will be mitigated by the staff and all management tools put in place at EDC under the Project to Reinforce and Extend Electricity Transmission and Distribution Infrastructure, as

well as training in financial management, which will be pursued to ensure efficient use of the tools. In addition, Bank supervision missions and the external audit system to be established will also help to mitigate these risks.

4.7 Knowledge Building

4.1.7. In view of its scope and complexity, the project comprises several aspects that provide opportunities for the Bank to generate practical knowledge for its future activities. The depth of the environmental and social studies conducted and the analysis of their results have provided the Bank with information that was transmitted to the experts of the Bank's environmental services. During project implementation, the Bank's project team will benefit from experience, through workshops and study validation seminars and site meetings that can be used to resolve major technical problems. The Bank will also use the results of IEC and ECC campaigns to determine the level of ownership of such projects by rural populations. The results may also be used in designing similar projects, which the Bank could initiate in other countries.

5. LEGAL FRAMEWORK

5.1 Legal Instrument

5.1.1 The Bank will use the project loan to finance this operation. The loan will be granted to the Republic of Cameroon, which will be the main beneficiary.

5.2 Conditions for Bank Involvement

(A) Conditions Precedent to Effectiveness

5.2.1 Effectiveness of the ADF Loan Agreement shall be subject to fulfilment, by the Borrower, of the conditions set out in Section 12.01 of the General Conditions Applicable to Loan Agreements and Guarantee Agreements.

(B) Conditions Precedent to the First Disbursement of the Loan

5.2.2 In addition to effectiveness of the Loan Agreement, the first disbursement of the loan resources shall be subject to fulfilment, by the Borrower, of the following conditions, to the satisfaction of the Fund:

- (i) Provide the Fund with evidence of strengthening the Lom-Pangar Management team with members of the implementation unit of the Project to Reinforce and Extend Electricity Transmission and Distribution Networks comprising: one electromechanical engineer, two electrical engineers (one substation engineer and one network engineer), one civil engineer, one computer engineer, one environmentalist, one procurement expert, one administrative and financial officer and one accountant, whose qualifications and experience will be submitted to the Fund for prior approval (paragraph 4.1.2);
- (ii) Provide the Fund with the original or a certified true copy of the attestation showing that a special account has been opened for the project in a bank deemed acceptable to the Fund to receive the resources of the Fund, as well as

details of the account and the names of persons authorized to make disbursements therefrom (paragraph 4.1.7);

- (iii) Provide the Fund with evidence of the opening of an account for the project in a bank deemed acceptable to the Fund to receive counterpart funds for the project (paragraph 4.1.7); and
- (iv) Provide the Fund with evidence of a financing package for the entire Project by submitting the the financing approval of the the other donors (paragraph 2.4.2).

(C). Specific Conditions for Disbursement of Resources for the Compensation of Persons Affected by the Project

5.2.3 In addition to effectiveness of the Loan Agreement, the disbursement of loan resources for compensation of persons affected by the Project shall be subject to fulfilment, by the Borrower, of the following conditions, to the satisfaction of the Fund:

- (i) Provide the Fund with the original or a certified true copy of the attestation showing the opening of a special account in a bank deemed acceptable to the Fund to receive only the Fund's resources to be used for compensation of persons affected by the Project, as well as full bank details of the account and the names of persons authorized to make disbursements therefrom (paragraph 4.1.7); and
- (ii) Provide the Fund with a detailed procedure to be followed by the executing agency to compensate persons affected by the Project with the Fund's resources, as well as supporting documents and forms of evidence retained (land titles, identity, payment sheet, etc.) to ensure transparency (paragraph 2.6.2).

(D) Other Conditions

5.2.4 Furthermore, the Borrower shall, to the satisfaction of the Fund:

- (i) Provide the Fund, within 12 months from the date of first disbursement of the loan, with the original or a certified true copy of the regulatory act making EDC the permanent operator of the plant, as well as evidence of its capacity to operate the plant (paragraph 4.19);
- (ii) Provide the Fund, within 24 months from the date of first disbursement of the loan, with the evidence of the setting up and functioning of the Transmission Network Operator (TNO); and submit to the Fund, within 36 months from the date of first disbursement of the loan, the concession contract signed with the TNO for the transmission line, under conditions that will ensure profitability and sustainability of the facilities built under the project (paragraph 4.4.2);
- (iii) Provide the Fund, within 12 months from the date of first disbursement of the loan, with the draft amendment to the distribution concession contract signed between the Borrower and AES-SONEL to extend the perimeter conceded to

the localities and areas covered by the project, in accordance with clause 7.2 of the concession contract relating to the approval of projects for new assets conceded and the terms and conditions acceptable to donors; and submit to the Fund, within 24 months from the date of first disbursement of the loan, the amendment to the distribution concession contract signed between the Borrower and AES-SONEL (paragraph 4.1.10); and

- (iv) Provide the Fund, as the work progress, and in any case before the start-up of construction works in the area concerned, with evidence of compensation, with the Fund's resources, of persons affected by the Project, in accordance with the Environmental and Social Management Plan (ESMP) and the Compensation and Resettlement Plan (CRP) (paragraphs 2.6.2 and 3.2.5).

(E). Commitments

5.2.5 The Borrower undertakes to:

- (i) Implement the Environmental and Social Management Plan (ESMP) and the Compensation and Resettlement Plan (CRP) (paragraphs 3.2.1 and 4.1.7); and
- (ii) Not to initiate construction work in the project area until the persons affected by the project have been fully compensated (paragraph 2.6.2).

5.3 Compliance with Bank Policies

The Lom-Pangar Hydroelectric Project complies with all applicable Bank rules. Considering that ADF financing for the Project exceeds the performance-based allocation granted to Cameroon for 2011, an advance commitment request was solicited and obtained from OPsCOM based on evidence of compliance by Cameroon with the three required criteria, namely: (i) the country's performance, (ii) the country's absorptive capacity; and (iii) the country's adherence to reforms.

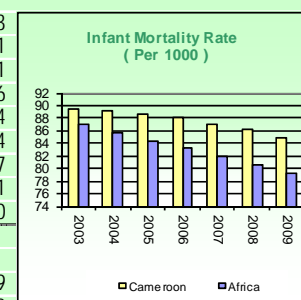
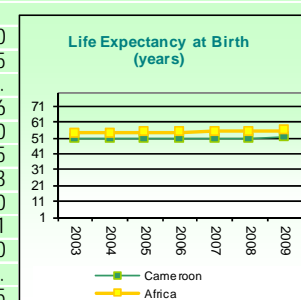
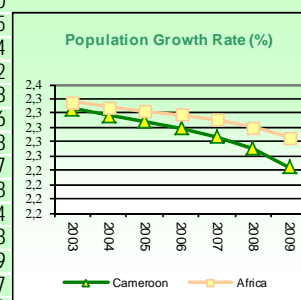
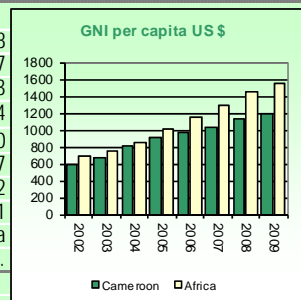
6. RECOMMENDATION

Management recommends that the Boards of Directors should approve the proposal for an ADF loan of UA 44.93 million to the Republic of Cameroon to finance the Lom-Pangar Hydroelectric Project, in accordance to the conditions set forth in this report.

Cameroon

COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Cameroon	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		476	30 323	80 976	54 658
Total Population (millions)	2010	20,0	1 031,5	5 659	1 117
Urban Population (% of Total)	2010	58,4	39,9	45,1	77,3
Population Density (per Km ²)	2010	42,0	34,0	69,9	20,4
GNI per Capita (US \$)	2009	1 190	1 525	2 968	37 990
Labor Force Participation - Total (%)	2010	39,8	40,1	61,8	60,7
Labor Force Participation - Female (%)	2010	40,2	41,0	49,1	52,2
Gender -Related Development Index Value	2007	0,515	0,433	0,694	0,911
Human Develop. Index (Rank among 169 countries)	2010	131	n.a	n.a	n.a
Popul. Living Below \$ 1 a Day (% of Population)	2007	9,6	42,3	25,2	...
Demographic Indicators					
Population Growth Rate - Total (%)	2010	2,2	2,3	1,3	0,6
Population Growth Rate - Urban (%)	2010	3,6	3,4	2,4	1,0
Population < 15 years (%)	2010	40,8	40,3	29,0	17,5
Population >= 65 years (%)	2010	4,0	3,8	6,0	15,4
Dependency Ratio (%)	2010	79,6	77,6	55,4	49,2
Sex Ratio (per 100 female)	2010	100,0	99,5	93,5	94,8
Female Population 15-49 years (% of total population)	2010	24,1	24,4	49,4	50,6
Life Expectancy at Birth - Total (years)	2010	51,7	56,0	67,1	79,8
Life Expectancy at Birth - Female (years)	2010	52,3	57,1	69,1	82,7
Crude Birth Rate (per 1,000)	2010	35,9	34,2	21,4	11,8
Crude Death Rate (per 1,000)	2010	13,8	12,6	8,2	8,4
Infant Mortality Rate (per 1,000)	2010	83,7	78,6	46,9	5,8
Child Mortality Rate (per 1,000)	2010	138,3	127,2	66,5	6,9
Total Fertility Rate (per woman)	2010	4,5	4,4	2,7	1,7
Maternal Mortality Rate (per 100,000)	2008	600,0	530,2	290,0	15,2
Women Using Contraception (%)	2004-07	26,1	...	61,0	...
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2004-09	19,0	58,3	109,5	286,0
Nurses (per 100,000 people)*	2004-09	149,3	113,3	204,0	786,5
Births attended by Trained Health Personnel (%)	2006	63,0	50,2	64,1	...
Access to Safe Water (% of Population)	2008	74,0	64,5	84,3	99,6
Access to Health Services (% of Population)	2005-07	...	65,4	80,0	100,0
Access to Sanitation (% of Population)	2008	47,0	41,0	53,6	99,5
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2007	5,1	4,9	0,9	0,3
Incidence of Tuberculosis (per 100,000)	2009	182,0	294,9	161,0	14,0
Child Immunization Against Tuberculosis (%)	2009	79,0	79,9	81,0	95,1
Child Immunization Against Measles (%)	2009	74,0	71,1	80,7	93,0
Underweight Children (% of children under 5 years)	2006	16,6	30,9	22,4	...
Daily Calorie Supply per Capita	2007	2 269	2 465	2 675	3 285
Public Expenditure on Health (as % of GDP)	2008	5,5	5,7	2,9	7,4
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2009	113,8	102,7	107,2	101,3
Primary School - Female	2009	105,5	99,0	109,2	101,1
Secondary School - Total	2009	41,5	37,8	62,9	100,1
Secondary School - Female	2009	37,7	33,8	61,3	99,6
Primary School Female Teaching Staff (% of Total)	2009	45,6	47,0	60,5	81,4
Adult literacy Rate - Total (%)	2008	75,9	64,8	80,3	98,4
Adult literacy Rate - Male (%)	2008	84,0	74,0	86,0	98,7
Adult literacy Rate - Female (%)	2008	67,8	55,9	74,8	98,1
Percentage of GDP Spent on Education	2009	3,7	4,6	3,8	5,0
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2008	12,6	7,8	10,6	10,9
Annual Rate of Deforestation (%)	2005-09	...	0,7	0,4	-0,2
Annual Rate of Reforestation (%)	2005-09	...	10,9
Per Capita CO2 Emissions (metric tons)	2009	0,4	1,1	2,9	12,5



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators; last update : May 2011
 UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.
 Note : n.a. : Not Applicable ; ... : Data Not Available.

Annex II

Table of ADB Portfolio in the Country

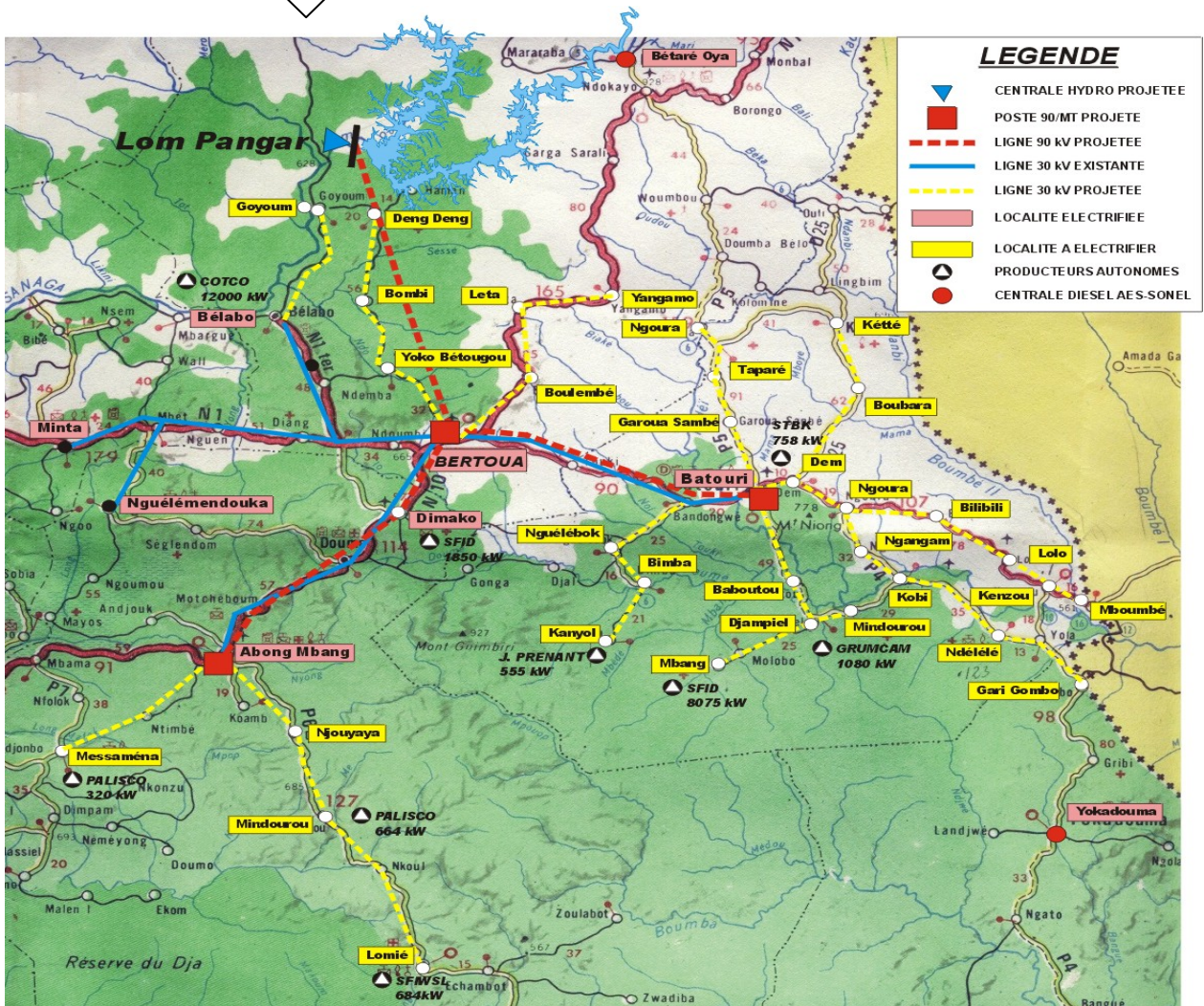
Project Name	Effectiveness Date	Commitment	Disbursed Amount	% Disbursed	Closure Date	PI	DO
Agricultural Sector							
Rumpi Participatory Development Project	23/2/2005	15 000 000.00	5 613 725.74	37.42	1/6/2010	1.93	3.00
Rumpi Participatory Development Project	23/2/2005	1 500 000.00	649 570.78	43.30	30/6/2011	1.93	3.00
Grassfield Part. Rur. Dev. and Decen. Project	23/2/2005	15 000 000.00	7 610 325.29	50.74	31/12/2010	2.50	3.00
Household Income Improvement Programme	14/3/2002	14 000 000.00	12 450 452.20	88.93	3/6/2010	2.43	3.00
Water and Sanitation Sector							
DWSS Project in Semi-Urban Areas		40 000 000.00	-	-	31/12/2013	1.57	2.00
Yaounde Sanitation Project (PADY)	16/5/2006	25 600 000.00	12 125 550.11	47.37	31/12/2010	2.14	2.00
Transport Sector							
Batibo-Bachuo-Akagbe Road Development	12/7/2007	44 700 000.00	13 549 109.58	30.31	31/12/2012	2.23	3.00
Batchienga-Yoko-Tibati-Ngaoun Road Study	29/3/2010	3 360 000.00	-	-	31/12/2012	1.83	3.00
Maintenance and Infrastructure Construction Project	29/4/2005	45 400 000.00	18 916 730.00	41.67	31/12/2011	1.14	1.50
Social Sector							
Support for Vocational Training Reform	13/6/2005	14 000 000.00	1 907 752.64	13.63	30/12/2010	1.69	2.00
Support for Vocational Training Reform	13/6/2005	1 000 000.00	771 713.82	77.17	30/12/2010	1.69	2.00
Health Project 1: Health System Development	19/9/2001	8 050 000.00	6 015 335.82	74.72	30/6/2010	2.08	3.00
Reproductive Health Programme Support	29/4/2005	10 230 000.00	1 525 227.38	14.91	31/12/2010	2.33	3.00
Reproductive Health Programme Support	29/4/2005	1 900 000.00	1 247 077.35	65.64	31/12/2010	2.33	3.00
Multisector							
Governance Reform Support Programme	10/7/2008	25 000 000.00	12 418 293.59	49.67	31/12/2010	1.67	2.00
PARG – Institutional Support	10/7/2008	4 000 000.00	930 920.76	23.27	31/12/2010	1.67	2.00
Private Sector							
GOWE TA and Capacity Building	24/6/2009	530 000.00	530 000.00	100.00	30/6/2010		
GOWE Guarantee Fund	1/1/2007	8 000 000.00			30/6/2010		
AES-SONEL Investment Programme	13/2/2007	60 000 000.00	54 433 853.00	90.72	15/12/2009	2.71	3.00
		68 530 000.00	54 963 853.00				

Major Projects Relating to the Country's Development

3.1 The Government has prepared an Electricity Sector Development Plan (ESDP), which runs up to 2030. The Plan seeks to ensure consistency in the development of electricity supply and demand in the context of the country's economic growth, and includes a plan to develop electricity generation, transmission and distribution in Cameroon as follows:

Electricity Infrastructure Development Plan			
Power in MW and Length in Km			
Facilities		Sites	Years
Generation	Hydroelectric dams	Lom-Pangar (30 MW)	2012
		Mekin (12 MW)	2014
		Birni à Warak (75 MW)	2015
		Memve'Ele (201 MW)	2016
		Song Mbengue (930 MW)	2016
		Nachtigal (330 MW)	2017
		Colomines (13.6 MW)	2017
		Kikot 214 MW	2017
		Kikot 108 MW	2019
		Kikot 108 MW	2021
		Song Ndong (380 MW)	2020
		Thermal plants	Yassa (82 MW)
		Kribi (216 MW)	2013
	Development of Networks	Construction of internal lines	Memve'Ele-Ebolowa-Yaounde (250 km of 225 kV),
Kribi-Edea (100 km of 225 kV or of 330 kV),			2014
Yaounde - Kribi (215 km of 330 kV).			2014
Nachtigal - Lom-Pangar (265 km of 330 kV),			2017
Nachtigal-Yaounde (75 km in 225 kV or of 330 kV),			2017
Edea - Kikot - Yaounde (175 km of 330 kV),			2017
Interconnection with neighbouring countries		Equatorial Guinea- Bata-Memve'Ele (165 km of 330 kV),	2013
		Nigeria and Chad (Nachtigal - Yola 870 km of 330 kV)	2018
		Lom-Pangar-Yola (605 km of 330 kV)	2019
		Nigeria (Yaounde – Bafoussam – Mandilla 570 km of 225 kV)	2019
Distribution	Rural electrification	Electrification of about 1,500 localities	2015

Map of Project Area



The staff of the ADB Group has provided this map for the exclusive use of readers of this report to which it is appended. The appellations and the demarcations on this map do not imply any judgment on the part of the ADB Group and its members concerning either the legal status of a territory or the approval or acceptance of its boundaries.