

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No: 36360-AFR

PROJECT APPRAISAL DOCUMENT

ON A PROPOSED CREDIT TO THE REPUBLIC OF MALI

IN THE AMOUNT OF SDR 16.9 MILLION
(US\$25 MILLION EQUIVALENT)

ON A PROPOSED CREDIT TO THE ISLAMIC REPUBLIC OF MAURITANIA

IN THE AMOUNT OF SDR 16.9 MILLION
(US\$25 MILLION EQUIVALENT)

AND

ON A PROPOSED CREDIT TO THE REPUBLIC OF SENEGAL

IN THE AMOUNT OF SDR 16.9 MILLION
(US\$25 MILLION EQUIVALENT)

IN SUPPORT OF THE

FÉLOU HYDROELECTRIC PROJECT
OF THE

US\$350 MILLION WEST AFRICA POWER POOL (APL) PROGRAM

June 5, 2006

Energy Team
Infrastructure Group
Africa Regional Office

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

(Exchange Rate Effective May 31, 2006)

Currency Unit	=	FCFA
FCFA 1000	=	US\$1.809
US\$1.48703	=	SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AFD	Agence Française de Développement (French Development Agency)
AfDB	African Development Bank
APL	Adaptable Program Lending
CAS	Country Assistance Strategy
CFAA	Country Financial Accountability Assessment
CTPI	Comité Technique Permanent de L'interconnexion (OMVS)
EA	Environmental Assessment
ECOWAS	Economic Community of West African States
ECSEE	Energy Community of South East Europe
EDM	Electricité du Mali
EEP	ECOWAS Energy Protocol
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
EMS	Energy Management System
FMS	Financial Management System
GWh	Gigawatt hour
HEP	Hydroelectric Project
ICB	International Competitive Bidding
IDA	International Development Association
IFI	International Financial Institution
kWh	Kilo Watt hours
M & E	Monitoring and Evaluation
MIS	Management Information System
mm	Million
MW	Megawatt
NEPAD	New Partnership for African Development
NPV	Net Present Value
OMVG	Organisation pour la Mise en Valeur du Fleuve Gambie (The Gambia River Basin Development Authority)
OMVS	Organisation pour la Mise en Valeur du Fleuve Sénégal (Senegal River Basin Development Authority)
PIC	Project Implementation Committee
PIM	Project Implementation Manual
PPIAF	Public Private Infrastructure Advisory Facility
RAP	Resettlement Action Plan
RIAS	Regional Integration Assistance Strategy
RRDP	Regional Regulatory Development Project

RVP	Regional Vice President
SAPP	South African Power Pool
SBD	Standard Bidding Documents
SCADA	Supervisory Control and Data Acquisition
SIL	Sector Investment Loan
SENELEC	Société Nationale d'Electricité du Sénégal
SOE	Statement of Expenditure
SOGEM	Société de Gestion de l'Energie de Manantali
SOMELEC	Société Mauritanienne d'Electricité
TWh	Terawatt hour
USAID	United States Agency for International Development
WAGP	West Africa Gas Pipeline
WAPP	West Africa Power Pool

Vice President:	Gobind T. Nankani
Regional Integration Director:	Mark D. Tomlinson
Sector Manager:	S. Vijay Iyer
Task Team Leader:	Amarquaye Armar

AFRICA
WAPP APL 2 - OMVS Félou Hydroelectric Project

CONTENTS

	Page
A. STRATEGIC CONTEXT AND RATIONALE	6
1. Country and sector issues.....	6
2. Rationale for Bank involvement.....	9
3. Higher level objectives to which the project contributes.....	9
B. PROJECT DESCRIPTION.....	10
1. Lending instrument.....	10
2. Program objective and phases.....	10
3. Project development objective and key indicators.....	12
4. Project components.....	13
5. Lessons learned and reflected in WAPP APL 2 Project design.....	14
6. Alternatives considered and reasons for rejection	15
C. IMPLEMENTATION	16
1. Partnership arrangements.....	16
2. Institutional and implementation arrangements.....	16
3. Monitoring and evaluation of outcomes/results.....	18
4. Sustainability.....	19
5. Critical risks and possible controversial aspects.....	19
6. Loan/credit conditions and covenants.....	21
D. APPRAISAL SUMMARY	22
1. Economic and financial analyses	22
2. Technical.....	24
3. Fiduciary	24
4. Social.....	25
5. Environment.....	25
6. Safeguard policies.....	26
7. Policy Exceptions and Readiness.....	27
Annex 1: Country and Sector or Program Background.....	28

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies.....	36
Annex 3: Results Framework and Monitoring.....	37
Annex 4: Detailed Project Description.....	39
Annex 5: Project Costs.....	41
Annex 6: Implementation Arrangements.....	42
Annex 7: Financial Management and Disbursement Arrangements.....	44
Annex 8: Procurement Arrangements.....	51
Annex 9: Economic and Financial Analysis.....	56
Annex 10: Safeguard Policy Issues.....	64
Annex 11: Project Preparation and Supervision.....	65
Annex 12: Carbon Finance Project.....	67
Annex 13: Documents in the Project File.....	68
Annex 14: Statement of Loans and Credits.....	70
Annex 15: Country at a Glance.....	71

Map
IBRD # 34462

AFRICA

WAPP APL 2 - OMVS FELOU HYDROELECTRIC PROJECT

PROJECT APPRAISAL DOCUMENT

AFRICA

AFTEG

Date: June 7, 2006	Team Leader: Amarquaye Armar
Country Director: Mark D. Tomlinson	Sectors: Power (50%); Renewable energy (50%)
Sector Manager/Director: Subramaniam V. Iyer	Themes: Regional integration (P); Water resource management (S)
Project ID: P094916	Environmental screening category: Full Assessment
Lending Instrument: Adaptable Program Loan	

Project Financing Data			
<input type="checkbox"/> Loan <input checked="" type="checkbox"/> Credit <input type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:			
For Loans/Credits/Others:			
Total Bank financing (US\$m.): 75.00			
Proposed terms: Standard IDA Credit, with 40 year maturity			
Financing Plan (US\$m)			
Source	Local	Foreign	Total
BORROWERS/RECIPIENTS	3.20	6.80	10.00
INTERNATIONAL DEVELOPMENT ASSOCIATION (MALI)	0.00	25.00	25.00
INTERNATIONAL DEVELOPMENT ASSOCIATION (MAURITANIA)	0.00	25.00	25.00
INTERNATIONAL DEVELOPMENT ASSOCIATION (SENEGAL)	0.00	25.00	25.00
EUROPEAN INVESTMENT BANK	0.00	40.00	40.00
Total:	3.20	121.80	125.00
Borrower:			
Republic of Mali			
Ministry of Economy and Finance			
Bamako			
Islamic Republic of Mauritania			
Ministry of Economic Affaires and Development			
BP 238			
Nouakchott			
Republic of Senegal			
Ministry of Economy and Finance			

SOGEM (or the successor asset holding entity for OMVS – AGP-OMVS) to the OMVS Power System Operator (EEM)

Component 2: Two-Stage “Project Cycle Management” Contract. The OMVS High Commission and SOGEM will retain the services of an experienced engineering consulting firm to provide comprehensive project cycle management support through a two-phase sequential contracting arrangement , as follows:

1. Phase 1 (“Transaction Adviser”) Contract – This is currently underway with funding from PPF Q475-0-SE). The consulting firm is providing transaction advice and support required by the OMVS High Commission and SOGEM to: (a) perform detailed planning and scheduling of project implementation arrangements, including pre-qualification of prospective bidders, (b) prepare and issue bidding documents for the selection of an independent contractor and also prepare a comprehensive set of power supply agreements for use by EEM, taking into account provisions of the Protocole Tarifaire and the “Contrat de Cession”, (c) conduct the two-stage bidding process, evaluate bids and make recommendation for the award of the Design-Build Contract. The expected duration of the Phase 1 Contract is 12 months.
2. Phase 2 (“Owners Engineer”) Contract – This phase begins when of the Design-Build Contract is awarded and signed. Subject to satisfactory performance during the Phase 1 Contract, the OMVS High Commission and SOGEM plan to retain the same consulting firm to oversee the day-to-day performance of the Design-Build Contractor over the entire “design-build-performance testing” cycle, up until the critical milestone involving the hand-over of the “use and control” of a fully operational OMVS Felou HEP through SOGEM to EEM

Component 3: “WAPP Action Plan” for OMVS Power System. This component will help upgrade the functional and operational capabilities of the Comite Technique Permanent de L’interconnexion (CTPI) to fully deploy power pooling provisions of the existing “Project de Protocole d’Interconnexion” of the OMVS Power System. Specifically, the component will facilitate joint operations and coordination between EDM, SENELEC, SOMELEC and EEM by: (i) upgrading communication and data acquisition facilities to enable real-time information exchange with the load dispatching center at Manantali and the three national power utilities; and (ii) acquiring the necessary software licenses (plus relevant training) to support optimization and scheduling of the combined hydro and thermal power generation capacity of the three OMVS riparian countries.

Which safeguard policies are triggered, if any? *Ref. PAD D.6, Technical Annex 10*

1. Environmental Assessment (OP/BP 4.01)
2. Involuntary Resettlement (OP/BP 4.12)
3. Projects on International Waterways (OP/BP 7.50)
4. Safety of Dams (OP/BP 4.37)

The investment to be financed under this WAPP APL 2 project has been categorized as “A” under OP4.01 since it is a hydroelectric plant. For civil works, the OMVS Férou HEP requires the rehabilitation of the existing weir (without modification of sill elevation), the excavation of a canal to carry the turbine capacity of 500 m³/s, construction of a new hydropower station with 3 x 21 MW bulb turbine for a maximum capacity of 59 MW, the connection of the power station with the HT network interconnected at the existing substation of Medina, about 10 km to the south-east of the village of Kayes, and of an access road to the site which passes by the railway siding near Medina. The railway siding, which will be used for unloading bulk construction equipment and supplies, also has to be rehabilitated. This arrangement will require the re-alignment of the road past Medina. Due to the general geological conditions of the area (compact and massive quartzite sandstone) and the modest nature of the proposed structures the OMVS Férou HEP does not present any significant geological and/or structural risk factors for civil works. Thus environmental concerns are limited to ensuring adequate management of potential construction impacts

and attending to a possible relocation of about 2 ha of land planted with orchards and vegetable gardens.

An Environmental Assessment (EA) has been prepared and has been disclosed in country (project site) and in the Infoshop. The EA concludes that potential impacts of the OMVS Félou HEP are minimal on fisheries resources, food security of the local villagers near the project site and public health, especially bilharzia, and HIV/Aids. Moreover, local villagers will continue to have access to bathing and washing facilities. About 1.25 ha of land planted with orchards and vegetable gardens need to be acquired for project facilities: a new channel and a new road. A Resettlement Action Plan has been prepared and disclosed in country (project site) and in the Infoshop.

The Félou Hydropower Project will reinforce an existing two meter high weir. An analysis has indicated that there are no dam safety issues. OMVS has provided the Bank with satisfactory Dam Safety Certificates for the upstream Manantali Dam (the Félou HEP will use water from the Manantali Dam). The project is part of the overall OMVS program. The OMVS has notified the governments of the three riparian countries of the OMVS Félou HEP, in accordance with the requirements specified in OP 7.50, as has been standard for other projects in the Senegal River Basin.

Significant, non-standard conditions, **if any**, for:
Ref. PAD C.7

Loan/credit effectiveness:

- Subsidiary Grant Agreement is signed between Senegal and the OMVS for implementation of the component 2.
- Subsidiary Loan Agreement is signed between Mali, Mauritania, Senegal and SOGEM for implementation of components 1 and 3.
- Draft Bidding Documents for Design-Build Contract is acceptable to IDA
- Draft Phase 2 Contract – “Owner’s Engineer” Contract with EDF/CIH is acceptable to IDA.
- OMVS High Commission appoints an external auditor for the project with qualifications satisfactory to IDA

No policy exceptions are sought.

Covenants applicable to project implementation:

- Governments of Mali, Mauritania and Senegal shall each cause their respective national power utilities (EDM, SOMELEC, SENELEC) (a) not later than 31st December 2006 to establish, under terms and conditions acceptable to the Association, an escrow account to backstop payments obligations for electricity purchases from the OMVS power system.
- Not later than six months before the commissioning of the Felou hydroelectric plant, SOGEM shall enter into a contract with the OMVS Power System Operator, in form and substance acceptable to the Association, for its operations, exploitation and maintenance.

No policy exceptions are sought.

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

Regional Overview

1. The 15 member states¹ of the Economic Community of West African States (ECOWAS) occupy some five million square kilometers and are currently home to about 250 million people, which is projected to reach 380 million by 2020. Half of the present population lives in poverty, with per capita income barely above US\$300 per year. Despite the region's large energy endowment, the region's per capita consumption of electricity is among the lowest in the world. In 2003, the combined total consumption of electricity was about 40,000 GWh (approx. 160 kWh per capita) and peak power demand was 6,500MW. Electricity demand is projected to grow by over 7% per year until 2020, when electricity requirement would reach 140,000 GWh (approx. 370 kWh per capita) and the peak power demand would exceed 22,000MW.

2. Faced with this power system expansion challenge, ECOWAS Member States have acknowledged that past efforts to achieve national self-sufficiency in electricity supply have been inadequate due to the high cost of establishing power generation and transmission infrastructure. They also acknowledge two major shortcomings in the region at the present time: (a) increasing reliance on hydro-based power systems will not provide sufficient regional security of electricity supply, and (b) the lack of adequate transmission infrastructure (within and between national power systems) is the weakest link in the drive towards greater cooperation in power sector development.

ECOWAS Vision – West Africa Power Pool

3. The vision of ECOWAS is to develop and put in place the West Africa Power Pool (WAPP) – a cooperative power pooling mechanism for integrating national power system operations into a unified regional electricity market – with the expectation that such mechanism would, over the medium to long term, assure their citizens a stable and reliable electricity supply at affordable costs. The long term scenario is to establish WAPP as the principal vehicle to help meet the region's projected electricity requirement by harnessing electricity from: (a) several large capacity hydropower facilities (Kainji & Jebba, Akosombo, Manantali) sited on the region's major (Niger, Volta, Senegal) rivers which produce relatively low-cost electricity (US\$0.01-0.03/kWh); (b) the substantial but as yet untapped hydro resources of Guinea, some 6,000 MW of which is potentially economic to develop and can generate around 20-25 TWh per year of electricity at relatively low cost (between US\$ 0.02-0.03/kWh); and (c) an expansion of gas-fired power generation, leveraging the community's parallel track strategy to expand access to Nigeria's enormous natural gas reserves (3,500 billion cubic meters of proven natural gas reserves) via the West Africa Gas Pipeline (WAGP) project (*under construction with first delivery of gas expected in January 2007*). In order to provide a robust infrastructure platform for the WAPP, a four-fold increase in power system interconnection capacity among ECOWAS Member States (the "Community") is required over the period 2005-2020.

WAPP Cooperation Framework

4. ECOWAS Member States are facing up to the challenge ahead by taking collective action to mobilize financing on a larger scale than has hitherto been forthcoming to establish, *inter alia*, a robust infrastructure platform for the WAPP. They have recognized that a pre-condition for successful regional

¹ Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

energy integration in West Africa is the establishment of a transparent and harmonized policy, regulatory and commercial framework for cross-border electricity trade throughout the Community. Accordingly, the Community's highest decision-making body – the *Summit of the Heads of State and Government of the ECOWAS Member States* – is pursuing a pragmatic, step-by-step approach to forge consensus, put in place the core (legal, regulatory, technical, investment programming) building blocks for the WAPP initiative, so as to provide prospective donors and financiers with clear evidence of the collective ownership by ECOWAS member states. Key policy milestones reached to date include:

- the 25th *Summit of the Heads of State and Government of the ECOWAS Member States* approved the “**Mechanism for Financing the WAPP**”;²
- the 26th *Summit of the Heads of State and Government of the ECOWAS Member States* signed the “**ECOWAS Energy Protocol**” to set up a unified regional (legal and regulatory) umbrella for energy sector developments in the region;
- the 28th *Summit of the Heads of State and Government of the ECOWAS Member States* approved the “**ECOWAS Revised Master Plan for the Generation and Transmission of Electrical Energy**”;³ and
- the 29th *Summit of the Heads of State and Government of the ECOWAS Member States* adopted the “**Articles of Agreement**” to formally set up the **WAPP Organization** as a “**Specialized Institution of ECOWAS**”.⁴

5. The above policy decisions, taken by the community's highest level body, demonstrate ownership by ECOWAS Member States of the WAPP initiative. Moreover the steady progress made in achieving key milestones, in particular (i) ratification of the **ECOWAS Energy Protocol (EEP)**, (ii) consensus on the “**Road Map**” for implementing the Revised ECOWAS Master Plan and, more recently, (iii) adoption of comprehensive “**Articles of Agreement**” to set up a semi-autonomous regional, collaborative, power utility-led **WAPP Organization** to take over coordination of WAPP activities from the ECOWAS Secretariat, all demonstrate the collective commitment of ECOWAS Member States (Annex 1, Section 1) to implement WAPP as a regional energy integration project.

Senegal River Hydropower and WAPP

6. The hydropower potential of the Senegal River Basin is estimated at 1,200 MW, of which only 200 MW has so far been developed. In 1972, three of the four riparian countries of the Senegal River Basin established the *Organisation pour la Mise en Valeur du Fleuve Sénégal* (OMVS), with a mandate to ensure multi-purpose water resources development, including of electricity supply. By the late 1980s, the OMVS had succeeded in building two large jointly owned dams to store water for multi-purpose uses,

² ECOWAS/ CEDEAO (2001). 25th Session of the Authority of Heads of State and Government. Decisions A/Dec.8/12/01 Relating to the Establishment of a Mechanism of the West African Power Pool (WAPP). Dakar, 20 – 21 December 2001.

³ ECOWAS/ CEDEAO (2005). 28th Session of the Authority of Heads of State and Government. Decision A/Dec.7/01/05 Relating to the ECOWAS Revised Master Plan for the Generation and Transmission of Electrical Energy. Accra, 19 January 2005.

⁴ ECOWAS/ CEDEAO (2006). 29th Session of the Authority of Heads of State and Government. Decision A/Dec. 18/01/06 Adopting the Articles of Agreement Relating to the Establishment and functioning of the West African Power Pool, Niamey, 12 January 2006; and Decision A/Dec.20/01/06 Granting the Status of a Specialized Institution of ECOWAS to the West Africa Power Pool Organization. Niamey, 12 January 2006.

leveraging a unique legal framework.⁵ One of the two dams, the Manantali dam, was built in 1988 at an upstream location which is 300 km inside Mali and approximately 1,200 km from the mouth of the Senegal River. The Manantali dam has a reservoir capacity of 11,300 million m³ (active storage capacity of 8,000 million m³) which enables effective regulation of the Bafing River to attenuate extreme floods and store water in the wet season to augment dry season flows required for irrigation and navigation.

7. During the 1990s, the OMVS secured financing from a large consortium of IFIs and donors to implement the Regional Hydropower Development Project (RHDP). The RHDP, implemented by a special purpose company – *Société de Gestion de l’Energie de Manantali* (SOGEM)⁶ – which is jointly owned by all three OMVS countries, led to the establishment of a unique sub-regional power system – the *OMVS Power System* – comprising a 200 MW hydroelectric plant at the foot of the Manantali dam,⁷ a 1000 kilometer long system of 225kV transmission lines and sub-stations that evacuate electricity produced at the Manantali hydroelectric plant to the main load centers of Mali, Mauritania, and Senegal, both operated in real-time by a central load dispatching system (also located at Manantali). In February 2002, the operation and maintenance of the OMVS Power System was outsourced under a competitively bid long-term concession arrangement to ESKOM Energie Manantali (EEM), a private subsidiary of the South African power utility (ESKOM). Working together with the Comité Technique Permanent de l’interconnexion (CTPI) of the OMVS Power System,⁸ which comprises representatives of the national power utilities of three OMVS riparian countries – *Electricité du Mali* (EDM s.a), *Société Nationale d’Electricité du Sénégal* (Senelec) and *Société Mauritanienne d’Electricité* (SOMELEC) – EEM has been effective in ensuring the safe, reliable and cost-effective supply of hydroelectricity to the citizens of Mali, Mauritania and Senegal.

8. The OMVS has recently put in place an Inclusive Framework to integrate the fourth riparian country – **Guinea** – into its joint Senegal River Basin Development Program. Following the Nouakchott Declaration of May 2003, which sets the new strategic orientation for development of the Senegal River Basin, the OMVS vision for regional integration includes accelerating the development of multi-purpose water resources infrastructure to augment the availability of water and low cost hydroelectricity. In March 2006, the treaty was signed to integrate Guinea as the fourth OMVS riparian country and the four Heads of State approved the implementation of the joint Senegal River Basin Development Program. The OMVS has since embarked on a comprehensive program of legal and institutional reforms, supported by the World Bank through the proposed FY06 Senegal River Basin Multipurpose Water Resources Development (MWRD) APL 1 operation, which inter alia, aims to consolidate all existing and future assets of the OMVS Power System under a successor entity – the proposed *L’Agence de Gestion du Patrimoine de l’OMVS* (AGP-OMVS). Unlike SOGEM, the successor asset holding entity will not become directly involved in commercial operations, but will engage private sector entities, through output-based contracts and/or lease/affermage/concession agreements to commercialize the development, operation and maintenance of all existing and future assets of the OMVS Power System (Section C2).

9. The *Revised ECOWAS Master Plan* accords high priority to the medium term expansion plan of the OMVS Power system, which includes the construction of the OMVS 2nd Generation Hydropower Projects – two new run-of-river hydroelectric plants that are to be installed at the Félou (60 MW) and

⁵ Refer to OMVS Convention of December 1978 on the legal status of the jointly owned infrastructure; and OMVS Convention of May 1982 on the financing modalities of the jointly owned infrastructure.

⁶ Article 5 of “Convention Portant Création de l’Agence de Gestion de l’Energie de Manantali” (7 Janvier 1997)

⁷ Commissioned in 2002, the Manantali hydroelectric plant has an installed capacity of 200 MW, comprising of five 40 MW Kaplan units, capable in total of producing an average energy output of about 807 GWh from water releases from the multi-purpose storage reservoir.

⁸ The CTPI comprises representatives of SOGEM, EEM and each of the national power utilities of Mali (EDM), Mauritania (SOMELEC) and Senegal (SENELEC). Its mandate derives from articles 2 and 3 of the “Energie de Manantali – Protocole Tarifaire/Project de Protocole d’Interconnexion”.

Gouina (95 MW) sites, both of which are located downstream of the Manantali hydroelectric plant – and also the reinforcement and expansion of transmission networks of the OMVS Power System. Accordingly, the OMVS HC and the WAPP Organization are working together to leverage the functions and operational capabilities of the OMVS Power System into the nucleus of the proposed power pooling mechanism for WAPP “Zone B” countries⁹ (Section B4).

2. Rationale for Bank involvement

10. **Overall WAPP APL Program.** The **Regional Integration Assistance Strategy (RIAS) for West Africa**, which was presented to the World Bank Board on August 2, 2001, is a translation of the World Bank’s greater focus on regional integration in Africa, as originally introduced to the Board at the technical briefing on April 2, 2001. To reduce fragmentation of the West Africa Region’s economies, the Bank has been pursuing well-defined and phased integration efforts in key sectors where the countries would benefit significantly from cross-border trade – notably road and air transport, energy and telecommunications. The objective of the RIAS for West Africa is to help the countries concerned create a more unified regional economic space through the integration of markets of goods, financial and infrastructure services.

11. To achieve this RIAS objective, the Bank and its partner international financial institutions (IFIs), in consultation with the WAPP Steering Committee¹⁰, WAPP Project Implementation Committee¹¹ and the ECOWAS Secretariat agreed to put in place a multi-year programmatic framework in support of WAPP. The Bank strategy, *inter alia*, aims to: (a) focus **Bank lending support** on a phased approach to the integration of national power systems within WAPP; (b) target **Bank non-lending services** (including PPIAF) on WAPP-related institutional capacity building activities to assist the WAPP PIC to establish an autonomous regional power utility-led entity – the proposed WAPP Organization; (c) leverage the Bank’s **Adaptable Program Lending (APL)** instrument as a regional multi-year/multi-country umbrella to mobilize co-financing from development partners, donors and private investors, where feasible, to ensure timely implementation of WAPP-related investment and technical assistance activities; and (d) align national energy projects in the Bank **Country Assistance Strategies (CAS)** for each ECOWAS member state with the broader goals of WAPP. The WAPP APL Program thus qualifies for support from the special provision for selected regional integration projects approved in the IDA14 Replenishment Agreement. Under this special provision, the contribution from each participating country’s IDA allocation is one-third (1/3) of the total project resources, while the balance of two-thirds (2/3) is made available from the special provision for regional funding. The project is supported by the Regional Integration Department within the Africa Region of the Bank. As the second constituent programmatic investment operation under the WAPP APL Program, the development of the OMVS Félou HEP under this proposed WAPP APL 2 operation therefore will strategically complement country-specific IDA energy lending operations that are ongoing and planned in the riparian countries of the Senegal River Basin.

3. Higher level objectives to which the project contributes

12. The Bank supports regional efforts in West Africa to create an open, unified regional economic space through the integration of markets for infrastructure services, the WAPP and the West Africa Gas Pipeline (WAGP) project being among the “flagship projects” of ECOWAS Member States. The WAPP is a regional infrastructure development program of the Economic Community of West African States

⁹ The Gambia, Guinea, Guinea Bissau, Liberia, Mali, Senegal and Sierra Leone.

¹⁰ Comprises the “Meeting of Energy Ministers” of ECOWAS Member States

¹¹ Comprises the Chief Executives of the region’s national power utilities

(ECOWAS), fully aligned with the goals of the New Partnership for Africa's Development (NEPAD).¹² It provides the power utilities of the region with a vehicle to achieve the vision embodied in the EEP – that of creating a "level playing field" to facilitate the balanced development of diverse energy resources of the ECOWAS Member States for their collective economic benefit, through long-term energy sector co-operation, unimpeded energy transit and increasing cross-border electricity trade. Through the proposed WAPP APL Program, the World Bank Group will support the ECOWAS Secretariat and the proposed WAPP Organization to coordinate implementation of the EEP and also help consolidate over thirty years of cooperation and joint development of water resources infrastructure by the riparian countries of the Senegal River Basin.

B. PROJECT DESCRIPTION

1. Lending instrument

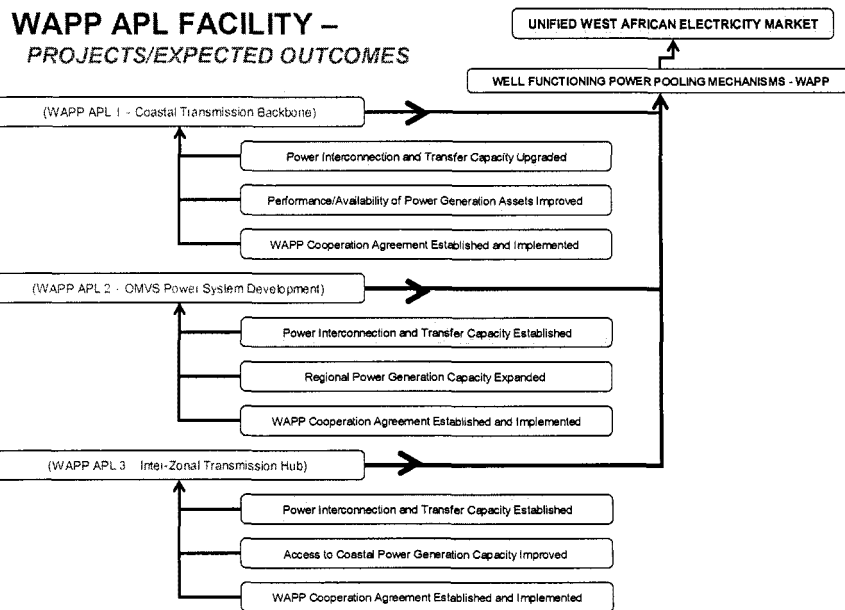
13. The WAPP is a regional initiative, spearheaded by national power utilities of ECOWAS Member States, which directly contributes to the broader ECOWAS agenda to establish an open, unified, regional economic space in West Africa. On June 30, 2005, the Bank's Executive Board of Directors endorsed the application of the adaptable program lending (APL) instrument, within the framework of the World Bank's RIAS for West Africa, as the vehicle for providing IDA credit support to the WAPP initiative. By so doing, the Bank has earmarked substantial IDA resources to put in place a multi-year programmatic framework to help close the financing gap and thereby ensure timely implementation of priority WAPP investments and technical assistance activities of the Revised ECOWAS Master Plan. The APL instrument would enable IDA credit support to be provided in a flexible manner – when borrowers have satisfied the policy triggers (country commitments under the EEP) and when individual WAPP priority investments are ready to receive IDA credit support. All ECOWAS Member States might not actually be granted IDA credits under the WAPP APL program. However, ECOWAS Member States would know up-front that they can rely on the Bank to support them in achieving the developmental goals of the WAPP if they meet specific eligibility criteria and if they need IDA credit support.

2. Program objective and phases

14. **WAPP APL.** The goal of WAPP is to establish a well-functioning, cooperative, power pooling mechanism for West Africa, as a means to increase access of the citizens of ECOWAS to stable and reliable electricity at affordable costs. The objective of the WAPP APL program is the development of a robust platform for WAPP comprising three distinct but mutually reinforcing sub-regional power system infrastructure development sub-programs (WAPP APL 1, 2, 3 sub-programs) that are fully aligned with the WAPP Organization's "Road Map" (Annex 1, Section 1), as depicted schematically in Figure 3 below.

15. Consistent with the "Road Map", each WAPP APL sub-program combines financing in support of generation and transmission infrastructure development components with technical assistance to help put in place the relevant WAPP Cooperation Agreements, reflecting the core principles embodied in the EEP. Over time, the expectation is that the resulting sub-regional power pooling mechanisms will converge into a unified, well functioning regional power pooling mechanism – an important pre-condition for the future evolution of cross-border trading arrangements into a unified regional electricity market for West Africa.

¹² NEPAD was established to implement an integrated socio-economic development framework for Africa, and was formally adopted at the 37th Summit of the Organisation for African Unity in July 2001.



16. The eligibility criteria and triggers for the WAPP APL program design comprise the following:

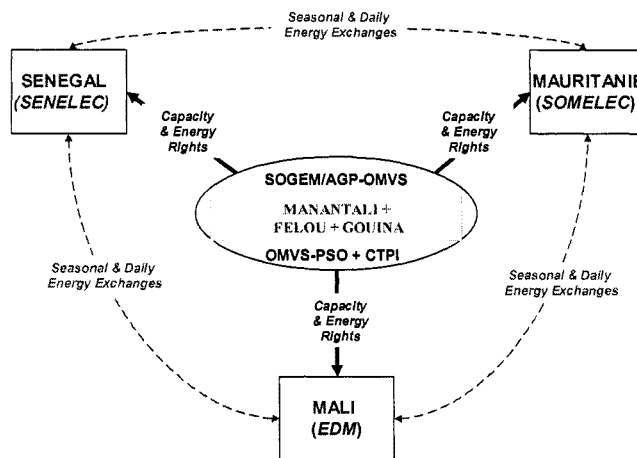
- The eligibility criteria would be ratification of the EEP by the ECOWAS member state;
- Policy triggers, which determine the eligibility of an individual ECOWAS member state to receive IDA assistance under the WAPP APL program, would be derived based on the core principles embodied in the EEP; and
- Project triggers, which determine when an individual investment is eligible to receive IDA funds, should reflect pre-conditions for WAPP medium term (2004-2011) investments, as defined in the ECOWAS Revised Master Plan for the Generation and Transmission of Electrical Energy.

17. Accordingly, an ECOWAS Member State becomes eligible once it has ratified the EEP – only three (Guinea, Mali and Senegal) of the four OMVS riparian countries are ECOWAS member states and all three countries have ratified the EEP; thereafter, eligibility for IDA credits under the WAPP APL program continue to be valid as long as key obligations under the EEP are met and the Bank is satisfied that the borrower’s actions are contributing towards creating a well functioning power pooling mechanism. With this policy trigger, the Bank would reserve the right to defer or withhold WAPP APL support in cases where a borrower might have complied with the letter of its ECOWAS Energy Protocol obligations but not have implemented or launched a credible “WAPP Action Plan” to put in place critically needed measures/reforms, including, for example, reasonable (cost reflective) tariffs, prompt settlement of bills for cross-border electricity trade, and adherence to common operating rules of practice. In addition to the above, project-specific triggers will ensure that standard Bank requirements (including safeguards) are met and also that projects fit into a country-specific CAS (net of possible regional IDA). WAPP APL program triggers, discussed further in Annex 1 (Section 2), are therefore directly linked to the EEP.

3. Project development objective and key indicators

18. The development objective of Félou Hydroelectric Project of the **OMVS Power System Development Sub-program** of WAPP (WAPP APL 2) is to alleviate power supply deficits in WAPP Zone “B” OMVS countries (Mali, Mauritania and Senegal) by augmenting the supply of low cost hydroelectricity. This development objective can be achieved, *inter alia*, by: (a) outsourcing implementation of the OMVS Félou Hydroelectric Project to an independent contractor through an output-based contract with the OMVS asset holder – SOGEM; (b) transferring the “use and control” of the fully operational OMVS Félou Hydroelectric Project to EEM, the private operator of the OMVS Power System; and (c) upgrading the functional and operational capabilities of the CTPI to enable full deployment of power pooling provisions of the “*Projet de Protocole d’Interconnexion*” of the OMVS Power System,¹³ as depicted schematically in Figure 2 below.

Figure 2: WAPP Zone “B” Cooperation Model



OMVS Power System Implementation Strategy (2004 – 2011)

Key progress and results indicators

19. Over the short term (by end of 2007), key progress indicators for the WAPP APL 2 project will monitor (i) the award of the output-based contract to implement the OMVS Félou Hydroelectric Project; (ii) progress made to fully deploy power pooling provisions of the *Projet de Protocole d’Interconnexion* of the OMVS Power System; and also (iii) outcomes of ongoing collaboration between the WAPP Organization and the OMVS HC to formulate a more comprehensive, commercially sound WAPP Cooperation Agreement for WAPP “Zone B” OMVS countries. The results framework for the WAPP APL 2 project is presented in Annex 3.

¹³ Article 14 of the “Energie Manantali –Protocole Tarifaire/Project de Protocole d’Interconnexion” provides the framework to upgrade existing power sharing arrangements into a multifaceted “power pooling mechanism”, along the lines envisioned for WAPP Cooperation Agreements.

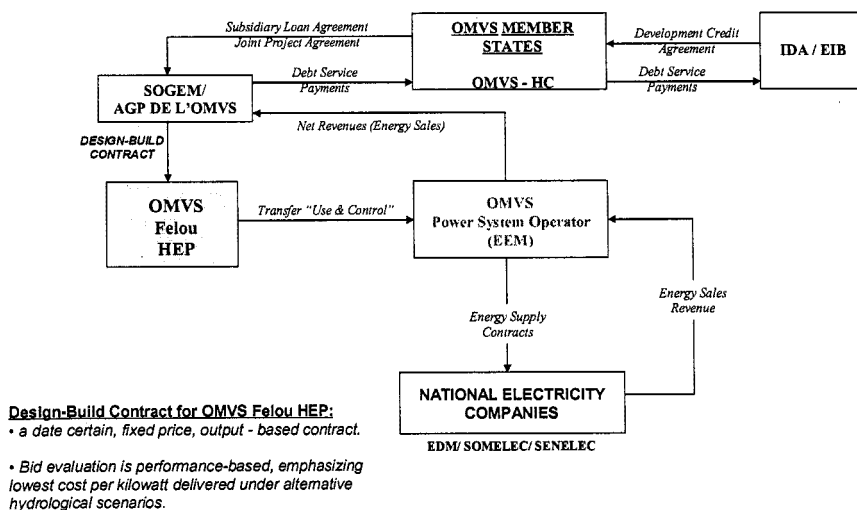
4. Project components

20. IDA and the European Investment Bank (EIB) will co-finance the proposed OMVS Félou Hydroelectric Project under the public-private partnership concept that is being set up by the OMVS (Figure 3 below). The project comprises three main components, as follows:

21. **Component 1: Design-Build Contract.** The SOGEM will outsource the entire project implementation cycle for the OMVS Félou Hydroelectric Project to an independent contractor (“**the Design-Build Contractor**”) under a single responsibility, date-certain, fixed price turnkey contract for which payments would be made based on achievement of pre-specified outputs/milestones. The Design-Build Contractor will be selected through an international competitive bidding process. After a successful two-year performance testing period, the use and control of the fully operational OMVS Félou HEP will be transferred through SOGEM (or the successor AGP-OMVS) to EEM (Section C2).

Figure 3: WAPP APL 2 Project Concept

Design-Build + Operate-Transfer



22. **Component 2: Two-Stage “Project Cycle Management” Contract.** The OMVS HC and SOGEM will retain the services of an experienced engineering consulting firm to provide comprehensive project cycle management support through a two-phase sequential contracting arrangement (Section C2), as follows:

- (a) **Phase 1 “Transaction Adviser” Contract** – This is currently underway with funding from PPF Q475-0-SE). The consulting firm is providing transaction advice and support required by the OMVS HC and SOGEM to: (a) perform detailed planning and scheduling of project implementation arrangements, including pre-qualification of prospective bidders, (b) prepare and issue bidding documents for the selection of an independent contractor and also prepare a comprehensive set of power supply agreements for use by EEM, taking into account provisions of the Protocole Tarifaire and the “Contrat de Cession”, ¹⁴(c) conduct the two-stage bidding

¹⁴ The “Contrat de Cession” is currently under negotiation between OMVS, SOGEM and the national power utilities.

process, evaluate bids and make recommendation for the award of the Design-Build Contract. The expected duration of the Phase 1 Contract is 12 months.

- (b) **Phase 2 “Owners Engineer” Contract** – This phase begins when the Design-Build Contract is awarded and signed. Subject to satisfactory performance during the Phase 1 Contract, the OMVS HC and SOGEM plan to retain the same consulting firm to oversee the day-to-day performance of the Design-Build Contractor over the entire “design-build-performance testing” cycle, up until the critical milestone involving the hand-over of the “use and control” of a fully operational OMVS Félou Hydroelectric Project through SOGEM (or the successor AGP-OMVS) to EEM.

23. **Component 3: “WAPP Action Plan” for OMVS Power System.** This component will help upgrade the functional and operational capabilities of the CTPI to fully deploy the power pooling provisions of the “*Projet de Protocole d’Interconnexion*” of the OMVS Power System¹⁵. Specifically, this component will facilitate joint operations and coordination between EDM, SENELEC, SOMELEC and EEM by: (i) upgrading communication and data acquisition facilities to enable real-time information exchange with the load dispatching center at Manantali and the three national power utilities; and (ii) acquiring the necessary software licenses (plus relevant training) to support optimization and scheduling of the combined hydro and thermal power generation capacity of the three OMVS riparian countries. Overall, this component will help put in place the nucleus of a WAPP Cooperation Agreement for WAPP “Zone B”.

5. Lessons learned and reflected in WAPP APL 2 Project design

24. The overall WAPP APL program has been designed, taking into account broad lessons learned from the five decade long evolution of the best known regional power market – the Nordic power market which is operated by NordPool. In addition, lessons gained from the design of comparable Bank financed regional APLs for Southern Africa Power Pool (SAPP) and Energy Community of South East Europe (ECSEE) have been applied.

25. **Design of Power Pooling Mechanism.** A key lesson learned from the Nordic experience is that regional multi-country power pooling arrangements, such as the one envisioned for WAPP, require active involvement of all transmission system operators. In the Nordic power market, NORDEL, an association comprising the TSOs of Denmark, Finland, Norway and Sweden initially put in place a robust cooperative mechanism as a means to create a secure and reliable platform for the progressive development of the increasingly unified and competitive regional electricity market that is now operated by NordPool. The most pertinent lesson that applies to the design of the WAPP APL 2 project is the need to maintain balance in the transformation of transmission system operations from a national into a multi-country, regional operations regime. In the specific WAPP APL 2 project context, the first step in that direction has been taken under the institutional strengthening component of the Regional Hydropower Development Project (RHPD). Specifically, a unique multi-country regional transmission system operator – EEM – has been established to coordinate operations through the CTPI with the national power utilities of Mali (EDM), Mauritania (SOMELEC), and Senegal (SENELEC). The aim of the proposed “WAPP Action Plan” for the WAPP APL 2 project is therefore to further develop and strengthen the functional and operational capabilities of the CTPI for the OMVS Power System, as a means to facilitate the deployment of the nucleus power pooling mechanism for WAPP “Zone B”.

¹⁵ The CTPI comprises representatives of SOGEM, EEM, and each of the national power utilities of Mali (EDM), Mauritania (SOMELEC) and Senegal (SENELEC). Its mandate derives from Articles 2 and 3 of the “Energie Manantali –Protocole Tarifaire”.

26. **WAPP APL Program Design.** The following are two program design lessons of experience gained from the **SAPP APL** (FY04) and **ECSEE APL** (FY05) programs and the RHPD project, and applied to the WAPP APL:

- **Lesson One:** the design of policy and/or project specific triggers for the APL program should be grounded in a well-defined policy and institutional framework, have full backing of the beneficiary countries and move at a pace tailored to each country's situation. The WAPP APL 2 project design is well grounded in existing OMVS conventions¹⁶ and "operating rules" for jointly owned infrastructure, such as the OMVS Power System;
- **Lesson Two:** stakeholders at both the national and regional levels should have a combined ownership of program implementation arrangements and institutions, so as to promote uniformity of purpose. The above notwithstanding, the least successful regional projects have tried to rely on new institutions to oversee project implementation, while the most successful one is often built upon the track record of existing institutions. All key project implementation activities of the WAPP APL 2 project will be handled by experienced entities whose capabilities were previously developed under the RHPD project, namely the OMVS HC and SOGEM (eventually, the successor AGP-OMVS);
- **Lesson Three:** a key lesson gained from the ex-post review of the RHPD project¹⁷ is that a piecemeal approach to the planning and management of large relatively complex infrastructure construction activities should be avoided. To that end, the development of the OMVS Félou Hydroelectric Project will follow a streamlined output-based contracting approach (Section C5). In parallel, comprehensive project planning and contract management support is provided to enable the OMVS HC and SOGEM oversee the entire project cycle.

6. Alternatives considered and reasons for rejection

27. The Bank continues to provide IDA credit support, through the regular sector investment lending (SIL) instrument, on a selective basis, for power sector rehabilitation, restructuring and/or expansion activities in all three OMVS countries. The Bank also had provided an IDA credit through a SIL to co-finance the RHPD project. Such Bank interventions, to a large extent, already promote the goals of WAPP. On June 30, 2005, the Bank's Executive Board of Directors endorsed the application of the adaptable program lending (APL) instrument, within the framework of the World Bank's RIAS for West Africa, as the vehicle for providing IDA credit support to the WAPP initiative. The regional APL instrument allows IDA financing to be applied in phases, as and when discrete investments become ready for implementation, and thereby provides eligible ECOWAS Member States with up-front assurance that they can rely on IDA financing as and when they meet project specific eligibility criteria. In contrast, the use of a regular instrument (sector investment loan/credit) would have required IDA to commit the full credit amount earmarked for the WAPP (US\$350 million) upfront through a series of country-specific operations, well ahead of the clients being able to actually utilize the funds. The use of the horizontal attributes of the APL instrument also enables IDA to better target its support to mutually consistent investment packages, such as the OMVS Félou Hydroelectric Project (Section B2).

¹⁶ Refer to **OMVS Convention of December 1978** on the legal status of the jointly owned infrastructure; and **OMVS Convention of May 1982** on the financing modalities of the jointly owned infrastructure.

¹⁷ ICR for the (Manantali) Regional Hydropower Development Project, dated December 31, 2004.

C. IMPLEMENTATION

1. Partnership arrangements

28. First and foremost, WAPP is a partnership between the governments of ECOWAS Member States who collectively have resolved to put in place the regional power pooling mechanism as the preferred means to achieve their long term vision (Section A.1). The ECOWAS Member States are in the process of ratifying the EEP to provide a legal and regulatory framework for all regional energy integration initiatives, including the WAPP and WAGP projects. Second, WAPP is an emerging partnership (the WAPP Organization) whose membership is open to any power (public or private) utility that operates in any ECOWAS Member State.¹⁸ Finally, the WAPP is a partnership of ECOWAS Member States, donors and IFIs, including the Bank.

29. The ECOWAS Secretariat is responsible for coordination of the partnership through the “**Meeting of WAPP Donors**” which convenes regularly to reviews and update financing commitments for WAPP priority investment projects. At the most recent meeting, held in Accra, Ghana (October 26, 2005) in conjunction with the WAPP Steering Committee Meeting, the African Development Bank (AfDB), the European Investment Bank (EIB) and the Agence Française de Développement (AFD) indicated an interest to co-finance the implementation of OMVS 2nd Generation Hydropower Projects. Subsequently at a follow up meeting convened by the OMVS High Commission in Paris (February 28, 2006), the EIB confirmed the availability of Euros33 million this FY06 to co-finance with IDA the implementation of the OMVS Félou Hydroelectric Project under the umbrella of the WAPP APL Program.

2. Institutional and implementation arrangements

30. **WAPP APL Program.** A comprehensive coordination and implementation mechanism has been established for the realization of the WAPP initiative, the legal underpinning of which includes the EEP. In line with the most recent decisions of the Authority of Heads of State and Government of ECOWAS Member States (Section A1), the governance arrangements for WAPP have been restructured, as follows. On February 1, 2006, the General Secretariat of the WAPP Organization was established in Cotonou, Benin to take over responsibility for day-to-day coordination of the implementation of the WAPP “Road Map”. On the same date, the ECOWAS Energy Observatory, also located in Cotonou, was transformed into the Information and Coordination Center of the WAPP Organization (WAPP-ICC). In order to maintain program management continuity during this critical transition period, the Head of the Energy Division of the ECOWAS Secretariat has been seconded to the WAPP Secretariat as Interim Secretary General of the WAPP Organization. In July 2006, a WAPP General Assembly will be convened to elect the Executive Board for the WAPP Organization and consider and adopt a 3-year “Business Plan” that is being prepared by the Interim Secretary General with assistance of a PPIAF-sponsored management consultant.

31. The General Secretariat of the WAPP Organization is in the process of setting up a “Project Coordination Unit”, to be staffed by full-time professionals, to handle all day-to-day responsibilities concerning the planning and implementation of pre-investment activities for WAPP priority projects. The WAPP-ICC will be responsible for the development and deployment of an integrated WAPP Monitoring and Evaluation (M&E) system (Section C3 and Annex 6). The ECOWAS Secretariat has requested

¹⁸ The national power utilities of Mali (EDM) and Senegal (SENELEC) and SOGEM are among the founding members of the WAPP Organization. Eskom Energie Manantali (EEM), the private concessionaire that is currently OMVS Power System Operator, is also eligible to join the WAPP Organization.

support from the Bank to build institutional capacity at the WAPP Organization. A proposal is to be submitted to the Bank-administered “Africa Catalytic Growth Facility”.

32. **WAPP APL 2 (OMVS Félou Hydroelectric Project).** The OMVS riparian countries have already embarked on a comprehensive program of legal and institutional reforms, supported by the World Bank through the proposed FY06 Senegal River Basin Multi-purpose Water Resources Development (MWRD) APL 1 operation, to integrate Guinea as the fourth OMVS riparian country. As part of those reforms, the Council of Ministers of the OMVS has approved a strategy that is intended to create an “arm’s length” relationship between the OMVS asset holder and commercial operators. Accordingly, SOGEM will be restructured into a new asset holding entity – the proposed L’Agence de Gestion du Patrimoine de l’OMVS (AGP-OMVS)¹⁹ – for all OMVS power generation and transmission infrastructure, including the powerhouse and switchyards of the Manantali and Félou hydroelectric plants. Unlike, SOGEM, the successor AGP-OMVS will not become directly involved in commercial operations but will engage private sector entities, through output-based contracts (such as design-build-commission contracts) and/or lease/affermage/concession agreement, to commercialize the development, operation and maintenance of all existing and future assets of the OMVS Power system. The above notwithstanding, the OMVS riparian countries will retain the same institutional arrangements previously employed for the RHPD project, albeit that SOGEM is to undergo restructuring/transformation to create the successor AGP-OMVS.

33. Until the SOGEM is actually transformed into the successor AGP-OMVS, the provision made under the SOGEM Convention²⁰ permits the OMVS riparian countries to extend SOGEM’s mandate to incorporate “*the exploitation, maintenance and rehabilitation of other common works if and when such works are linked to the generation and transmission of energy*”, such as the OMVS Félou Hydroelectric Project. Therefore, the Project implementation arrangements are the following:

- OMVS will be responsible for the overall coordination of the implementation of the Project;
- The OMVS High Commission will be responsible for the implementation of Component 2 of the Project. SOGEM will be responsible for the implementation of Components 1 and 3 of the Project;
- The High Commission of OMVS, with the support of the “Transaction Adviser”, and SOGEM, will be responsible for detailed planning and scheduling of project implementation arrangements, for preparing and issuing bidding documents for the selection of an independent contractor, and for conducting the bid evaluation and contract award processes, on behalf of the Recipients;
- SOGEM will sign the Design-Build Contract for the construction and commissioning of the Félou hydroelectric plan;
- SOGEM, jointly with the “Owner’s Engineer”, will oversee and approve all key technical performance milestones in the implementation of the Design-Build Contract, up until the successful commissioning and performance testing of the fully operational Félou hydroelectric plant;

¹⁹ This requires, *inter alia*, an amendment to the SOGEM Convention, a treaty signed on January 1997 between Mali, Mauritania and Senegal.

²⁰ Article 5 of “Convention Portant Creation de l’Agence de Gestion de l’Energie de Manantali” (7 Janvier 1997) states “*l’Organisation [OMVS] peut confier a la SOGEM l’exploitation, l’entretien et le renouvellement d’autres Ouvrages Communs lorsque ces ouvrages sont lies à la production et au transport de l’énergie*”.

- **SOGEM** will transfer the “use and control” of the fully operational Félou hydroelectric plant to the OMVS Power System Operator. Accordingly, not later than six months before the commissioning of the Félou hydroelectric plant, SOGEM shall enter into a contract with the OMVS Power System Operator, in form and substance acceptable to the Association, for its operations, exploitation and maintenance (Section C6); and
- **SOGEM**, supported by the OMVS Power System Operator and a panel of consultants to be selected in consultation with the General Secretariat of the WAPP Organization, will procure and deploy equipment and software to enable the CTPI to implement the “**WAPP Action Plan**” under Component 3 of the Project.

34. Legal arrangements for the Project will be similar to the arrangements put in place for the former RHPD Hydropower Project financed by IDA. Therefore IDA will enter into financing agreements with the three member countries and into a project agreement with OMVS HC and SOGEM. The proceeds of the three IDA credits will be made available to OMVS HC and SOGEM under subsidiary agreements between each of the Governments and the two project implementing entities (OMVS HC and SOGEM).

35. The OMVS HC and SOGEM will submit withdrawal applications to IDA on a quarterly basis for direct payments to the beneficiary firms. Disbursements will be made for four large contracts, as follows:

- the Design-Build Contract, to be signed by SOGEM and the Design-Build Contractor, in an amount of US\$110 million and which will be financed in part by Mali (US\$25 million), Mauritania (US\$25 million), Senegal (US\$15 million) plus allocation of the EIB loans to Mali (Euros 11 million), Mauritania (Euros 11 million) and Senegal (Euros 11 million);
- the CTPI SCADA/EMS and Communications Equipment and Software Contract, to be signed by SOGEM and a Contracting Firm for the supply and installation of equipment, in an amount of US\$7 million which will be financed by Senegal;
- the “Owners Engineer” Contract for consulting services, to be signed by OMVS HC and EDF, in an amount of US\$1.50 million also financed by Senegal; and
- the “Transaction Adviser’s” Contract for consulting services, already signed by OMVS HC and EDF in an amount of US\$600,000 that is being disbursed under a Project Preparation Facility. The PPF will be refinanced under the Senegal Financing Agreement.

36. The OMVS HC and SOGEM will submit withdrawal applications to IDA on a quarterly basis for direct payments to the beneficiary firms. Disbursements will be made directly to the beneficiaries of the contracts. Flow of funds and information is described in appendix2 of annex7.

37. On January 25, 2006, the OMVS awarded the Stage 1 Contract to Electricité de France – Centre d’Ingénierie Hydraulique (EDF/CIH), covered by funds made available under PPF Q475-0-SE, secured by the Government of Senegal on behalf of the OMVS. Subject to satisfactory performance on the Stage 1 Contract, EDF/CIH will be retained by the OMVS HC to perform the Stage 2 Contract.

3. Monitoring and evaluation of outcomes/results

38. **WAPP APL Program.** At the regional level, the WAPP APL Program is included in the established mechanism for policy oversight of the EEP – the **WAPP Steering Committee** composed of the “*Meeting of ECOWAS Energy Ministers*”. The WAPP APL Program will also benefit from the existing monitoring mechanisms set up by the ECOWAS Secretariat, including the “*Meeting of WAPP Donors*”. Moreover, the WAPP Secretariat, supported by USAID and the Bank (through an ongoing

PPIAF sponsored activity), is assisting the development and deployment of an integrated WAPP M&E system, building upon the existing country-specific M&E systems, to report on overall program outcome indicators (Annex 6 Section 3), including those of the WAPP “Zone B” OMVS countries. The Bank will continue to participate in the above WAPP monitoring and evaluation processes and will also directly supervise the WAPP APL 2 project implementation by the OMVS HC and SOGEM/AGP-OMVS.

4. Sustainability

39. The success of the ongoing institutional modernization process of the OMVS is a key factor to ensure sustainability of the outcomes of this WAPP APL 2 project. In particular, this project will be directly affected by the establishment of the proposed AGP-OMVS to take over and manage the assets of the entire OMVS Power System, including the OMVS Félou hydroelectric plant. As previously indicated (Section C2), IDA is providing comprehensive support to those ongoing reforms primarily through the MWRD APL program. Therefore, there is a need for close coordination between Bank teams that will be supervising both operations, as has been the case for the project preparation and appraisal stages. Another key element in ensuring the sustainability of the WAPP APL 2 project outcomes is the full commercialization of power supply and sale transactions by putting in place and enforcing measures that are intended to assure timely recovery of OMVS Power System costs from each of the national power utilities by EEM, on behalf of SOGEM/AGP-OMVS. It is critical for EEM to secure all revenues due from the national power utilities because of the urgent need to replenish the hydrology risk fund and also set up the equipment renewal fund for the OMVS Power System, in line with the “*Protocole Tarifaire*”. Recognizing the importance of timely revenue collection to the overall sustainability of project outcomes, it was agreed, during appraisal, that an appropriate mechanism to improve payment discipline is an “escrow account” to be set up in favor of the EEM by each of the national power utilities. Such mechanism would backstop the electricity supply payment obligations for each entity, based on charges to be determined from the “*Protocole Tarifaire*” and any applicable contracts (Section C6).

40. The project is potentially eligible under Article 12 of the 1997 Kyoto Protocol to the Convention on Climate Change, which establishes the Clean Development Mechanism (see Annex 12). The additional carbon finance that would be available during the operational phase of the project is intended for rural electrification. This would partially relieve OMVS from its past efforts towards rural electrification. The hydrological risk fund, which is also under OMVS’ auspices, is expected to be stabilized in turn.

5. Critical risks and possible controversial aspects

41. The overall assessment of project risk is moderate, taking into account the following risk factors. The main risk derives from the possible non-application or non-respect by the OMVS riparian countries of EEP principles that stakeholders consider to be critical for the long-term viability of WAPP, especially: (a) the assurance of third party access to power generation and transmission facilities regardless of their nationality and location within ECOWAS (**Article 6**); and (b) free transit of electricity (power wheeling) without distinction as to the origin, destination or ownership of such electricity (**Article 7**). To help mitigate this risk, the OMVS High Commission and the General Secretariat of the WAPP Organization have agreed, in principle, to enter into a formal partnership agreement to align the functions and operational practices of the CTPI for the OMVS Power System with those being drawn up for WAPP Zone “B” countries (Section B4).²¹

²¹ This is a key outcome of OMVS participation in the WAPP Steering Committee meetings held in Accra, Ghana on October 28, 2005. The OMVS High Commission and the WAPP Secretariat are currently following up to formalize the partnership arrangement for WAPP.

42. The above notwithstanding, another risk factor is the poor state of communication facilities that the national power utilities rely on for real-time information exchange with the OMVS central load dispatching system at Manantali. On a real-time basis, the power utilities rely for the most part on international and local telephone lines to exchange vital information and data on power system operations. The technical assistance, communication equipment and software to be provided in support of the “WAPP Action Plan” for the OMVS Power system will help the CTPI to address this major shortcoming (Section B 4).

43. The other main risk is the relatively weak capacity of the OMVS and SOGEM to oversee the construction of the OMVS Félou Hydroelectric Project, given their track record with the Bank during implementation of the Manantali Regional Hydropower Project (MRHP) for which numerous delays had occurred leading to successive cost increases.²² To help mitigate this risk, the ICR for the MRHP recommended consideration of the option of applying Fixed- Price Date Certain Turnkey Contracts for the implementation of the OMVS 2nd generation hydropower projects. The Bank’s Guidelines for Procurement (May 2004) already make provision for this type of output-based contract (Section 3.14). The general assessment of the fiduciary risks associated with such output-based approach at the regionally level is moderate. However, the current economic and political circumstances in the OMVS riparian countries need to be taken into consideration to identify the potential risks and possible mitigation measures with respect to the interaction between OMVS HC, SOGEM and contractors. The most important fiduciary risk is related to the process for selection of the two main output-based contracts, specifically the (i) Design-Build Contract, and (ii) the contract for the supply and installation of the CTPI SCADA/EMS and communications equipment and software.

44. To help mitigate the above risks, OMVS HC will be assisted by a “Transaction Adviser” and SOGEM by an “Owner’s Engineer”. The selection process for both technical assistance assignments, specifically (i) the Phase 2 “Owner’s Engineer” contract with EDF and (ii) the Phase 1 “Transaction Adviser” contract with EDF²³, has followed World Bank guidelines for consultants’ services procured under contracts awarded on the basis of Quality and Cost-based Selection. Moreover, for the Phase 2 contract with EDF, the OMVS HC and SOGEM have agreed to reinforce the technical responsibilities/rights of EDF/CIH to oversee and approve key performance milestones towards delivery of a fully operational OMVS Félou Hydroelectric Project. Under the Phase 2 Contract with EDF/CIH, the OMVS HC and SOGEM will explore avenues to reinforce incentives, possibly in the form of bonuses/penalties acceptable to the Bank, to help mitigate risks associated with the supervision of the output-based Design-Build Contract. Accordingly, Bank acceptance of the final draft Phase 2 Contract with EDF/CIH is a condition of effectiveness (Section C 6).

45. All investments and technical assistance activities to be supported under the WAPP APL program are expected to use proven designs and are not expected to contain any particular risks or controversial aspects. This is the case with all infrastructure components of this WAPP APL 2 (Félou HEP) operation, where there is already a dam/weir structure and a very small (600 kW) hydro plant at Félou. There are distinct advantages of developing the Félou site through the Design-Build approach, including: (a) an existing dam (previous work concluded the height of the dam should not be raised); (b) straightforward conditions for the civil works; (c) proximity to Kayes and road and rail infrastructure; (d) short distance (3 km) for 225 kV connection to the existing OMVS Power System substation at Médine, which is about 10 km south-east of Kayes; and (e) the ability of the existing transmission network to accept the entire output from the project without reinforcement.

²² An independent evaluation by the Bank’s Independent Evaluation Group was carried out at the end of January and early February 2006. The Project Performance Assessment Report (PPAR) has been completed and should be ready for public disclosure by July 2006.

²³ This contract, already signed between OMVS HC and EDF is financed under the PPF.

6. Loan/credit conditions and covenants

46. The IDA credits for WAPP APL 2 project will be lent to three of the four riparian countries of the Senegal River Basin (the Republic of Mali, the Republic of Mauritania and the Republic of Senegal) for 40 years with a 10 year grace period and at a standard IDA service charge. Each of the three OMVS member countries will on-lend almost all proceeds of the IDA credits to SOGEM/AGP-OMVS through Subsidiary Loan Agreements incorporating at the following terms: (i) an interest rate equal to four and one half percent (4.5%) per annum (fixed at par with the IBRD lending rate, derived from Libor); with (ii) repayment of the principle amount in twenty (20) years, including a grace period of five (5) years. The SOGEM/AGP-OMVS will apply the proceeds of the IDA credit (jointly with co-financing to be secured from the European Investment Bank) to finance the Design-Build Contract itself and also the procurement of equipment and software required to implement the “WAPP Action Plan”. The Republic of Senegal will put in place a Subsidiary Grant Agreement with the OMVS to re-finance commitments made under the PPF Q475-0-SE, including the Phase 1 Contract with EDF/CIH and also to finance the “Phase 2” Contract with EDF.

47. **Project Triggers:** During project appraisal, the specific investments associated with the D-B-O-T of the OMVS Félou Hydroelectric Project were determined to be in compliance with Bank safeguard policies (Section D 6).

Effectiveness conditions

- Subsidiary Grant Agreement is signed between Senegal and the OMVS for re-financing PPF and implementation of the technical assistance components of WAPP APL 2 project;
- Subsidiary Loan Agreement is signed between Mali, Mauritania, Senegal and SOGEM/AGP-OMVS for implementation of the investment components of WAPP APL 2 project;
- Draft Bidding Documents for Design-Build Contract is acceptable to IDA;
- Draft Phase 2 Contract – “Owner’s Engineer” Contract with EDF/CIH is acceptable to IDA; and
- OMVS HC appoints an external auditor for the project with qualifications and experience satisfactory to IDA.

Dated Covenants

- Not later than 31st December 2006, by EDM, SENELEC and SOMELEC shall each establish “Escrow Accounts” (in favor of EEM, the OMVS Power System Operator) to backstop payment obligations for electricity purchases from the OMVS Power System; and
- Not later than six months before the commissioning of the Felou hydroelectric plant, SOGEM shall enter into a contract with the OMVS Power System Operator, in form and substance acceptable to the Association, for its operations, exploitation and maintenance.

D. APPRAISAL SUMMARY

1. Economic and financial analyses

48. The primary quantifiable **economic benefits** of this run-of-the-river hydroelectric facility are increased supply of lower cost electricity and revenues for carbon emission reductions. The primary quantifiable **economic costs** are the total investment costs, the O&M costs and various other costs. The investment costs include the construction of the machinery and equipment, buildings, and land purchase. The O&M costs include mainly repair and maintenance costs.

49. Alternatives to constructing this hydropower plant would be the construction of thermal (diesel or HFO) power plant in Mali and Senegal or CCGT in Mauritania closer to the countries' respective load centers. However, the construction of Félou at 4-5 US cents/kWh (3.2 – 3.6 Eurocents) is least cost compared to these alternatives (Coynes and Bellier, 2003).

50. The EIRR of the project is robust at 33%, as compared with the assumed economic opportunity cost of capital of 10%. The EIRR for Mali, Mauritania, and Senegal are 32%, 28% and 28% respectively, and are equally robust compared to the opportunity cost of capital at 10%. The table below presents a breakdown of the results.

Table D.1: Economic Analysis for Félou (in US\$, NPV at 10%)

	Mali	Mauritania	Senegal	Global
Costs	36,576,871	36,576,871	36,576,871	109,730,612
Benefits	121,735,217	104,838,742	104,838,742	333,412,701
Net Benefits	85,158,347	68,261,871	68,261,871	221,682,089
EIRR	32%	28%	28%	30%

Note: A discount rate of 10% is assumed to calculate the present values for the economic analysis. The figures above assume a high hydrology of Félou, which generates about 350GWh electricity per year. Input data needs to be confirmed at appraisal. The results of the economic analysis are provided on an indicative basis and will be further elaborated by the electricity allocation arrangements.

Financial

51. The expected Financial Internal Rate of Return (FIRR) of the project is a satisfactory 18.0%. Net Present Value at a 10% discount rate is projected at 27.5 billion FCFA (US\$49.6 million). The switching analysis indicates that the project can tolerate up to a 43% drop in average revenues and still maintain a 10% FIRR. Alternatively, it can tolerate up to an 80% increase in capital costs without falling below the 10% benchmark FIRR. The FIRR calculations assume a completion date of summer 2010 and a total project cost of US\$120.1 million (excluding IDC, but including any applicable taxes and duties). Assumptions regarding construction cash flow are given in Annex 9. Benefits are represented by projected sales of power and energy, valued at the current real tariff. First commercial output of electricity is assumed for mid-2010, with 50% of projected annual output delivered in that year.

52. Pro forma balance sheets, income statements and cash flow statements were also prepared for the project and are given in Annex 9. The financial statements assume that part of the owners' equity (i.e. the counterpart funding for the project) will be applied as initial working capital of the project, and cover interest during construction. Overall, the financing plan assumes an IDA Credit of US\$75 million equivalent, an EIB loan of Euros 33 million (US\$40.2 million equivalent, and counterpart funding of up to Euros 8 million (US\$9.8 million equivalent). The IDA and EIB funds are assumed to be on-lent to "the Project", although in practice the assets and liabilities are expected, on completion, to be integrated into

an asset holding company under the management of OMVS. The pro forma statements, particularly the cash flow projections, indicate that the project would be financially viable on a stand-alone basis. The total owner's equity requirement to cover counterpart funding of investments, interest during construction, and working capital during construction is estimated to be US\$10.6 million equivalent, which is slightly above the total budgeted in the financing plan. However, this estimate is highly sensitive to the assumed disbursement schedule of the loans and the associated interest during construction.

53. As noted above, it is anticipated that, subsequent to the completion of construction, the Férou facility will be integrated into the assets of the existing asset holding company, SOGEM, or of a successor enterprise. Ongoing operations will be carried out under a concession arrangement similar to that currently in place for Manantali. The financial appraisal therefore also reviewed the holdings and operations of SOGEM, including audited data for 2002 – 2004, estimated data for 2005, and the budget for 2006. The findings are summarized in the two tables below.

SOGEM Balance Sheet
(million F CFA)

	2002 Actual	2003 Actual	2004 Actual	2005 Estimated	2006 Planned
Long Term Assets					
Property, Plant and Equipment - Net	264,533	281,283	279,247	273,929	268,857
Initialization Charges	13,485	6,992	4,436	4,436	4,436
Other	275	118	185	185	185
Total Long Term Assets	278,293	288,392	283,868	278,550	273,478
Current Assets					
Cash and Cash Equivalents	2,160	5,255	8,763	18,275	10,773
Accounts Receivable	7,357	15,541	15,298	12,732	12,732
Other Current Assets	87	46	23	52	52
Total Current Assets	9,604	20,841	24,084	31,059	23,557
Total Assets	287,897	309,233	307,952	309,609	297,035
Equity					
Capital	1,200	1,200	1,200	1,200	1,200
Investment Subsidies/Grants	104,356	106,294	104,308	102,824	98,418
Reserves	14	14	240	240	240
Retained Earnings	(203)	3,118	5,978	4,761	5,232
Total Equity	105,368	110,626	111,727	109,025	105,090
Long Term Debt	165,034	177,452	172,997	172,024	163,386
Contingency Reserve		1,650	3,208	3,208	3,208
Current Liabilities					
Accounts Payable Trade	16,144	7,988	3,672	9,268	9,268
Other Current Liabilities	889	11,517	16,349	16,084	16,084
Total Current Liabilities	17,496	19,505	20,021	25,351	25,351
Total Liabilities and Equity	287,897	309,233	307,952	309,609	297,035

SOGEM Income Statement
(million F CFA)

	2002 Actual	2003 Actual	2004 Actual	2005 Estimated	2006 Planned
Operating Revenues	12,450	23,537	23,640	22,235	22,750
Cost of Sales					
Purchases of Materials and Services	5,876	6,058	4,883	4,408	4,408
Wages and Salaries	947	355	468	462	492
Depreciation of Equipment	5,120	12,723	14,277	15,859	16,116
Other Expenses	54	68	1,383	470	517
Total Cost of Sales	11,996	19,204	21,012	21,200	21,533
Net Operating Income	454	4,333	2,628	1,035	1,217
Financing Activities					
Investment Income	2	146	275	400	200
Financing Charges	(3,055)	(4,749)	(4,274)	(4,199)	(5,414)
Other non-operating income (net)	(51)	153	89	63	63
Other recoveries	2,179	3,438	4,367	1,484	4,406
Net Income/Loss	(471)	3,321	3,085	(1,217)	471

2. Technical

54. The West Africa Transmission Stability Study, conducted as part of preparation of the Revised ECOWAS Master Plan, concluded that utilization of 225 kV transmission lines of the OMVS Power System is technically complex due to their extensive length (especially the Western Transmission Segment), the relatively poor distribution of loads en-route from the Manantali hydroelectric plant to the main load centers and the limited installed generation capacity at the main load centers (especially Bamako for the Eastern Transmission Segment). The Revised ECOWAS Master Plan therefore recommends further investments to reinforce the transmission network to accommodate the OMVS 2nd Generation Hydropower Projects, namely the OMVS Félou Hydroelectric Project and the OMVS Gouina HEP.

55. In 2000, a comprehensive transmission stability study had been conducted by consultants (Fichtner of Germany) to define the transmission limits of the OMVS Power System under conditions broadly similar to the ones that will occur after the OMVS Félou Hydroelectric Project is commissioned. The study determined that problems with transient stability will be the limiting factor. For an injection of 170 MW into the Manantali substation, such limit will be reached for the Western Transmission Segment when about 140 MW is delivered at the Dakar sub-station and for the Eastern Transmission Segment when 130 MW is delivered at the Bamako substation. In early 2006, the same consultants conducted a follow-on assignment which has verified that, upon the commissioning of the OMVS Félou Hydroelectric Project, the voltage profile of the Western Transmission Segment remains within the technical limits.

3. Fiduciary

56. The financial management arrangements described in Annex 7 were confirmed during appraisal. The project will finance four contracts as follows:

- the Design-Build contract in an amount of about US\$100 million which will be financed by allocation of the IDA credits to Mali (US\$25 million), Mauritania (US\$25 million) and Senegal

(US\$15 million), plus allocation of the EIB loans to Mali (Euros 11 million), Mauritania (Euros 11 million) and Senegal (Euros 11 million);

- the CTPI SCADA/EMS and communications equipment and software (Supply & Installation) contract with SOGEM, in an amount of US\$7 million and which will be financed by Senegal;
- the EDF Phase 2 contract, to be signed with OMVS HC and SOGEM, in an amount of US\$ 1.5 million, also financed by Senegal for the supply and installation of equipment; and
- the EDF Phase 1 contract, already signed with OMVS HC, in an amount of US\$450,000 which is already being disbursed under a Project Preparation Facility for consulting services. The PPF will be refinanced under the Senegal Financing Agreement.

57. OMVS HC and SOGEM will submit withdrawal applications for their respective components to IDA on a quarterly basis for direct payments to the beneficiary firms. Disbursements will be made directly to the beneficiaries of the contracts. Flow of funds and information is described in appendix 2 of Annex 7.

4. Social

58. There are several potential benefits to be gained from regional cooperation in both energy integration and water resources management, within the joint frameworks of WAPP and the OMVS. The expected benefits from the WAPP APL 2 (OMVS Félou Hydroelectric Project) project is the projected lowering of electricity supply costs for WAPP “Zone B” OMVS countries than would be achievable on an individual country basis (Annex 3). Moreover, both the collaboration between WAPP and OMVS provides tangible demonstration that regionally integrated infrastructure initiatives are powerful drivers for more comprehensive socio-economic and political integration, as envisioned under NEPAD. As a source of clean, renewable energy, the OMVS Félou Hydroelectric Project would qualify for carbon emission reduction credits,²⁴ the proceeds of which are to be earmarked for electrification of rural communities that reside along the transmission “right of way” of the OMVS Power System.

59. There are no potential adverse indirect and/or long-term impacts anticipated as a result of future activities. The main social development issue in the project area (Kayes/Bafoulabe) pertains to the negative impacts on fishing activities and acquisition of about 1.25 ha of land planted with orchards and vegetable gardens for project facilities. The Resettlement Action Plan (RAP) determined the adequate level of compensation for the loss of assets resulting from the acquisition of 1.25 ha of land. The Project will also implement additional social enhancement measures to benefit neighboring villages (Lontou, Bengassi) in the Project zone of influence. Detailed information on these measures was included in the Resettlement Action Plan. Activities planned under the Senegal River Basin Multi-purpose Water Resources Development (MWRDP) APL, which is being developed in parallel, are directed to improving fishing techniques and equipment for fishermen, which in turn, will benefit the affected fishermen under this WAPP APL 2 Project.

5. Environment

60. The civil works associated with the OMVS Félou Hydroelectric Project involves the reinforcement of an existing weir (without modification of sill elevation), the excavation of a canal to carry the turbine capacity of 500 m³/s, construction of a new powerhouse to accommodate 3 x 21 MW bulb turbines for a maximum capacity of 59 MW, the connection of the power station with the HT network interconnected at the existing substation of Medina, about 10 km to the south-east of the village of Kayes,

²⁴ The Spanish Carbon Fund has expressed an interest to purchase carbon emission reduction credits for the OMVS Félou HEP. A separate carbon financing operation, based on the OMVS félou HEP, is also under preparation by the Bank’s Carbon Finance Unit (ENVCF).

and construction of an access road to the site alongside the railway siding near Medina. The railway siding, which will be used for unloading bulk construction equipment and supplies, also has to be rehabilitated. This arrangement will require the re-alignment of the road past Medina. Due to the general geological conditions of the area (compact and massive quartzite sandstone) and the modest nature of the proposed structures the OMVS Félou Hydroelectric Project does not present any significant geological and/or structural risk factors for civil works. Thus environmental concerns are limited to ensuring adequate management of potential construction impacts and attending to a possible relocation of about 2 ha of land planted with orchards and vegetable gardens. The project also offers a substantial environmental benefit related to reduced greenhouse gas emissions: electricity delivered to the grid by the project would have otherwise been generated by the operation of existing or new power plants that use mainly fossil fuels.

6. Safeguard policies

61. The investment to be financed under this WAPP APL 2 project has been categorized as “A” under OP4.01 since it is a hydroelectric plant. As indicated in the table below, the safeguard policies triggered by the project are Environmental Assessment (OP4.01), Involuntary Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37) and Projects on International Waterways (OP/BP 7.50).

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[]	[X]
Pest Management (OP 4.09)	[]	[X]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[]	[X]
Involuntary Resettlement (OP/BP 4.12)	[X]	[]
Indigenous Peoples (OP/BP 4.10)	[]	[X]
Forests (OP/BP 4.36)	[]	[X]
Safety of Dams (OP/BP 4.37)	[X]	[]
Projects in Disputed Areas (OP/BP 7.60)*	[]	[X]
Projects on International Waterways (OP/BP 7.50)	[X]	[]

62. An Environmental Assessment (EA) has been prepared and has been disclosed in country (project site) and in the Infoshop. The EA concludes that potential impacts of the OMVS Félou Hydroelectric Project are minimal on fisheries resources, food security of the local villagers near the project site and public health, especially bilharzia, and HIV/Aids. Moreover, local villagers will continue to have access to bathing and washing facilities.

63. About 1.25 ha of land planted with orchards and vegetable gardens need to be acquired for project facilities: a new channel and a new road. A Resettlement Action Plan has been prepared and disclosed in country (project site) and in the Infoshop.

64. The Félou Hydropower Project will rehabilitate and existing two meter high weir. An analysis has indicated that there are no dam safety issues. OMVS has provided the Bank with satisfactory Dam Safety Certificates for the upstream Manantali Dam (the Félou HEP will use water from the Manantali Dam).

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

65. The project is part of the overall OMVS program. The OMVS has notified the governments of the three riparian countries of the OMVS Félou Hydroelectric Project, in accordance with the requirements specified in OP 7.50, as has been standard for other projects in the Senegal River Basin.

7. Policy Exceptions and Readiness

No policy exceptions are sought.

Annex 1: Country and Sector or Program Background
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

1. WAPP

1. **WAPP Objectives and Vision:** The 15 Member States²⁵ of the ECOWAS have acknowledged that their past efforts to achieve national self-sufficiency in electricity supply have been inadequate due to the high cost of establishing country-specific power generation and transmission infrastructure. Faced with the challenge of meeting regional growth in electricity demand (Table A1-1), they acknowledge two major shortcomings in the present regional strategy: (a) increasing reliance on hydro-based power systems will not provide sufficient regional security of electricity supply, and (b) the lack of adequate transmission infrastructure (within and between national power systems) is the weakest link in the drive towards greater cooperation in power sector development. They have collectively resolved to develop and put in place the WAPP – *a cooperative power pooling mechanism for integrating national power system operations into a unified regional electricity market* – expecting that such mechanism would, over the medium to long term, assure their citizens of stable and reliable electricity supply at affordable costs.

Table A1-1: Power Demand Overview for ECOWAS Member States

ECOWAS Member States	Actual and Projected Peak Demand (MW)		
	2003	2011	2020
Nigeria	3500	7560	13900
Niger	80	131	230
	3580	7691	14130
Ghana	1303	1945	2971
Cote d'Ivoire	606	930	1572
Benin/Togo	191	352	607
Burkina Faso	105	178	282
	2205	3405	5432
Senegal	319	572	1057
Guinea	147	397	704
Mali	98	170	284
Gambia	48	132	186
Guinea-Bissau	21	41	61
	633	1312	2292
Liberia	44	105	122
Sierra Leone	35	57	97
ECOWAS Total	6497	12570	22037

Source: Revised ECOWAS Master Plan – October 2004.

2. The vision of ECOWAS is to develop and put in place the West Africa Power Pool (WAPP) – a cooperative power pooling mechanism for integrating national power system operations into a unified regional electricity market – with the expectation that such mechanism would, over the medium to long term, assure their citizens a stable and reliable electricity supply at affordable costs. The long term scenario is to establish WAPP as the principal vehicle to help meet the region's projected electricity requirement by harnessing electricity from:

- Several large capacity hydropower facilities (Kainji& Jebba, Akosombo, Manantali) sited on the region's major (Niger, Volta, Senegal) rivers which produce relatively low-cost electricity (US\$0.01-0.03/kWh);

²⁵ Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

- The substantial but as yet untapped hydro resources of Guinea, some 6000 MW of which is potentially economic to develop and can generate around 20-25 TWh per year of electricity at relatively low cost (between US\$ 0.02-0.03/kWh); and
- Gas-fired power generation, leveraging the community's parallel track strategy to expand access to Nigeria's enormous natural gas reserves (3500 billion cubic meters of proven natural gas reserves) via the proposed West Africa Gas Pipeline (WAGP) project.

3. In order to provide a robust infrastructure platform for the WAPP, a four-fold increase in power system interconnection capacity among ECOWAS Member States (the "Community") is required over the period 2005-2020.

4. **WAPP Cooperative Framework.** ECOWAS Member States are facing up to the challenge ahead by taking collective action to mobilize financing on a larger scale than has hitherto been forthcoming to establish, *inter alia*, a robust infrastructure platform for the WAPP. They have recognized that a pre-condition for successful regional energy integration in West Africa is the establishment of a transparent and harmonized policy, regulatory and commercial framework for cross-border electricity trade throughout the Community. Accordingly, the Community's highest decision-making body – the *Summit of the Heads of State and Government of the ECOWAS Member States* – is pursuing a deliberate, step-by-step approach to forge consensus, put in place the core (legal, regulatory, technical, investment programming) building blocks for the WAPP initiative, so as to provide prospective donors and financiers with clear evidence of the collective ownership by ECOWAS member states. Key policy milestones reached to date include:

- the 25th *Summit of the Heads of State and Government of the ECOWAS Member States* approved the "Mechanism for Financing the WAPP";²⁶
- the 26th *Summit of the Heads of State and Government of the ECOWAS Member States* signed the "ECOWAS Energy Protocol" or *EEP* to set up a unified regional (legal and regulatory) umbrella for energy sector developments in the region;
- the 28th *Summit of the Heads of State and Government of the ECOWAS Member States* approved the "Revised ECOWAS Master Plan for the Generation and Transmission of Electrical Energy";²⁷ and
- the 29th *Summit of the Heads of State and Government of the ECOWAS Member States* adopted the "Articles of Agreement" to formally set up the **WAPP Organization** as a "Specialized Institution of ECOWAS".²⁸

²⁶ ECOWAS/ CEDEAO (2001). 25th Session of the Authority of Heads of State and Government. Decisions A/Dec.8/12/01 Relating to the Establishment of a Mechanism of the West African Power Pool (WAPP). Dakar, 20 – 21 December 2001.

²⁷ ECOWAS/ CEDEAO (2005). 28th Session of the Authority of Heads of State and Government. Decision A/Dec.7/01/05 Relating to the ECOWAS Revised Master Plan for the Generation and Transmission of Electrical Energy. Accra, 19 January 2005.

²⁸ ECOWAS/ CEDEAO (2006). 29th Session of the Authority of Heads of State and Government. Decision A/Dec. 18/01/06 Adopting the Articles of Agreement Relating to the Establishment and functioning of the West African Power Pool, Niamey, 12 January 2006; and Decision A/Dec.20/01/06 Granting the Status of a Specialised Institution of ECOWAS to the West Africa Power Pool Organization. Niamey, 12 January 2006.

5. The above policy decisions, taken by the community’s highest level body, provide clear evidence of ownership by ECOWAS Member States of the WAPP initiative. They also have set up comprehensive coordination and implementation arrangements for WAPP.

6. **ECOWAS Energy Protocol.** A pre-condition to mobilize financing on a larger scale than has hitherto been forthcoming for regional energy integration in West Africa is the establishment of a transparent and harmonized policy, regulatory and commercial framework for cross-border electricity trade. The **EEP** is intended to put in place such transparent and harmonized policy, regulatory and commercial framework for long term energy cooperation, based on complementarities and mutual sharing of benefits.

7. The EEP also establishes the “**Meeting of Energy Ministers**” of ECOWAS Member States as the formal organ responsible for its implementation. Presently, the **EEP** is undergoing ratification processes by legislative bodies of the signatories and will come into force on the 90th day after the last instrument of ratification has been deposited with the ECOWAS Secretariat in Abuja, Nigeria. From the WAPP standpoint, a key provision of the EEP is **Article 7** which requires each ECOWAS member state, *inter alia*, to: (a) take the necessary measures to facilitate the transit of energy; and (b) encourage relevant entities (national and/or multi-national power utilities) to cooperate in modernizing energy (transmission) facilities, developing and operating energy (transmission) facilities for regional benefit, facilitating the interconnection of energy (transmission) facilities and apply measures that would mitigate the effects of energy supply interruptions. Other key provisions include **Article 6** (ECOWAS member states to assure all participants in regional energy trade of open and non-discriminatory access to power generation sources and transmission facilities), **Article 19** (safeguards for environmental impact mitigation) and **Article 22** (no less favorable treatment of third parties compared to state-owned electric utilities and/or energy entities).

8. The EEP also outlines dispute resolution framework reflecting the general consensus that has emerged among ECOWAS member states. The EEP envisions the establishment of a regional regulatory capability, to function at arm’s length from the governments. Towards that end, the AFD is funding the **ECOWAS Regional Regulatory Development Project (RRDP)** under which independent consultants and regulatory experts will help the WAPP SC to develop an appropriate regulatory framework for WAPP.

9. **Revised ECOWAS Master Plan (Generation and Transmission of Electrical Energy).** ECOWAS Member States have agreed on a WAPP medium term “road map” for implementing the Revised ECOWAS Master Plan. Recognizing the large diversities among national power systems, the WAPP “road map” outlines a two-track approach to develop distinct but mutually reinforcing cooperative power pooling mechanisms:

WAPP “Zone A” – *Benin, Burkina Faso, Côte d’Ivoire, Ghana, Niger, Nigeria and Togo;*

and

WAPP “Zone B” - *The Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Senegal and Sierra Leone.*

10. The “**Road Map**” prioritizes investments in key generation and transmission infrastructure by “zone” within a common operational regime – **WAPP Cooperation Agreements** – to be put in place under the auspices of the WAPP Organization. The medium-term goal (by 2011) embodied in the “Road Map” is to accelerate implementation of the following sub-regional power system infrastructure development projects:

- **Coastal Transmission Backbone Sub-program** to establish a robust interconnection link between the national power systems of WAPP “Zone A” Coastal States (Côte d’Ivoire, Ghana, Benin/Togo and Nigeria);
- **Power System Development Sub-programs** for the OMVS and the *Organisation pour la Mise en Valeur du Fleuve Gambie* (OMVG) which aim to interconnect national power systems of WAPP “Zone B” and secure access to sources of low cost hydroelectricity from facilities to be built primarily on (i) the Senegal River Basin (Guinea, Mali) and (ii) the Konkoure River Basin (Guinea); and
- **Inter-Zonal Transmission Hub Sub-program** to establish more secure, reliable transmission corridors for the transfer of low cost energy supply (produced by large capacity hydroelectric and gas-fired power generation plants of WAPP “Zone A” Coastal States) to displace diesel-based sources in the land-locked national power systems of the WAPP “Zone A” Sahel States (Burkina Faso and Niger) and also Mali.

11. Accordingly, over the medium term, WAPP Cooperation Agreements would be established, inter alia, to put in place, for each of the above sub-regional projects, common, flexible, robust rules of practice to encourage transmission system operators of interconnected national power systems to adhere to for: (i) power system planning, network design/dimensioning and project development: (ii) power system operation, operational reliability, system protection and restoration and exchange of information: (iii) acquisition and pricing of transmission services. Existing bi-lateral power exchange agreements will also be used as building blocks, finding the common ground necessary to produce harmonization of agreements at the regional level.

12. **Senegal River Hydropower and WAPP.** The hydropower potential of the Senegal River Basin is estimated at 1,200 MW, of which only 200 MW has so far been developed. In 1972, three of the four riparian countries of the Senegal River Basin established the *Organisation pour la Mise en Valeur du Fleuve Sénégal* (OMVS),²⁹ with a mandate to ensure multi-purpose water resources development, including energy supply. By the late 1980s, the OMVS had succeeded in building two large dams to store water for multi-purpose uses. The upstream Manantali dam, built in 1988 at a location which is 300 km inside Mali and approximately 1,200 km from the mouth of the Senegal River, has a reservoir capacity of 11,300 million m³ reservoir (active storage capacity of 8,000 million m³) which enables effective regulation of the Bafing River to attenuate extreme floods, store water in the wet season to augment dry season flows required for irrigation and navigation.

13. During the 1990s, the OMVS secured financing from a large consortium of IFIs and donors to implement the Regional Hydropower Development Project (RHDP). The RHDP supported the establishment of a unique sub-regional power system – the OMVS Power System – based on the construction of a hydroelectric plant at the foot of the Manantali dam,³⁰ a 225kV transmission system capable of evacuating electricity produced at the Manantali hydroelectric plant to the main load centers of Mali, Mauritania, and Senegal, both operated by a central real-time load dispatching system (also located at Manantali). Specifically, the OMVS Power System is configured as follows:

²⁹ Refer to **OMVS Convention of December 1978** on the legal status of the jointly owned infrastructure; and **OMVS Convention of May 1982** on the financing modalities of the jointly owned infrastructure.

³⁰ Commissioned in 2002,³⁰ the Manantali hydroelectric plant has an installed capacity of 200 MW, comprising of five 40 MW Kaplan units, capable in total of producing an average energy output of about 807 GWh from water releases from the multi-purpose storage reservoir.

- a) The main source of electricity is the 200 MW Manantali hydroelectric plant, which uses water releases from the dam's 11,300 million m³ reservoir (active storage capacity of 8,000 million m³) to produce an average yearly energy output of about 807 GWh;
- b) The transmission component of the OMVS power system radiates eastwards towards Bamako, Mali and westwards to Dakar, Senegal and Nouakchott, Mauritania. The Eastern Transmission Segment of the OMVS power system consists of a 306 km long, single-circuit 225 kV transmission line (TL) from the Manantali hydroelectric plant to the Kodialani sub-station (Bamako), with an en-route bulk supply point at Kita; and a 20 km, 150 kV TL built between Kodialani and Sirakoro, where the Eastern segment interconnects with the national power system of *Electricité du Mali* (EDM s.a);
- c) The Western Transmission Segment consists of a 945 km long, single-circuit 225 kV TL from the Manantali hydroelectric plant to the Sakal sub-stations (Senegal). Bulk supply points have been established at various locations along the Senegal River, in particular Kayes, Matam, Dagana, and Sakal. From Sakal onwards, the Western transmission segment interconnects with the national system of the *Société Nationale d'Electricité du Sénégal* (SENELEC). At Dagana, a 30 km long, single-circuit 225 kV TL establishes an interconnection with the national system of the *Société Mauritanienne d'Electricité* (SOMELEC); and
- d) A central load dispatching system, located adjacent to the Manantali Hydroelectric Plant that is capable of real-time system control and interface operationally with *Electricité du Mali* (EDM s.a), *Nationale d'Electricité du Sénégal* (Senelec) and *Société Mauritanienne d'Electricité* (SOMELEC).

14. Upon its commissioning, the operation and maintenance of the entire OMVS Power System was outsourced under a competitively bid long-term concession arrangement to ESKOM Energie Manantali (EEM), a private subsidiary of the South African power utility (ESKOM). The EEM took over the operation of the OMVS Power System in February 2002.

15. The *Revised ECOWAS Master Plan* accords high priority to the medium term expansion plan of the OMVS Power system, which includes the construction of the OMVS 2nd generation hydropower projects – two new run-of-river hydroelectric plants that are to be installed at the Félou (60 MW) and Gouina (95 MW) sites, both of which are located downstream of the Manantali hydroelectric plant. Also included in the *Revised ECOWAS Master Plan* is reinforcement and expansion of transmission networks of the OMVS Power System, which is necessary to augment the supply of low cost electricity supply to Mali, Mauritania and Senegal.

16. **WAPP Organization.** On February 1, 2006, the WAPP Secretariat was established in Cotonou, Benin to take over responsibility for day-to-day coordination of the implementation of the WAPP “Road Map”. On the same date, the ECOWAS Energy Observatory, also located in Cotonou, was transformed into the Information and Coordination Center of the WAPP Organization (WAPP-ICC). In order to maintain program management continuity during this critical transition period, the Head of the Energy Division of the ECOWAS Secretariat has been seconded to the WAPP Secretariat as Interim Secretary General of the WAPP Organization. In April 2006, a WAPP General Assembly will be convened to elect the Executive Board for the WAPP Organization and consider and adopt a 3-year “Business Plan” that is being prepared by the Interim Secretary General with assistance of a PPIAF-sponsored management consultant.

2. WAPP APL Program

17. **The RIAS for West Africa:** To reduce fragmentation of the West Africa Region's economies, the Bank has been pursuing a well-defined and phased integration effort in key sectors where the countries would benefit significantly from cross-border trade – notably road and air transport, energy, and, more recently, telecommunications. The objective of the RIAS is to help the countries concerned create a more unified regional economic space through the integration of markets of goods, financial and infrastructure services. The WAPP APL program, which fits in the framework of the RIAS, is intended to develop a robust platform for WAPP, combining (generation and transmission) infrastructure development components with the introduction of common “rules of practice” covering the institutional, regulatory, technical/operational and commercial pre-requisites for promoting cross-border electricity trade – WAPP Cooperation Agreements.

18. **The Use of APL for WAPP:** To achieve this RIAS objective for energy integration among ECOWAS Member States, the Bank and its partner IFIs, have agreed to put in place a multi-year programmatic framework in support of WAPP. It is proposed that IDA programmatic support be provided using the APL instrument, horizontally on a regional basis to support ECOWAS Member States (the active participation of up to 10 national power utilities is necessary to achieve expected outcomes) and vertically (each ECOWAS Member State can in principle receive support from more than one project over the WAPP APL program period). The APL instrument, by visibly committing substantial IDA resources and complementing activities supported by other IFIs and donors, would help ensure the availability of adequate resources to fund priority investments and technical assistance activities to underpin each WAPP Cooperation Agreement. The APL instrument would enable IDA credit support to be provided in a flexible manner – when countries responsible for a specific WAPP Cooperation Agreement have met the policy triggers (country commitments under the EEP) and when individual investments associated with each WAPP sub-program are ready to receive IDA credit support. All ECOWAS Member States might not actually be granted IDA credits under the WAPP APL program. However, ECOWAS Member States would know up-front that they can rely on the Bank to support them in achieving the developmental goals of the WAPP if they meet specific eligibility criteria and if they need IDA credit support.

19. **APL Eligibility Criteria and Triggers:** Following project preparation review consultations with the WAPP PIC and the ECOWAS Secretariat, the following “Road Map” was agreed as the primary basis for WAPP APL program design:

- The eligibility criteria would be ratification of the EEP;
- Policy triggers, which determine the eligibility of an individual Member State to receive IDA assistance under the APL program, should be derived based on the core principles embodied in the EEP; and
- Project triggers, which determine when an individual investment is eligible to receive IDA funds, should reflect pre-conditions for sustainable deployment of WAPP medium term (2004-2011) investment priorities, as defined in the ECOWAS Revised Master Plan.

20. Accordingly, the following eligibility criteria and policy triggers would align the WAPP APL program to the EEP:

- An ECOWAS Member State becomes eligible once it has ratified the EEP. It is currently expected that all prospective beneficiaries of the WAPP APL program would have met this condition by mid-2006 at the latest. Three (Guinea, Mali and Senegal) of the four OMVS

riparian countries are ECOWAS member states. Guinea, Mali and Senegal have ratified the EEP and are therefore eligible for IDA support under the WAPP APL program. Not being a ECOWAS member states, Mauritania is not in a position to ratify the EEP but will benefit for IDA support under the WAPP APL program in order to maintain the burden sharing arrangement for investments in jointly owned OMVS infrastructure.³¹

- An ECOWAS Member State remains eligible for Bank support under the WAPP APL program as long as it meets its key obligations under the Protocol. In particular, the member state would prepare and implement a “WAPP Action Plan” under which it would:
 - a) Review the extent to which present laws and regulations are aligned with the Protocol and, as necessary, prepare rules and procedures to ensure key provisions of the Protocol, such as open access to power generation and transmission facilities by third parties regardless of their nationality and location within ECOWAS (Articles 6) are complied with within its borders;
 - b) Prepare, and if necessary, amend national energy regulations and/or rules of practice to ensure that relevant regulatory entities cooperate in implementing necessary measures to facilitate the interconnection of power systems, assure for third parties of free transit of electricity (power wheeling) without distinction as to the origin, destination or ownership of such electricity, ensure coordinated development and operation of power generation and transmission facilities and mitigate the effects of interruptions in electricity supply (Article 7); and
 - c) Restructure and/or reform the operations of state-owned electric utilities and/or energy entities to ensure no less favorable treatment of third parties, regardless of their nationality and location within ECOWAS (Article 22).
- For an ECOWAS Member State (borrower) to be or remain eligible for IDA support under the WAPP APL program the Bank also needs to be satisfied that the borrower has the ability to effectively participate in the development of the emerging regional electricity market. With this policy trigger, the Bank would reserve the right to defer or withhold WAPP APL support in cases where a borrower might have complied with the letter of its EEP commitments but not have implemented or launched a credible “WAPP Action Plan” to put in place critical measures/reforms that are needed to create a well functioning power pooling mechanism, including, for example, reasonable (cost reflective) tariffs, prompt settlement of bills for cross-border electricity trade, and adherence to common “rules of practice” for power system operations.

21. **Phases of WAPP APL Program:** On June 30, 2005, the Bank’s Executive Board of Directors endorsed the application of the adaptable program lending (APL) instrument, within the framework of the World Bank’s RIAS for West Africa, as the vehicle for providing IDA credit support to the WAPP initiative. By so doing, the Bank has earmarked substantial IDA resources to put in place a multi-year programmatic framework to help close the financing gap and thereby ensure timely implementation of priority WAPP investments and technical assistance activities of the Revised ECOWAS Master Plan for the Generation and Transmission of Electrical Energy.

22. The objective of the WAPP APL program is the development of a robust platform for WAPP in three (3) mutually reinforcing phases. Each phase is structured as a distinct sub-regional infrastructure

³¹ Refer to **OMVS Convention of May 1982** on the financing modalities of jointly owned infrastructure.

development sub-program (WAPP APL 1, 2, 3 projects) that would yield a specific sub-regional power pooling mechanism, based on a WAPP Cooperation Agreement. Over time, the expectation is that three sub-regional power pooling mechanisms will converge into a unified, well functioning regional power pooling mechanism – an important pre-condition for the future evolution of cross-border trading arrangements into a unified regional electricity market for West Africa.

23. The overall WAPP APL program aims to provide a total of about US\$350 million equivalent in IDA credit support to eligible ECOWAS Member States. Following the approval (on June 30, 2005) of the first constituent IDA credit of US\$40 million equivalent to Ghana in support of the WAPP APL 1 (Phase 1) project, subsequent IDA credits, including the WAPP APL 2 project, are being processed, each at its own pace. When ready, each PAD would be submitted for approval by the Africa RVP. After Management approves the follow-on operation in principle, each PAD would be circulated to the Board for information. Management approval becomes effective 10 working days thereafter, unless at least three Executive Directors request a regular Board discussion during the 10-day time period. Each IDA credit for an APL phase/project could move ahead at its own pace and not be held back by the Bank needing to combine several projects for the purpose of processing or approval.

24. **WAPP M&E System.** The WAPP Organization will be responsible for the development and deployment of a full-fledged M&E system for the entire WAPP APL program that will: (a) track outputs that are necessary to achieve the target project and program outcomes; (b) make full use of the regional resources and (c) enhance the competencies of WAPP member power utilities, including those of WAPP “Zone B” OMVS countries to coordinate the collection and dissemination of reliable power sector data for West Africa. The information generated by the proposed WAPP M&E system for the WAPP “Zone B” OMVS countries will be disseminated through the quarterly progress reports on this WAPP APL 2 project (and through other reporting systems of the WAPP Information and Coordination Center). The information will be used by the WAPP Organization (Executive Board), the OMVS HC and SOGEM (or the AGP-OMVS), and donors/development partners and stakeholders to assess progress towards the achievement of WAPP APL program development objectives. More specifically, the reports will be used to assess the contribution of WAPP APL 2 project outputs to the achievement of targeted outcomes.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

1. On June 26, 1997, the Bank provided IDA credits in the amounts of SDR 12,600,000 for Mali (US\$17.1 million), SDR 8,100,000 for Mauritania (US\$11.01 million), and SDR 7,700,000 for Senegal (10.5 million) to support the Regional Hydropower Development Project (RHDP). These three IDA credits represented only about 9 percent of a major multi-donor initiative (US\$445 million equivalent) to harness the Manantali reservoir to produce reliable and low-cost electricity supply for the populations of the Senegal River Basin. The Manantali project's impact on Mali's energy sector was deemed important, as electricity from Manantali now represents around 50 percent of the total power demand in Mali. Co-financing partners include the Agence Française de Développement (AFD of France), Kredistanstadt für Wiederaufbau (KfW of Germany), Canadian International Development Agency (CIDA – Canada), European Union, European Investment Bank (EIB), Islamic Development Bank (IDB), African Development Bank (AfDB), Arab Fund for Economic and Social Development (FADES), and West African Development Bank (BOAD).
2. Under the auspices of the “**Meeting of WAPP Donors**, a comprehensive multi-donor financing plan is being put in place to accelerate the development of the OMVS 2nd Generation Hydropower Projects under the WAPP. At the most recent meeting, held in Accra, Ghana (October 26, 2005) in conjunction with the WAPP Steering Committee Meeting, the “**Meeting of WAPP Donors** endorsed the plans of the Bank and the EIB to co-finance the, especially the Felou HEP. Other donors/financiers that have expressed an interest in supporting projects, such as the Gouina HEP, to further expand the hydroelectric generation capacity of the OMVS Power System include the AfDB, the AFD and the BOAD.
3. The **USAID** has extended the duration of its multi-year program of technical assistance to the ECOWAS Secretariat. Since September 2000, USAID has provided wide-ranging technical and capacity building support to the WAPP SC, WAPP PIC and the ITWG. USAID-sponsored consulting firms assisted in key pre-investment activities, including preparation of the “West Africa Regional Transmission Stability Study” and the “Guidelines for Environmental and Social Impact Assessment of Electric Power Generation & Transmission Systems in West Africa”. The current thrust of the USAID technical assistance program is capacity building support to the General Secretariat of the WAPP Organization. Such activities will be extended to support the CTPI of the OMVS Power System.
4. The **French Ministry of Foreign Affairs** and **AFD** are providing a Euro 5 million grant to assist the ECOWAS Secretariat³² to set up the proposed ECOWAS **Regional Regulatory Development Project** (RRDP). The implementation of the RRDP began in September 2005.
5. In addition to the above, the **World Bank** is administering a **PPIAF** sponsored activity³³ to assist the ECOWAS Secretariat to formulate “Business Plan” for the WAPP Organization, covering the period 2006 through 2009.

³² ECOWAS/ CEDEAO (2005), 28th Session of the Authority of Heads of State and Government: Decision A/Dec.6/01/05 on the “Development of a Regional Regulatory Framework for the ECOWAS Electricity Sector, prior to the Establishment of a Regional Regulatory Body”.

³³ Africa Region: ECOWAS – WAPP Organization Business Plan Development – PPIAF Activity # A102505/S/ETY/RF/3A).

Annex 3: Results Framework and Monitoring
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Results Framework

PDO/Outcome	Outcome Indicators	Use of Outcome Information
<p>PDO: To alleviate power supply deficits in WAPP Zone “B” OMVS countries (Mali, Mauritania and Senegal) by augmenting the supply of low cost hydroelectricity.</p> <p>OUTCOMES - Improved coverage of power demand for WAPP Zone “B” OMVS countries.</p>	<p>P1 - Quantity of low cost electricity that is supplied by OMVS Power System to WAPP Zone “B” OMVS countries.</p>	<p>Shows the contribution of the project to the achievement of WAPP program objective of increasing access of citizens of ECOWAS member states to stable and reliable electricity at affordable costs.</p>
Component/Intermediate Results	Results Indicators for Each Component	Use of Results Monitoring
<p>Components I & II: <i>Infrastructure Development – Félou HEP</i></p> <p>Outcome: Well-functioning Félou HEP that is able to supply low cost electricity to WAPP “Zone B” OMVS countries.</p>	<p>C1.1 – Commissioning and performance testing of Félou HEP are successful and completed on schedule.</p> <p>C1.2 – Performance (time availability) of Félou HEP is high, enabling the OMVS Power System to produce stable and reliable electricity at low cost.</p>	<p>- To ensure timely and cost efficient expansion of sub-regional hydroelectric generation capacity (OMVS 2nd Generation Hydro Projects) for WAPP “Zone B” OMVS countries.</p>
<p>Component III: <i>Capacity Building – OMVS Power System Operator</i></p> <p>Outcome. Commercially-viable hydro-thermal power pooling mechanism, incorporating enhanced Tariff Protocol, deployed by OMVS Power System Operator for WAPP Zone “B” OMVS countries.</p>	<p>C2.1 Commercially-sound (capacity and energy exchange) agreements put in place and adhered to between OMVS Power System Operator and national power utilities of WAPP Zone “B” OMVS countries.</p>	<p>- To protect commercial viability of the OMVS Power System Operator in order to facilitate establishment of a well-functioning WAPP Cooperation Agreement for WAPP Zone “B”.</p>
<p>Component III: <i>Capacity Building – WAPP Organization</i></p> <p>Outcome. Enhanced capability of WAPP Organization to coordinate M&E functions with power utilities of WAPP Zone “B” OMVS countries.</p>	<p>C3.1 Power Sector M&E data of the WAPP Zone “B” OMVS countries collected, analyzed, and disseminated by WAPP Organization.</p>	<p>- To inform policy adjustments and/or better targeting of resources by the WAPP Organization to achieve goals embodied in ECOWAS Energy Protocol.</p>

* WAPP “Zone B” OMVS countries are: Mali, Mauritania, Senegal

Arrangements for Results Monitoring

Outcome Indicators	Utility	Target Values					Data Collection and Reporting		Responsibility	
		Baseline 2005	2006	2007	2008	2009	2010	Frequency		Data Collection Instruments
PDO Indicators										
P1 - Quantity of low cost hydroelectricity that OMVS Power System supplies to WAPP Zone "B" OMVS countries, disaggregated by national power utility.	EDM SENELEC SOMELEC	315 GWh 273 GWh 219 GWh	315 GWh 273 GWh 219 GWh	315 GWh 273 GWh 219 GWh	315 GWh 273 GWh 219 GWh	343 GWh 301 GWh 247GWh	427 GWh 385 GWh 331 GWh	Annual (November)	Recorded data by OMVS Power System Operator and summarized in the utility database (MIS) on a monthly basis	OMVS Power System Operator reports data to the WAPP Organization
Components Indicators										
Component I & II C1.1 Commissioning and performance testing of Félou HEP are successful and completed on schedule.					June (Unit 1) Aug. (Unit 2) Oct. (Unit 3)			Annual (November)	Recorded data by OMVS Power System Operator and summarized in the utility database (MIS) on a monthly basis	OMVS Power System Operator reports data to the WAPP Organization
Component I & II C1.2. Performance (availability) of Félou HEP.					90%	95%		Quarterly (March, June, Sept, Dec)	Recorded data by OMVS Power System Operator and summarized in the utility database (MIS) on a monthly basis	OMVS Power System Operator reports data to the WAPP Organization
Component II C2.1 Commercially-sound (power exchange) agreements put in place and adhered to by OMVS Power System Operator	EDM SENELEC SOMELEC	- - -	- - -	- - -	YES YES YES	YES YES YES	YES YES YES	Annual (November)	Recorded by WAPP Organization based on data from OMVS Power System Operator and national power utilities.	OMVS Power System Operator registers agreements with the WAPP Organization
Component III C3.1 Power sector M&E data of WAPP "Zone B" Coastal States collected, analyzed, and disseminated		0%	75%	80%	90%	100%	100%	Quarterly (March, June, Sept, Dec)	WAPP Organization reports	WAPP Organization

* WAPP Zone "B" OMVS Countries: Mali, Mauritania, Senegal.

Annex 4: Detailed Project Description
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Component 1: Design-Build-Contract

25. The proposed OMVS Félou hydro project is located on the river Senegal about 200 km downstream of Manantali and 15 km from the town of Kayes (population 86 500 in 2003). There is already a dam at Félou, and a very small (600 kW) hydro plant. The Final Report (February 2003) of the technical feasibility study carried out by OMVS consultants (Coyne et Bellier of France) reports the following project characteristics:

- type run of river
- number of units 3
- turbine type bulb or kaplan
- design flow 500 m³/s
- Maximum station output 59 MW
- annual energy (average) 320–350 GWh per year, which corresponds to 60 percent utilization
- Cost (civil works, electro-mechanical, transmission connection, engineering and project management), excluding interest during construction, estimated at US\$110 million

26. From December to July, flow is limited by release from Manantali, generally up to 150 or 200 m³/s (i.e., about one-third of design volume). In the wet season from August and November, flow generally exceeds the 500 m³/s design capacity of the OMVS Félou HEP. During this period the plant can operate continuously at full load. The advantages of the OMVS Félou Hydroelectric Project site include:

- an existing dam; previous work concluded the height of the dam should not be raised
- straightforward conditions for the civil works
- proximity to Kayes and road and rail infrastructure
- short distance (3 km) for 225 kV connection to the existing substation at Médine, which is about 10 km south-east of Kayes
- the ability of the existing transmission network to accept the output from the project without reinforcement

27. The result is a relatively low investment cost of approximately US\$1 900/kW, and estimated generation cost of 4.4-4.9 ¢/kWh.

28. An output-based contract is to be applied – the entire implementation cycle for the Félou HEP, including operation of the Félou HEP to demonstrate performance for up to two hydrological seasons, will be handled under a single responsibility Design-Build Contract.

29. IDA and EIB will co-finance the Design-Build Contract.

Component 2: Two-Stage “Project Cycle Management” Contract.

30. The OMVS will retain the services of an experience engineering consulting firm to provide comprehensive project cycle management support through a two-stage sequential contracting arrangement, as follows:

- (a) **Phase 1 “Transaction Adviser” Contract** – This is currently underway with funding from PPF Q475-0-SE). The consulting firm is providing transaction advice and support required by the OMVS HC and SOGEM to: (a) perform detailed planning and scheduling of project implementation arrangements, including pre-qualification of prospective bidders, (b) prepare and issue bidding documents for the selection of an independent contractor and also prepare a comprehensive set of power supply agreements for use by EEM, taking into account provisions of the Protocole Tarifaire and the “Contrat de Cession”,³⁴ (c) conduct the two-stage bidding process, evaluate bids and make recommendation for the award of the Design-Build Contract. The expected duration of the Phase 1 Contract is 12 months.
- (b) **Phase 2 “Owners Engineer” Contract** – This phase begins when the Design-Build Contract is awarded and signed. Subject to satisfactory performance during the Phase 1 Contract, the OMVS HC and SOGEM plan to retain the same consulting firm to oversee the day-to-day performance of the Design-Build Contractor over the entire “design-build-performance testing” cycle, up until the critical milestone involving the hand-over of the “use and control” of a fully operational OMVS Félou Hydroelectric Project through SOGEM (or the successor AGP-OMVS) to EEM.

Component 3: “WAPP Action Plan” for OMVS Power System.

31. This component will provide technical assistance, equipment and capacity building support to upgrade the functional capabilities of the Comité Technique Permanent de L’interconnexion (CTPI) of the OMVS Power System³⁵. Under this component, SOGEM will acquire and transfer use and control through the CTPI to the national transmission system operators in Mali (EDM), Mauritania (SOMELEC) and Senegal (SENELEC) of:

- (a) SCADA/EMS and associated communication equipment; and
- (b) Software for hydro-thermal optimization.

32. Together with joint training and associated capacity building activities to be organized jointly with the WAPP Organization, this capacity building support is intended to help improve the real-time operational planning and coordination with the OMVS Power System Operator (presently, *ESKOM Energie Manantali* (EEM) is the private concession holder). Overall, this component would enable the CTPI to execute the “WAPP Action Plan” which would lead towards the establishment of a WAPP Cooperation Agreement among WAPP “Zone B” OMVS countries.

³⁴ The “Contrat de Cession” is currently under negotiation between OMVS, SOGEM and the national power utilities.

³⁵ The Permanent Technical Committee of the OMVS Power System comprises representatives of SOGEM (the OMVS asset holder), EEM (the private concessionaire/system operator), and the national power utilities of Mali (EDM), Mauritania (SOMELEC) and Senegal (SENELEC).

Annex 5: Project Costs
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Project Cost By Component and/or Activity	Local US \$million	Foreign US \$million	Total US \$million
Design-Build Contract		100.00	100.00
SCADA/EMS & Communications Equipment and Software	1.00	6.50	7.50
Project Cycle Management Contract – Phase 1		0.50	0.50
Project Cycle Management Contract – Phase 2		2.40	2.40
Pre-investment Activities	0.50	0.60	1.10
Resettlement Action Plan	1.00		1.00
Total Baseline Cost	2.50	110.00	112.50
Physical Contingencies	0.70	0.60	1.30
Price Contingencies		6.30	6.30
Total Project Costs¹	3.20	116.90	120.10
Interest during construction		4.90	4.90
Total Financing Required	3.20	121.80	125.00

¹Identifiable taxes and duties are US\$0.00 million, and the total project cost, net of taxes, is US\$125.00 million. Therefore, the share of project cost net of taxes is 60.0%.

Annex 6: Implementation Arrangements
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

1. OMVS Project Implementing Entities

1. The project implementation arrangements are the following:
 - **OMVS** will be responsible for the overall coordination of the implementation of the Project.
 - The **High Commission of OMVS** will be responsible for the implementation of Component 2 of the Project. **SOGEM** will be responsible for the implementation of Components 1 and 3 of the Project.
 - The **High Commission of OMVS**, with the support of the “Transaction Adviser”, and **SOGEM**, will be responsible for detailed planning and scheduling of project implementation arrangements, for preparing and issuing bidding documents for the selection of an independent contractor, and for conducting the bid evaluation and contract award processes, on behalf of the Recipients.
 - **SOGEM** will sign the Design-Build Contract for the construction and commissioning of the Félou hydroelectric plant.
 - **SOGEM**, jointly with the “Owner’s Engineer”, will oversee and approve all key technical performance milestones in the implementation of the Design-Build Contract, up until the successful commissioning and performance testing of the fully operational Félou hydroelectric plant; and
 - **SOGEM** will transfer the “use and control” of the fully operational Félou hydroelectric plant to the OMVS Power System Operator.
 - Not later than six months before the commissioning of the Félou hydroelectric plant, **SOGEM** shall enter into a contract with the OMVS Power System Operator, in form and substance acceptable to the Association, for its operations, exploitation and maintenance.
 - **SOGEM**, supported by the OMVS Power System Operator and a panel of consultants to be selected in consultation with the General Secretariat of the WAPP Organization, will procure and deploy equipment and software to enable the CTPI to implement the “**WAPP Action Plan**” under Component 3 of the Project.
2. Legal arrangements for the Project will be similar to the arrangements put in place for the former RHPD Hydropower Project financed by IDA. Therefore IDA will enter into financing agreements with the three member countries and into a project agreement with OMVS HC and SOGEM. The proceeds of the three IDA credits will be made available to OMVS HC and SOGEM under subsidiary agreements between the each of the countries, OMVS HC and SOGEM.

2 The Design-Build Contractor

3. A private power developer/consortium will be selected to design, build and make fully operational the OMVS Félou Hydroelectric Project under a date-certain, fixed price, output-based contract with SOGEM. The DBOT approach maximizes the use of private sector expertise to more optimally exploit the energy production potential of the site – the entire implementation cycle for the Félou

HEP, including operation of the Félou HEP to demonstrate performance for up to two hydrological seasons, will be handled by the private power developer under a single responsibility **Design-Build** Contract. There are distinct advantages of developing the Félou site through a single responsibility Design-Build approach, given that: (a) pre-investment work concluded the height of the existing weir need not be raised; (b) the geology of the site is well known presenting straightforward conditions for civil works, especially to excavate a canal capable of delivering available Manantali regulated river flows into larger capacity, low head turbines; (c) proximity of the site existing road and rail infrastructure; (d) short distance (3 km) for 225 kV connection to the existing OMVS power substation at Médine, which is about 10 km south-east of Kayes; and (e) the ability of the existing transmission network to accept the entire output from the project without reinforcement.

3. The Project Cycle Management Consultant

33. On January 25, 2006, the OMVS awarded a contract to Electricité de France – Centre d’Ingénierie Hydraulique (EDF) to provide comprehensive project cycle management support to both OMVS project implementation entities. The plan of action is as follows.

34. For the Phase 1 “**Transaction Adviser**” Contract, currently underway, the consulting firm will provide transaction advice and support to enable the OMVS to: (a) perform detailed planning and scheduling of project implementation arrangements, including pre-qualification of prospective bidders, (b) prepare and issue bidding documents for the selection of a Design-Build Contractor, and (c) conduct the two-stage bidding process, evaluate bids and make recommendation for the award of the DBOT contract. The expected duration of the Phase 1 Contract is 12 months.

35. After the award of the Design-Build Contract is made, the Phase 2 “**Owners Engineer**” Contract would begin. Subject to satisfactory performance during the Stage 1 Contract, EDF/CIH will be retained to assist SOGEM to oversee the day-to-day performance of the Design-Build Contract over the entire “design-build-transfer” cycle, including the critical hand-over of a fully operational OMVS Félou Hydroelectric Project to SOGEM or its successor asset holding entity – the Agence de Gestion du Patrimoine de l’OMVS (AGP-OMVS). This follows because the expected duration of the Stage 2 Contract is about 4 years, by which time OMVS may have completed the restructuring/transformation of SOGEM into the AGP-OMVS (Section C 2).

Annex 7: Financial Management and Disbursement Arrangements
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Executive summary and conclusion

1. A financial management assessment was carried out in accordance with the Financial Management Practices Manual issued by the Financial Management Board on 3 November 2005. The objective of the assessment was to determine whether OMVS and SOGEM have acceptable financial management arrangements.
2. The conclusion of the assessment is that the financial management arrangements of the project meets the Bank's minimum requirements under OP/BP10.02 and is then adequate to provide, with reasonable assurance, accurate and timely information on the status of the project required by IDA. The major financial management requirement identified is the recruitment on an external auditor with experience and qualifications satisfactory to the Bank. This recruitment must be completed prior to Credit's effectiveness.

Staffing Arrangements and Implementation Arrangements

3. The OMVS HC and SOGEM are staffed with qualified and experienced staff. There is no additional staffing requirement under this project both at OMVS HC and at SOGEM.

Accounting and Financial Management Procedures and Computerized Management Information System

4. *Accounting Policies and Procedures.* OMVS HC and SOGEM have been applying satisfactory procedures since they were established. OMVS HC and SOGEM are applying the existing private accounting system in Senegal and Mali (SYSCOA) issued in 1998. This system is based on the *Plan Comptable* traditional in French-speaking countries, with several innovations mirroring some principles set in International Accounting Standards (IAS) at the time. Although the recent Report on the Observance of Standards and Codes Auditing and Accounting outlines the differences between SYSCOA and the International Financial Reporting Standards (IFRS) and the International Accounting Standards, this system will be acceptable for the Bank. Any major difference between the SYSCOA and the IFRS/IAS and their effect, if significant, will be adequately disclosed and explained in the notes of the financial statements. OMVS HC will prepare the project's financial statements to be audited.
5. *Accounting Software.* The OMVS HC and SOGEM are already using satisfactory accounting software reviewed and assessed recently by the Bank. The two systems are capable of producing the accounting and financial data required: Financial Statements, Bank reconciliation statements, all the books of accounts and all financial reports including the Interim Un-Audited Financial Statement (IFR).

Reporting and Monitoring

6. This project will leverage the strong experience of the OMVS HC in managing IDA funds. Since no designated account will be open for the management of this project, the financial report will be included in the overall technical reporting of the project. Thus Interim Un-Audited Financial Statement (IFR) will be included in the general report. The OMVS HC will prepare and furnish the Interim Un-Audited Financial Statement (IFR) in form and substance satisfactory to the World Bank, which:

- sets forth sources and uses of funds for the project, both cumulatively and for the period covered by the report, showing separately funds provided under the financing, and explains variances between the actual and planned uses of such funds;
- describes physical progress in project implementation, both cumulatively and for the period covered by the report, and explains variances between the actual and planned project implementation; and
- sets forth the status of procurement under the project, as at the end of the period covered by the report.

7. The IFR will be sent to the World Bank not later than 45 days after the quarter.

External Audit

8. External auditors with qualifications and experience satisfactory to the World Bank will conduct an annual audit of the project's financial statements. This audit should be carried out in accordance with International Standards on Auditing, and will include such tests and controls as the auditor considers necessary under the circumstances. In addition to the audit report, the auditors will be expected to prepare management letters giving observations and comments, and providing recommendations for improvements in accounting records, systems, controls and compliance with financial covenants in the Bank agreement. The audits of the OMVS HC and SOGEM financial statements are included in other World Bank projects. The audit reports of the project's financial statements will be submitted to the World Bank within six months after year end (12/31/n).

Internal Audit

9. The internal audit function in OMVS HC is carried out by the Financial Controller (FC). The FC is appointed by the Council of Ministers of OMVS and reports to the Council on the use of funds and controls ex ante all the expenditures before signature by the High Commissioner. This internal audit arrangement is not fully satisfactory to the Bank and does not provide the assurance of the continuing adequacy and conformity of OMVS HC with the procedures as described in the manual. The internal audit function of OMVS HC will be strengthened with the Multi-purpose Water Resources Development APL 1 Project recently prepared by the World Bank. No major impact is expected on this project given the financial management and disbursement arrangements (no designated account, payment for the four main contracts will be made by the Bank, directly from the Credit Account)

10. The table below summarizes the auditing requirements under this project:

Audit report	Entity	Periodicity	Due Date	Comments
1) Project's financial statements	OMVS	Annually	June 30	To be included in the Financing Agreement
2) Annual Audits of OMVS and SOGEM	OMVS and SOGEM	Annually	June 30	Already included in other Financing Agreements of the Bank

Disbursement arrangements

11. This WAPP APL2 project will be financed through an IDA credit of US\$25 million equivalent to Mali, US\$25 million equivalent to Mauritania and US\$25 million equivalent to Senegal. The objective of the APL2 is to support the construction of the OMVS Félou Hydroelectric Project at a site near Kayes in

Mali, as a means to: (a) augment the supply of low cost hydroelectricity from the OMVS Power System to the national power utilities of Mali (EDM), Mauritania (SOMELEC) and Senegal (SENELEC).

12. The OMVS will be responsible for coordinating the execution of the IDA Financing Agreements (FAs) with the three participating riparian countries. The OMVS HC and SOGEM will claim disbursements on behalf of the recipient countries and send IDA the withdrawal applications for direct payments. No designated account will be opened under the Program. All payments will be made directly by IDA to the beneficiary firms under output-based contracts. Flow of funds is described in Appendix 1.

(1) Contractual arrangements and direct payments: The OMVS HC and SOGEM will submit withdrawal applications to IDA on a quarterly basis for direct payments to the beneficiary firms. Disbursements will be made for four large contracts, as follows:

- Design-Build Contract, to be signed by SOGEM and the Design-Build Contractor, in an amount of US\$110 million and which will be financed in part by Mali (US\$25 million), Mauritania (US\$25 million), Senegal (US\$15 million) plus allocation of the EIB loans to Mali (Euros 11 million), Mauritania (Euros 11 million) and Senegal (Euros 11 million);
- Contracts for the supply and installation of SCADA/EMS and communications equipment for the CTPI and also the supply of software, both of which are to be signed by SOGEM for a total amount of about US\$6.50 million. These contracts will be financed by Senegal;
- Phase 2 “Owners Engineer” Contract for project cycle management services, to be signed by the OMVS HC and EDF, in an amount of US\$1.50 million also financed by Senegal; and
- Phase 1 “Transaction Adviser’s” Contract for project cycle management services, already signed by the OMVS HC and EDF in an amount of US\$600,000 that is being disbursed under a Project Preparation Facility. The PPF will be refinanced under the Senegal Financing Agreement.

(2) Withdrawal applications: For the Design-Build Contract, one withdrawal application will be submitted each quarter for direct payment under the three FAs. Disbursements under the CTPI SCADA/EMS and Communications Equipment and Software Contract and “Owner’s Engineer” Contract will also take place via direct payments on a quarterly basis through the submission of a withdrawal application together with the relevant documentation. All four contracts will be subject to the prior review of the Bank. The relevant contract data will need to be present on the Bank’s SAP system for IDA to honor the respective direct payments. Since the total amount of the Design-Build Contract will be financed under separate FAs plus the EIB loans, only the IDA eligible portion of the Design-Build Contract will be recorded on the SAP system for respective disbursements.

(3) Categories of Expenditure and disbursement percentage: The FAs for Mali and Mauritania will only have one category of expenditure corresponding to the Design-Build Contract. The FA for Senegal will include four categories of expenditure corresponding to (i) the Design-Build Contract, (ii) the SCADA/EMS and Software Upgrade Contract and (iii) the “Owner’s Engineer” Contract, and (iv) the PPF refinancing for the “Transaction Adviser” Contract, respectively. The OMVS HC and SOGEM enjoy a tax-exempt status and the four contracts will be eligible for 100% IDA financing.

Table A7-2: Estimated Disbursement Profile

Estimated disbursements (Bank FY/USD million)					
FY	7	8	9	10	11
Cumulative	5.0	30.0	55.0	75.0	
Project implementation period: Start October 1, 2006 End: June 30, 2010					
Expected effectiveness date: October 1, 2006					
Expected closing date: June 30, 2010					

13. Table A7.2 below sets out the expenditure categories to be financed out of the credit/grant proceeds for the respective countries. The allocations for each expenditure category by country are the following:

**Table A7-3: Allocation of Credit Proceeds
Withdrawal of Proceeds:**

	Categories	Credit Allocated in SDR	% of expenditures to be financed
(1)	Design-Build-Contract for the OMVS Félou Hydroelectric Project (<i>goods, consultants' services</i>)	16,900,000	100% of foreign expenditures
TOTAL		16,900,000	

	Categories	Credit Allocated in SDR	% of expenditures to be financed
(1)	Design-Build-Contract for the OMVS Félou Hydroelectric Project (<i>goods, consultants' services</i>)	16,900,000	100% of foreign expenditures
TOTAL		16,900,000	

• Senegal:

	Categories	Credit Allocated in SDR	% of expenditures to be financed
(1)	Design-Build-Contract for the OMVS Félou Hydroelectric Project (<i>goods, consultants' services</i>)	9,300,000	100% of foreign expenditures
(2)	CTPI SCADA/EMS and communications equipment and software (Supply & Installation)	4,700,000	100% of foreign expenditures
(3)	EDF Phase 2 – “Owner’s Engineer” Contract	1,620,000	100% of foreign expenditures
(4)	PPF Refinancing, including EDF Phase 1 – “Transaction Adviser” Contract	1,280,000	100% of foreign expenditures
TOTAL		16,900,000	

Financial Covenants

14. The standard financial covenants will be included in the Financing Agreement (FA).

Loan Conditions

15. The effectiveness conditions are the following:

- OMVS has appointed an external auditor with qualifications and experience satisfactory to the Bank.

Supervision Plan

16. On a regular basis (at least once per year), the financial management arrangements agreed will be reviewed and assessed. The IFR will be reviewed as well as the audit reports.

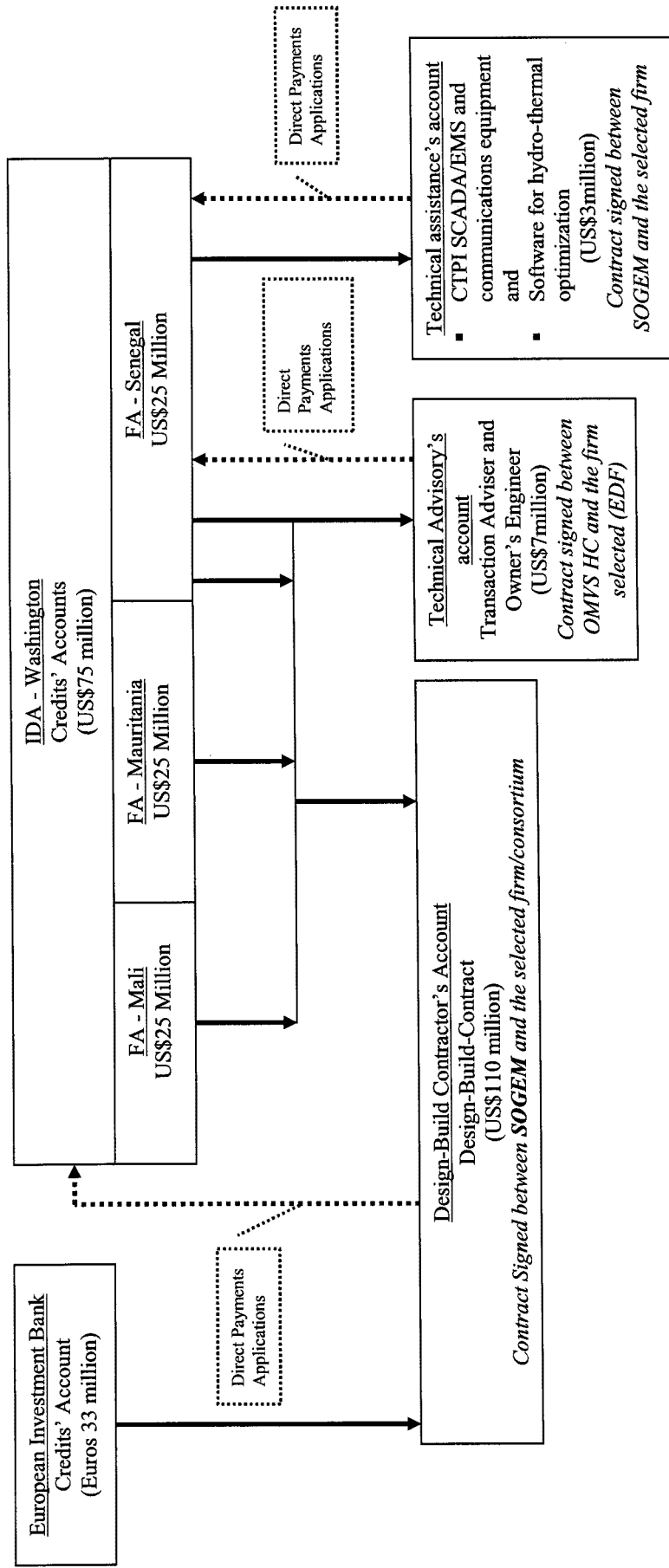
Risk

17. ***At the regional level:*** The general assessment of the fiduciary risk at the regionally level is moderate. However, the current economic and political circumstances in the basin need to be taken into consideration to identify the potential risk and possible mitigation measures with respect to find adequate mechanisms and modalities and interaction between OMVS HC, SOGEM and contractors. The most important fiduciary risk is related to the selection process of the contractors (i) Design-Build Contract, (ii) CTPI SCADA/EMS and Communications Equipment and Software Contract, (iii) Phase 2 – “Owner’s Engineer” Contract, (iv) Phase 1 “Transaction Adviser” Contract³⁶. As part of the mitigation measures, OMVS HC and SOGEM will be assisted by an experienced firm – EDF. Both of the technical assistance contracts will be selected through World Bank guidelines for consultants’ services, procured under contracts awarded on the basis of Quality and Cost-based Selection.

18. ***At the project level:*** No major risk is anticipated at the project level given the fiduciary arrangements. An external auditor will be recruited under terms of reference acceptable to the Bank. The table in Appendix 2 below identifies the key risks at the project level and provides a basis for determining how management should address these risks.

³⁶ This contract, already signed between OMVS HC and EDF is financed under the PPF.

Appendix 1: Funds and Information Flow mechanism



————— Flow of Funds and Transfers

..... Flow of Information

Appendix 2: Assessment of the risk

	<i>Risk Assessment</i>				<i>Comments</i>
	<i>H</i>	<i>S</i>	<i>M</i>	<i>L</i>	
Inherent Risk					
1. Corruption			X		The legal and institutional framework of OMVS HC is satisfactory. The Financial Management systems of OMVS HC and SOGEM are working reasonably well. The only major fiduciary risk related to the project is the procurement selection of the Design-Build Contractor and the capacity of OMVS HC and SOGEM to conduct this process. The mitigation measure is the appointment of an experienced firm – “Transactions Adviser” to handle key tasks in the selection of this Design-Build Contractor.
2. Poor Governance			X		
3. Weak Judiciary			X		
4. Weak Management Capacity		X			
Overall Inherent Risk			X		
Control Risk					
1. Executing Agency		X			Idem inherent risk above. An additional mitigation measure is retention of an experienced firm as the “Owners Engineer” to assist SOGEM to supervise the Design-Build Contractor.
2. Funds Flow			X		The flow of funds is relatively simple: all payments will be made directly from the Credit Account to beneficiaries (4 contracts will be signed for the implementation of the project). No designated account will be open. Direct payments applications will be prepared and sent by OMVS HC to the Bank.
3. Counterpart Funds			X		Counterpart funds are owner’s equity to be applied primarily as initial working capital for the project.
4. Staffing			X		OMVS HC and SOGEM are adequately staffed.
5. Accounting Policies and Procedures			X		No need to prepare a manual or update the existing manual.
6. Internal Audit			X		Internal audit function exists at OMVS HC, but is largely compliance and transaction oriented and adds little value to the control framework. Internal audit function of OMVS HC will be strengthened by the Senegal River Basin Multi-purpose Water Resources Development Project.
7. External Audit			X		Prior to credit effectiveness, an external auditor will be recruited as per appendix 1.
8. Reporting and Monitoring			X		The format and content of the reports was agreed at negotiations.
9. Information Systems			X		Efficient accounting software was installed at OMVS HC and will be updated.
Overall Control Risk			X		

H: High, S: Substantial, M: Moderate, L: Low

Annex 8: Procurement Arrangements

AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

A. General

19. No special exceptions, permits, or licenses need to be specified in the Financing document for International Competitive Bidding (ICB), since all OMVS countries' Public Procurement allows International Development Association procedures to take precedence over any contrary provisions in local regulations. OMVS member countries include: Guinea, Mali, Mauritania, and Senegal.

Use of Bank Guidelines

20. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Loan/Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

Advertising

21. A General Procurement Notice (GPN) will be prepared and published in United Nations Development Business (UNDB), in Development Gateway's (dgMarket) and in at least a national newspaper after the project is approved by the Bank Board, and/or before effectiveness. The GPN would show all International Competitive Bidding (ICB) for works and goods contracts and all International consulting services. Specific procurement Notices (SPN) for all goods and works to be procured under ICB and Expressions of Interest (EOI) for all consulting services to cost the equivalent of US\$200,000 and above would also be published in the UNDB, dgMarket as well as in the national press.

22. **Procurement of Goods/Supply and Installation:** The Design-Build Contract for the implementation of the OMVS Félou Hydroelectric Project combines civil works and goods under a single responsibility contract. Procurement will be done using the Bank's SBD (Supply and Installation of Plant and Equipment) appropriately modified to reflect the requirement of single responsibility date-certain, fixed-price, turnkey contract to design, build, commission and confirm the performance of such integrated package of civil works, electro-mechanical equipment and transmission facilities, especially the risks associated with such contracts. Procurement of this output-based contract will be done in two stages with pre-qualification of prospective bidders.

23. **Selection of Consultants:** The Borrowers' Implementing Agencies will select and hire consultants to provide engineering, technical, procurement and contract management support and supervision assistance. The Borrowers' Implementing Agencies will also select and hire firms and/or individual consultants to assist the CTPI of the OMVS Power System. Consultancy services by firms estimated to cost above US\$100,000 per contract and US\$50,000 in the case of individuals and all single source selection of consultants will be subject to prior review by the

Bank. Short lists of consultants for services estimated to cost less than US\$200,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. The Bank's Standard Request for Proposals will be used for the selection of firms for all consulting assignments.

Training, Workshops, Seminars and Conference

24. Training activities will comprise workshops and training in the region and abroad, based on individual needs as well as group requirements, on-the-job training, and hiring consultants for developing and training materials and conducting training. All training and workshop activities will be carried out on the basis of approved annual programs that will identify the general framework of training activities for the year, including: (i) the type of training or workshop; (ii) the personnel to be trained; (iii) the institutions which will conduct the training and (iv) the venue and duration of the training

25. **Operating Costs:** Not applicable.

B. Procurement Capacity Assessment

26. Procurement activities will be carried out by the OMVS. A formal assessment of the capacity of the OMVS to implement procurement actions for the project has been carried out and finalized on February 20, 2006 in accordance with Procurement Services Policy Group (OCSPR) guidelines, dated August 11, 1998. The assessment reviewed the organizational structure for implementing the program, the institutional arrangements and the capacity for procurement. The assessment revealed that OMVS had already recruited a Procurement Specialist who has significant experience in World Bank operations.

27. The additional recommendations are as follows: (i) preparation of a procurement plan for the first 18 months of project implementation and a regular annual updating of a such plan to reduce the risk of extended project duration; (ii) provision of procurement training workshops at the Procurement Institutions (CESAG and ISADE in Dakar) for the new Procurement Specialist to be recruited; and (iii) annual technical and financial audits specific to procurement.

Schedule of actions to be carried out:

Action to be undertaken	Dates	Responsible Institution
Participation in procurement training workshop at specialized institutions	January 2007	OMVS HC
Annual technical and financial audits specific to procurements	Annual	External Auditors

28. The OMVS HC will be equipped with the "Client Connection" software and accessibility, to allow for streamlined procurement and disbursement procedures. The overall project risk for procurement is rated as moderate.

29. The overall project risk for procurement is rate as **Average**.

C. Procurement Implementation Arrangement

30. The overall coordination of procurement activities described below will be done by OMVS High Commission. OMVS will seek the “no objection” of IDA for all contracts subject to prior review.

31. **Design-Build Contract:** The OMVS asset holding entity – SOGEM/ AGP-OMVS – will outsource the entire project implementation cycle for the OMVS Félou Hydroelectric Project to an independent contractor (“**the Design-Build Contractor**”) under a single responsibility, date-certain, fixed price turnkey contract under which payments would be made based on pre-specified outputs. The Design-Build Contractor will be selected through an international competitive bidding process. After a successful two-year performance testing period, the use and control of the fully operational OMVS Félou Hydroelectric Project will be transferred through SOGEM/AGP-OMVS to the OMVS Power System Operator.

32. **Two-Stage “Project Cycle Management” Contract:** The OMVS HC will retain the services of an experienced engineering consulting firm to provide comprehensive project cycle management support through a two-phase sequential contracting arrangement as follows:

- (a) **Phase 1 “Transaction Adviser” Contract** – This is currently underway with funding from PPF Q475-0-SE). The consulting firm is providing transaction advice and **support required by the OMVS HC and SOGEM/AGP-OMVS to: (a) perform detailed** planning and scheduling of project implementation arrangements, including pre-qualification of prospective bidders, (b) prepare and issue bidding documents for the selection of the DBOT contractor, and (c) conduct the two-stage bidding process, evaluate bids and make recommendation for the award of the Design-Build Contract. The expected duration of the Phase 1 Contract is 9-12 months.
- (b) **Phase 2 “Owners Engineer” Contract** – This phase begins when of the Design-Build Contract is awarded and signed. Subject to satisfactory performance during the Phase 1 Contract, the OMVS HC and SOGEM/AGP-OMVS plan to retain the same consulting firm to oversee the day-to-day performance of the Design-Build Contractor over the entire “design-build-performance testing” cycle.

D. Procurement Plan

33. The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Project Team on June 5, 2006 and will be available at the OMVS and at the World Bank Office (HQ and Country Office). It will also be available in the project’s database and in the Bank’s external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

E. Publication of Results and Debriefing

34. ON-line (DG Market, UN Development Business, and /or Client Connection) publication of contract awards would be required for all ICB, NCB, Direct Contracting and the Selection of Consultants for contracts exceeding a value of USD 200,000. In addition, where prequalification has taken place, the list of pre-qualified bidders will be published. With regard to ICB, and large-value consulting contracts, the Borrower would be required to assure publication

of contract awards as soon as IDA has issued its “no-objection” notice to the recommended award. With regard to Direct Contracting and NCB, publication of contract awards could be in aggregate form on a quarterly basis and in local news papers. All consultants competing for an assignment involving the submission of separate technical and financial proposals, irrespective of its estimated contract value, should be informed of the result of the technical evaluation (number of points that each firm received) before the opening of the financial proposals. The OMVS would be required to offer debriefing to unsuccessful bidders and consultants should the individual firms request such a debriefing.

F. Fraud, Coercion and Corruption

35. All procuring entities as well as bidders, suppliers and contractors shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraphs 1.15 and 1.16 of the Procurement Guidelines and paragraphs 1.25 and 1.26 of the Consultants Guidelines.

E. Frequency of Procurement Supervision

36. In addition to the prior review supervision to be carried out from Bank team, the capacity assessment of the Implementing Agency has recommended that at least one supervision mission should take place each year, to visit the field to carry out post review of procurement actions.

F. Details of the Procurement Arrangements Involving International Competition

37. A detailed procurement plan for the 18 months of implementation was prepared at appraisal and finalized at negotiations. The agreed thresholds for procurement methods and Bank prior review are as follows:

1. Goods, Works, and Non Consulting Services

(a) List of contract packages to be procured following ICB and direct contracting:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost US\$	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date	Comments
1	Design-Build Contract for the OMVS Férou Hydroelectric Project	\$100 million	ICB	Y	No	Prior	December 2007	Two-stage bidding
2	S&I Contract for the CTPI SCADA/EMS and communication systems	\$6 million	ICB	Y	No	Prior	September 2007	
3	Software Licenses and Support Services	\$0.5 million	ICB	Y	No	Prior	TBD	

(b) ICB contracts and all direct contracting will be subject to prior review by the Bank.

2. Consulting Services

(a) List of consulting assignments with short-list of international firms.

1	2	3	4	5	6	7
Ref. No.	Description of Assignment	Estimated Cost US\$ equivalent	Selection Method	Review by Bank (Prior / Post)	Expected Proposals Submission Date	Comments
1	Project Cycle Management – Stage 1	450,000	QCBS	Prior	January 2006	Ongoing
2	Project Cycle Management – Stage 2	1,550,000	QCBS	Prior	January 2007	
3	Environmental & Social Impact Assessment of Félou HEP	150,000	QCBS	Prior	September 2005	Done

Note. QCBS: Quality and Cost Based Selection

IC: Individual Consultant (*) Three IC will be recruited to provide technical, institutional restructuring and capacity building support

(b) Consultancy services by firms estimated to cost above US\$ 100,000 per contract and US\$ 50,000 per contract in the case of individuals and all single source selection of consultants will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US\$ 100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 9: Economic and Financial Analysis
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Economic Analysis

1. The 59MW hydropower plant to be constructed at Félou is a run-off-river plant at a site about 200 km downstream of the hydropower dam of Manantali on the river Senegal and about 15 km from the town of Kayes (population at 86,500 in 2003). This OMVS second generation plant will be connected to a 225 kV transmission system, which links Dakar (Senegal), Nouakchott (Mauritania) and Bamako (Mali). Félou takes advantage of an existing dam and excess transmission capacity available in the OMVS network. At this existing site a micro-hydropower plant at 600 kW currently produces about 2.5 GWh of electricity annually.
2. The feasibility study (Coyne and Bellier, 2003) for the 59MW Félou hydropower plant indicates that at a flow rate of 500m³/s and with 3 – 4 units installed, Félou is capable of generating approximately 320 – 350GWh electricity per year, which corresponds to a 60% utilization of the plant. The costs were estimated at Euro80.5 million. From December to July the flow is limited by release from Manantali, generally 150 – 200 m³/s, i.e. about 1/3 of design. In the wet season from August until November flow generally exceeds the 500 m³/s design capacity of the hydropower plant. During this period the plant can operate continuously at full load. The hydrological analysis in the feasibility analysis is based on the average inflows estimated on the basis of the 1950 – 1999 period. Six scenarios are developed using different management plans for the Manantali hydropower plant, which is upstream of Félou and determines the water available for Félou.
3. Félou will provide daily and seasonal energy exchanges to these three countries based on an electricity sharing rule, which is likely to be shaped along the lines of the rules in force for the 200 MW hydropower plant at Manantali, Mali, which is also a joint investment of all three states.
4. **Alternatives.** Alternatives to constructing this hydropower plant would be the construction of thermal (diesel or HFO) power plant in Mali and Senegal or CCGT in Mauritania closer to the countries' respective load centers. However, the construction of Félou at 4-5 UScents/kWh (3.2 – 3.6 Eurocents) is least cost compared to these alternatives (Coyne and Bellier, 2003).
5. **Project Benefits and Costs.** The EIRR of the project is robust at 32%, as compared with the assumed economic opportunity cost of capital of 10%. The EIRR for Mali, Mauritania, and Senegal are 32%, 31% and 31% respectively, and are equally robust compared to the opportunity cost of capital at 10%. The table below presents a breakdown of the results.
6. The primary quantifiable **economic benefits** of the project for the different countries include:
 - ❖ Mali
 - Increased supply of electricity;
 - Reduced CO₂ emissions and carbon revenues;
 - ❖ Mauritania

- Increased supply of electricity;
- Reduced CO₂ emissions and carbon revenues;

❖ Senegal

- Increased supply of electricity;
- Reduced CO₂ emissions and carbon revenues;

7. The main project benefit, the electricity generated at Félou, will be shared between the shareholder countries Mali, Mauritania and Senegal. In the context of the economic analysis, the assumption is that the electricity generated by Felou will be equally shared by the three shareholder countries on the basis of the total IDA financing of US\$75 million divided in a prorata of US\$25 million for each country. The rules for allocation of electricity for Félou will be defined and decided by the decision makers of OMVS namely the Council of Ministers and the Heads of State Conference. The co-financing in a total amount of about US\$ 40million will leverage the electricity allocation between the three shareholder countries using the existing OMVS burden sharing formula in a consensus basis. . The sharing of a common power plant formally would also entail the reduction in the need of spinning reserve requirement for the three countries. However, as these countries *de facto* do not dispose of spinning reserve, this aspect is not of practical relevance in this case.

8. The primary quantifiable **economic costs** are the total investment costs, the O&M costs and various other costs. The investment costs include the construction of the machinery and equipment, buildings, and land purchase. The O&M costs include mainly repair and maintenance costs.

Table A9.1: Economic Analysis for Félou (in US\$, NPV at 10%)

	Mali	Mauritania	Senegal	Global
Costs	36,576,871	36,576,871	36,576,871	109,730,612
Benefits	121,735,217	104,838,742	104,838,742	373,412,701
Net Benefits	85,158,347	68,261,871	68,261,871	221,682,089
EIRR	32%	28%	28%	30%

Note: A discount rate of 10% is assumed to calculate the present values for the economic analysis. The figures above assume a high hydrology of Félou, which generates about 350GWh electricity per year. Input data needs to be confirmed at appraisal. The results of the economic analysis are provided on an indicative basis and will be further elaborated by the electricity allocation arrangements.

9. **Main assumptions.** All values are of the year 2006 and where appropriate have been discounted to 2006 at the rate of 10%. The demand projection for this analysis is based on data from the 2004 WAPP Masterplan and detailed dataset. Projected supply takes the current generation park as given. Hydropower is assumed to be supplied at its 95% confidence level, except in years of exceptional drought. In line with the assumption of the lifetime of the transmission line the project is evaluated over a 40 year time horizon. Benefits itemized by benefits category are summarized in table 3. For the conversion of investment and O&M costs from Euro into US Dollar a rate of 1.25 Euros/US\$ was applied.

10. **Investment cost stream.** The flow of capital investments was taken from the base cost estimate for the project, excluding taxes, duties and price contingencies. Timing was based on the

implementation schedule, which assumes that 50% of the construction will be undertaken in 2007 and the remainder of the investment will be undertaken in 2008. The hydropower plant at Félou is assumed to have a lifetime of 40 years.

11. **Benefits stream.** The main benefits derive from:

(i) *Increased supply of electricity:* Depending on the hydrology prevailing, the feasibility study has estimated the available electricity to range between 320 and 350 GWh per year. This is estimated on the basis of a 95% confidence level. The benefits of this guaranteed electricity supply has been valued at the ECOWAS/regional cost of unserved energy of UScents 14 (Masterplan, 2004). At oil price levels prevailing in early 2006 of US\$60 per barrel this appears low and is likely an underestimate of the benefits. Benefit streams are allocated in accordance with the electricity sharing rules. Both Senegal and Mauritania incur transmission losses due to the long transmission line westward serving the load centers of Dakar and Nouakchott. At a maximum load of 150MW the line is estimated to incur 20% losses, while at 50MW the line is estimated to incur 8% losses of electricity. For the purpose of this economic analysis an average value of 14% losses was used.

(ii) *Reduced CO₂ emissions:* Environmental externalities that are reduced through the use of a renewable energy include global, regional and local pollutants such as carbon dioxide, sulphur oxide, carbon monoxide and particulates. In order to calculate the emission reductions, the project generation output is compared to a baseline scenario. This scenario assumes that electricity delivered to the grid by the project would have otherwise been generated by existing grid-connected power plants and addition of new generation sources.. The emission reduction potential is based on the combined margin approach for Mali, which yields a value of 0.375 mtCO₂/MWh. Benefits have been estimated at the average price for carbon credits on the international greenhouse gas market in 2005 at US\$6.5 per ton of CO₂.

Table A9.2: Benefits by Category (in US\$, NPV at 10%)

	NPV (US\$)
Mali	
Increased supply of electricity	205,925,795
Reduced CO ₂ emissions	1,663,586
Mauritania	
Increased supply of electricity	51,085,438
Reduced CO ₂ emissions	138,427
Senegal	
Increased supply of electricity	112,387,963
Reduced CO ₂ emissions	304,540
The results of the economic analysis are provided on an indicative basis and will be further elaborated by the electricity allocation arrangements.	

12. **Sensitivity analysis/switching values of critical variables.** The switching values of the two major inputs investment costs and benefits for the OMVS Félou Hydroelectric Project (i.e. the deviation from the base case which would yield an EIRR of 10% for Mali) are summarized as below. It demonstrates that only large fluctuations in the required investment or the benefits bring the value of the EIRR down to the level of opportunity costs of capital.

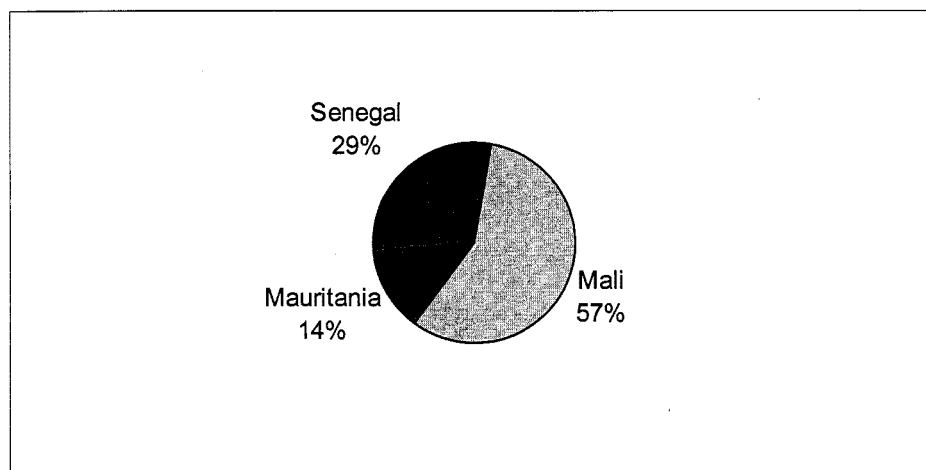
Input	Switching value (Change %)
Total Investment Costs	+ 177
Total Benefits	- 67
The results of the economic analysis are provided on an indicative basis and will be further elaborated by the electricity allocation arrangements.	

13. A sensitivity analysis was also carried out to quantify the impact of alternative cost and benefit assumptions on the EIRR for the participant countries and the global EIRR. The results are summarized below:

	Change (%)	EIRR Mali (%)	EIRR Mauritania (%)	EIRR Senegal (%)	Global EIRR (%)
Total Investment Costs	+ 25	29	26	25	27
Hydrology	- 25	27	24	23	25
Discount rate	+ 50	35	31	30	33
Transmission Losses	+ 50	35	29	28	32
The results of the economic analysis are provided on an indicative basis and will be further elaborated by the electricity allocation arrangements.					

14. The table illustrates again the robustness of results. The EIRR is most sensitive to relative changes in the hydrology. This reflects their relative magnitudes in the calculation. The chart below shows how net benefits of the Project are being shared among the three participant countries.

Chart 1: Sharing of the Project Net Economic Benefits (on a NPV Basis)



Financial Assessment

15. **Key Assumptions:** The proposed Félou project was appraised as a stand-alone entity. Key assumptions used in the appraisal included:

- Assumptions regarding the timing and investment costs of the project are shown in the table below. The expected completion date is summer of 2010.

Project Investment Plan (US\$ million) excluding IDC	Total	2007	2008	2009	2010
Design-Build Turnkey Contract	106.30	10.63	42.52	37.21	15.95
Construction Supervision	4.20	1.05	1.05	1.05	1.05
SCADA/EMS	7.50	1.88	3.38	2.25	-
Site Preparation	1.10	1.10	-	-	-
Environmental Mitigation	1.00	-	0.40	0.50	0.10
Total	120.10	14.66	47.35	41.01	17.10

- Output from the project was valued at the current tariff. The split of power deliveries between Mali, Mauritania and Senegal was based on the same assumptions as the economic analysis. First power was assumed in 2010, at a level equivalent to 50% of average annual projected output.
- Tariffs and operating and sales expenditures were assumed to remain constant in real terms.
- The financing plan presumes an IDA Credit of US\$75 million equivalent, an EIB loan of Euros 33 million, and counterpart funding of Euros 8 million (US\$10 million) equivalent. A portion of the IDA credit (US\$2.5 million equivalent) would be passed on to the project in the form of a grant. The balance of the credit would be on-lent at an interest rate of 4.5% with repayment over 20 years including 5 years grace. The EIB loan is assumed to carry an interest rate of 5.0%, and to be repayable over 20 years, including 5 years grace.

16. **Financial Internal Rate of Return:** The expected Financial Internal Rate of Return (FIRR) of the project is a satisfactory 18.0%. Net Present Value at a 10% discount rate is projected at 27.5 billion FCFA (US\$49.6 million). The switching analysis indicates that the project can tolerate up to a 43% drop in average revenues and still maintain a 10% FIRR. Alternatively, it can tolerate up to an 80% increase in capital costs without falling below the 10% benchmark FIRR.

17. **Pro Forma Financial Statements:** Pro Forma financial statements for the project entity are shown in the following tables. The pro forma statements, particularly the cash flow projections, indicate that the project would be financially viable on a stand-alone basis at current (real) tariff levels. During construction, cash flow deficits associated with interest during construction and the funding of initial working capital are assumed to be met through owners' equity. Subsequent years show substantial cash surpluses available to defray the costs of engaging a concessionaire to operate the facility.

Férou HPP
Income Statement
(million FCFA)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Revenue from Electricity Sales	-	-	-	4,901	9,948	10,098	10,249	10,403	10,559	10,717
Capacity	-	-	-	3,187	6,469	6,566	6,664	6,764	6,866	6,969
Energy	-	-	-	8,087	16,417	16,663	16,913	17,167	17,424	17,686
Total Revenues										
Operating Expenses	-	-	-	253	513	521	529	537	545	553
Repairs and Maintenance	-	-	-	-	-	164	104	106	64	44
Selling Expenses	-	-	-	-	-	2,693	2,693	2,693	2,693	2,693
Depreciation	94	292	479	1,112	2,693	2,693	2,693	2,693	2,693	2,693
Total Operating Expenses	94	292	479	1,365	3,207	3,379	3,327	3,336	3,303	3,290
Operating Margin	(94)	(292)	(479)	6,722	13,210	13,284	13,587	13,831	14,122	14,396
Interest Expenses	158	894	1,988	2,717	2,929	2,929	2,734	2,539	2,343	2,148
Net Profit before Taxes	(253)	(1,186)	(2,468)	4,005	10,281	10,355	10,853	11,292	11,778	12,248

Férou HPP
Project Balance Sheet
(million FCFA)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Assets										
Fixed Assets	2,236	4,917	21,792	66,722	66,722	66,722	66,722	66,722	66,722	66,722
Less Accumulated Depreciation	(94)	(386)	(865)	(1,977)	(4,671)	(7,364)	(10,057)	(12,751)	(15,444)	(18,137)
Capital Work in Progress	5,906	29,528	35,433	-	-	-	-	-	-	-
Current Assets										
Accounts Receivable - Trade	-	-	-	1,011	2,052	2,083	2,114	2,146	2,178	2,211
Cash	100	100	100	4,238	16,204	25,048	34,390	44,170	54,437	65,172
Total Assets	8,147	34,158	56,460	69,993	80,307	86,489	93,169	100,288	107,893	115,968
Liabilities and Equity										
Owner's Equity	1,258	2,942	5,641	5,863	5,863	5,863	5,863	5,863	5,863	5,863
Subsidies/Grants	347	694	1,042	1,389	1,389	1,389	1,389	1,389	1,389	1,389
Retained Earnings	(253)	(253)	(1,439)	(3,906)	98	10,380	20,735	31,587	42,880	54,658
Add Profit from Current Period	(253)	(1,186)	(2,468)	4,005	10,281	10,355	10,853	11,292	11,778	12,248
Total Equity	1,353	2,197	2,776	7,351	17,632	27,987	38,840	50,132	61,910	74,158
Long Term Loans	6,794	31,961	53,683	62,611	62,611	58,437	54,263	50,089	45,915	41,741
Current Liabilities										
Accounts Payable - Trade	-	-	-	32	64	65	66	67	68	69
Total Liabilities and Equity	8,147	34,158	56,460	69,993	80,307	86,489	93,169	100,288	107,893	115,968

Férou HPP
Cash Flow
(million FCFA)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Net Profit Operations	(94)	(292)	(479)	6,722	13,210	13,284	13,587	13,831	14,122	14,396
Adjust for Depreciation	94	292	479	1,112	2,693	2,693	2,693	2,693	2,693	2,693
Borrowings	6,794	25,167	21,722	8,928	-	-	-	-	-	-
Grants/Subsidies	347	347	347	347	-	-	-	-	-	-
Equity Additions	1,258	1,683	2,700	222	-	-	-	-	-	-
Total Sources of Funds	8,400	27,197	24,769	17,331	15,904	15,978	16,280	16,524	16,815	17,089
Capital Investment	8,142	26,303	22,781	9,497	-	-	-	-	-	-
Debt Service	158	894	1,988	2,717	2,929	2,929	2,734	2,539	2,343	2,148
Interest	-	-	-	-	-	4,174	4,174	4,174	4,174	4,174
Principal Repayment	-	-	-	979	1,009	30	30	31	31	32
Increase(decrease) in Working Capital	-	-	-	-	-	-	-	-	-	-
Total Application of Funds	8,300	27,197	24,769	13,194	3,938	7,133	6,938	6,743	6,549	6,354
Net Change in Cash Position	100	-	-	4,138	11,966	8,845	9,342	9,781	10,266	10,735
Cash at Beginning of Period	100	100	100	100	4,238	16,204	25,048	34,390	44,170	54,437
Cash at End of Period	100	100	100	4,238	16,204	25,048	34,390	44,170	54,437	65,172

Annex 10: Safeguard Policy Issues

AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

1. The investment to be financed under this WAPP APL 2 project has been categorized as “A” under OP4.01 since it is a hydroelectric plant.
2. For civil works, the OMVS Félou Hydroelectric Project requires the rehabilitation of the existing weir (without modification of sill elevation), the excavation of a canal to carry the turbine capacity of 500 m³/s, construction of a new hydropower station with 3 x 21 MW bulb turbine for a maximum capacity of 59 MW, the connection of the power station with the HT network interconnected at the existing substation of Medina, about 10 km to the south-east of the village of Kayes, and of an access road to the site which passes by the railway siding near Medina. The railway siding, which will be used for unloading bulk construction equipment and supplies, also has to be rehabilitated. This arrangement will require the re-alignment of the road past Medina. Due to the general geological conditions of the area (compact and massive quartzite sandstone) and the modest nature of the proposed structures the OMVS Félou Hydroelectric Project does not present any significant geological and/or structural risk factors for civil works. Thus environmental concerns are limited to ensuring adequate management of potential construction impacts and attending to a possible relocation of about 2 ha of land planted with orchards and vegetable gardens.
3. An Environmental Assessment (EA) has been prepared and has been disclosed in country (project site) and in the Infoshop. The EA concludes that potential impacts of the OMVS Félou Hydroelectric Project are minimal on fisheries resources, food security of the local villagers near the project site and public health, especially bilharzia, and HIV/Aids. Moreover, local villagers will continue to have access to bathing and washing facilities.
4. About 2 ha of land planted with orchards and vegetable gardens need to be acquired for project facilities: a new channel and a new road. A Resettlement Action Plan has been prepared and disclosed in country (project site) and in the Infoshop.
5. The Félou Hydropower Project will rehabilitate and existing two meter high weir. An analysis has indicated that there are no dam safety issues. OMVS has provided the Bank with satisfactory Dam Safety Certificates for the upstream Manantali Dam (the Félou HEP will use water from the Manantali Dam).
6. The project is part of the overall OMVS program which is fully owned by the four riparian countries. All riparian countries of the Senegal River have been notified in accordance with OMVS notification procedure which meets the requirements specified in OP 7.50, as has been standard for other projects in the Senegal River Basin.

Annex 11: Project Preparation and Supervision
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

	Planned	Actual
PCN review		12/15/05
Initial PID to PIC		12/30/05
Initial ISDS to PIC		02/06/06
Appraisal	04/20/06	04/18/06
Negotiations	05/10/06	06/05/06
Board/RVP approval	06/27/06	
Planned date of effectiveness	10/30/06	
Planned date of mid-term review	06/30/08	
Planned closing date	06/30/10	

Key institutions responsible for preparation of the project:

- OMVS High Commission (Organisation pour la Mise en Valeur du Fleuve Sénégal)
- SOGEM (Société de Gestion de l'Energie de Manantali)
- WAPP General Secretariat

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Amarquaye Armar	Lead Energy Specialist – WAPP Team Leader	EWDEN
Ousmane Dione	Sr. Water Resources Management Specialist	AFTU2
Fanny Missfeldt-Ringius	Energy Economist	AFTEG
Robert Robelus	Sr. Environmental Specialist	AFTS1
Sidi Mohammed Boubacar	Sr. Counsel	LEGAF
Mohammed Khatouri	Sr. Monitoring and Evaluation Specialist	AFTKL
Renee Desclaux	Finance Officer	LOAG2
Ramon Lopez-Rivera	Consultant – Power Engineer	AFTEG
Yvette Djachechi	Sr. Social Development Specialist	AFTS3
Federico Ciampitti	Consultant – Hydropower Specialist	AFTEG
R. Gopalkrishnan	Consultant – Procurement Specialist	EAPCO
Aissata Zerbo	Procurement Analyst	AFTU2
Nestor Coffi	Sr. Financial Management Specialist	AFTFM
Fily Sissoko	Sr. Financial Management Specialist	AFTFM
Margaret Wilson	Consultant – Financial Economist	AFTEG
Marie-Adele Tchakounte-Sitchet	Sr. Program Assistant	
Rita Ahiboh	Program Assistant	AFTEG
Quality Assurance Team/Peer Reviewers		
Cecile Ramsay	Operations Adviser	AFTOS
Kari Nyman	Lead Specialist	ECSIE
Philippe Benoit	Lead Specialist	AFTEG

Bank funds expended to date on project preparation:

1. Bank resources: USD 143,000
2. Trust funds: 0
3. Total: 143,000

Estimated Approval and Supervision costs:

1. Remaining costs to approval: USD 54,000
2. Estimated annual supervision cost: USD 75,000

Annex 12: Carbon Finance Project
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

1. The WAPP APL 2 – OMVS Félou Hydroelectric Project is potentially eligible under the Kyoto Protocol's Article 12, which establishes the Clean Development Mechanism (CDM) enabling public and private sector parties in industrialized countries to invest in greenhouse gas mitigation projects to be implemented in developing countries. The CDM enables investors to receive a credit toward their emission reductions target under the Kyoto Protocol and associated regional agreements, such as the European Union Greenhouse Gas Emission Trading Scheme (EU ETS), which entered into force on January 1, 2005.
2. Mali, project host country, has ratified the Kyoto Protocol on March 28, 2002 and has established a Designated National Authority (DNA). Mali is thus eligible to act as a host country for greenhouse gas mitigation projects implemented under the CDM. The Malian DNA is well informed about this project and approves it. It is expected to formally approve the project by the end of 2006.
3. In order to calculate the emission reductions, the project generation output is compared to a baseline scenario. This scenario assumes that electricity delivered to the grid by the project would have otherwise been generated by existing grid-connected power plants and addition of new generation sources. The calculation of emission reductions is based on grid connected electricity produced in Mali; at this time, the grids of Sénégal and Mauritania have not been analyzed. Since Mali has a higher proportion of hydro-based electricity generation than Sénégal and Mauritania, it is a reasonable assumption that the emission reductions calculations are conservative. Under this assumption, the project's emission reductions could be 120,000 tons of CO₂ per year. With an indicative price of \$6.50 per ton of CO₂, the annual carbon revenues would represent \$780,000. A more exact amount will be determined after the completion of the study to estimate the emission rate of the electricity grid in the three countries.
4. The Spanish Carbon Fund (SCF), which is one of the funds managed by the World Bank, has agreed to include the project in its portfolio. The SCF will buy 80 percent of the amount of emission reductions generated by the project until 2015.
5. Due to the World Bank's experience with the CDM and the global carbon market, Bank involvement in the carbon finance project would be very significant in terms of carbon asset development and in building recognition of Mali as a CDM country as well as OMVS as a reliable carbon project sponsor. Because it would be the second CDM project in Mali (the first CDM project is Acacia Plantations), the project would help demonstrating Mali's capacity to participate successfully in this emerging market. OMVS will also benefit from this project by developing internal capacity through project-based learning-by-doing. As OMVS might be the project sponsor of other potential CDM projects, this capacity would be very important to identify and develop additional carbon projects.

Annex 13: Documents in the Project File
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

References

1. OMVS

Coyne and Bellier (2003). Organisation Pour La Mise En Valeur du Fleuve Sénégal (OMVS). Etude de faisabilité des ouvrages de seconde génération à Félou et Gouina. Rapport de Phase 2 – Félou. Analyse économique et financière.

World Bank (2005). State and Trends of the Carbon Market Study 2005. Washington

2. ECOWAS Secretariat

ECOWAS/CEDEAO (1975). Traité Révisé. Publie par le secrétariat exécutif de la CEDEAO. Abuja – Nigeria. 28 mai 1975, révisé le 24 juillet 1993. <http://www.sec.ecowas.int>

ECOWAS/CEDEAO (1999). Vingt Deuxième Session de la Conférence des Chefs d'Etat et de Gouvernement. Lomé, 9 – 10 décembre 1999. Décision A/DEC.5/12/99 relative a la mise en place d'un système d'échanges d'énergie électrique ouest africains (EEEEOA).

ECOWAS/CEDEAO (2000). Accord Relatif au Système d'Echanges d'Energie Electrique Ouest Africain (EEEEOA).

ECOWAS/CEDEAO (2001). Système d'Echanges d'Energie Electrique Ouest Africain (EEEEOA). Accord de Coopération entre les Sociétés d'Electricité des Etats Membres. 23/03/2001

ECOWAS/CEDEAO (2002). Capacity Building for the West Africa Power Pool Implementation Committee Process: Needs Assessment and Training Plan. Prepared by PA Consulting. September 2002.

ECOWAS/P A Consulting (2002). Vision Statement and Action Plan for West Africa Power Pool Project. January 2002.

ECOWAS/CEDEAO (2003). ECOWAS Energy Protocol. A/P4/1/03

ECOWAS/CEDEAO (2001). 25th Session of the Authority of Heads of State and Government. Decisions A/Dec.8/12/01 Relating to the Establishment of a Mechanism of the West African Power Pool (WAPP). Dakar, December 20 – 21, 2001.

ECOWAS/CEDEAO (2003). 26th Session of the Authority of Heads of State and Government. Decisions A/Dec.17/01/03 Relating to the Adoption of an Energy Protocol for ECOWAS. Dakar, January 31, 2003.

ECOWAS/CEDEAO (2005). 28th Session of the Authority of Heads of State and Government. Decision A/Dec.7/01/05 Relating to the ECOWAS Revised Master Plan for the Generation and Transmission of Electrical Energy. Accra, January 19, 2005.

ECOWAS/CEDEAO (2006). 29th Session of the Authority of Heads of State and Government. Decision A/Dec. 18/01/06 Adopting the Articles of Agreement Relating to the Establishment and functioning of the West African Power Pool, Niamey, January 12, 2006.

ECOWAS/CEDEAO (2006). 29th Session of the Authority of Heads of State and Government. Decision A/Dec.20/01/06 Granting the Status of a Specialized Institution of ECOWAS to the West Africa Power Pool Organization. Niamey, January 12, 2006.

3. USAID Technical Assistance to WAPP General Secretariat

Nexant (2004). West Africa Regional Transmission Study. Final Report – Conclusions and Recommendations. April 2004. Presentation for USAID, and ECOWAS Secretariat.

Nexant (2004). Final Report. West Africa Regional Transmissions Stability Study. Project Inception Report. Prepared for USAID, and the ECOWAS Secretariat, Washington.

Nexant (2004). Final Report. West Africa Regional Transmissions Stability Study. Volume 2: Master Plan. Prepared for USAID, and the ECOWAS Secretariat, Washington.

Nexant (2004). Final Report. West Africa Regional Transmissions Stability Study. Volume 3: Stability Study and Operational Analysis. Prepared for USAID, and the ECOWAS Secretariat, Washington.

Nexant (2004). Final Report. West Africa Regional Transmissions Stability Study. Volume 4: Implementation Strategy. Prepared for USAID, and the ECOWAS Secretariat, Washington.

Nexant (2004). Final Report. West Africa Regional Transmission Study. Project Summary Report. Prepared for USAID, and the ECOWAS Secretariat, Washington.

Annex 14: Statement of Loans and Credits
AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Operations Portfolio (IBRD/IDA and Grants)

As Of Date 06/06/2006

Closed Projects 16

IBRD/IDA *

Total Disbursed (Active)	56.04
of which has been repaid	0.00
Total Disbursed (Closed)	306.29
of which has been repaid	337.06
Total Disbursed (Active + Closed)	362.33
of which has been repaid	337.06
Total Undisbursed (Active)	698.20
Total Undisbursed (Closed)	0.00
Total Undisbursed (Active + Closed)	698.20

Active Projects

Project ID	Project Name	Last PSR		Fiscal Year	Original Amount in US\$ Millions				Difference Between Expected and Actual Disbursements**		
		Supervision Rating			IBRD	IDA	GRANT	Cancel.	Undisch.	Orig.	Frm Rev'd
		Develop. Objectives	Implem. Progress								
P090406	3A-ARCAN SIL	U	U	2005		10			7.794542	2.0784182	
P092473	3A-Afr Emergency Locust Prj	MS	MS	2005		59.5			50.61545	11.590667	
P072681	3A-BEAC Reg Payment System	S	S	2003		14.5			7.840638	5.13672	
P079734	3A-E Afr Trade & Transp Facil	S	S	2006		199.02			199.3489		
P070547	3A-GEF Gmdwtr & Drght Mgmt TAL	S	S	2005			7		7	0.41733	
P070252	3A-GEF Lake Chad Basin	MS	MS	2003			2.9		2.372181	2.301717	0.972181
P070256	3A-GEF Niger River Basin	S	S	2004			6		5.107966	1.657966	
P070073	3A-GEF Nile Transbound Env Action	S	MU	2003			15.18		12.66369	8.539892	
P064573	3A-GEF Senegal River Basin	S	S	2004			5.26		3.623725	1.5986252	
P074850	3A-HIV/AIDS Abidjan Lagos Trnspt	S	S	2004		16.6			7.060867	2.7242109	
P080413	3A-HIV/AIDS Great Lakes Init APL	S	MS	2005		20			19.73951	3.2116788	
P082613	3A-Regional HIV/AIDS Treatment Prj	S	S	2004		59.8			41.7107	24.581126	
P069258	3A-Southern Afr Power Mkrt APL 1	MS	MS	2004		178.6			189.5572	128.57245	
P063683	3A-Trade Facil SIL	MS	MS	2001		10			4.769622	-0.310422	
P074525	3A-WAEMU Capital Markets Dev FIL	MS	MS	2004		96.39			95.71909	51.148012	19.34801
P075994	3A-WAPP Phase 1 APL 1	S	S	2005		40			39.46698		
P083751	3A-West & Central Afr Air Tran TAL	S	S	2006		33.57			34.58029		
Overall Result						737.98	36.34		728.9715	243.2444	20.32019

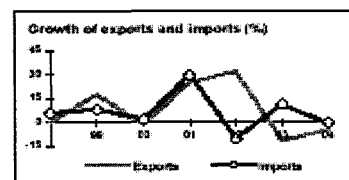
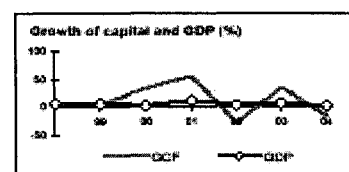
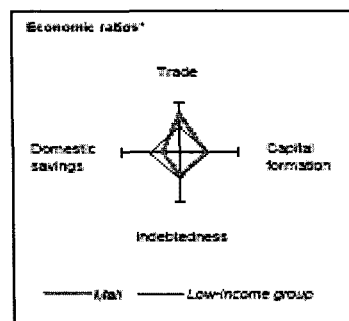
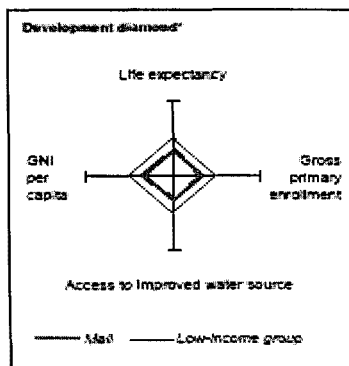
Annex 15: Country at a Glance

AFRICA: WAPP APL 2 - OMVS Félou Hydroelectric Project

Mali at a glance

8/25/05

POVERTY and SOCIAL	Mali	Sub-Saharan Africa	Low-income		
2004					
Population, mid-year (millions)	11.9	7.19	3,338		
GNI per capita (Atlas method, US\$)	370	600	510		
GNI (Atlas method, US\$ billions)	4.4	432	1,184		
Average annual growth, 1988-04					
Population (%)	2.4	2.2	1.8		
Labor force (%)	2.0	1.0	2.1		
Most recent estimate (latest year available, 1998-04)					
Poverty (% of population below national poverty line)	64	..	..
Urban population (% of total population)	33	37	31		
Life expectancy at birth (years)	41	46	58		
Infant mortality (per 1,000 live births)	122	101	79		
Child malnutrition (% of children under 5)	33	..	44		
Access to an improved water source (% of population)	48	58	75		
Literacy (% of population age 15+)	19	65	61		
Gross primary enrollment (% of school-age population)	58	56	94		
Male	66	103	101		
Female	50	88	88		
KEY ECONOMIC RATIOS and LONG-TERM TRENDS					
	1984	1994	2000	2004	
GDP (US\$ billions)	1.3	1.8	4.3	4.9	
Gross capital formation/GDP	12.3	27.3	23.9	19.7	
Exports of goods and services/GDP	17.8	23.0	27.1	28.0	
Gross domestic savings/GDP	-2.7	7.5	15.0	11.5	
Gross national savings/GDP	0.9	19.1	16.2	10.8	
Current account balance/GDP	-9.9	-8.3	-5.1	-4.5	
Interest payments/GDP	0.6	1.4	0.4	..	
Total debt/GDP	94.4	152.9	72.0	..	
Total debt service/exports	12.2	17.7	5.8	..	
Present value of debt/GDP	..	..	31.6	..
Present value of debt/exports	..	..	104.3	..
	1984-94	1994-04	2000	2004	2004-08
(average annual growth)					
GDP	2.5	6.1	7.4	3.2	5.9
GDP per capita	-0.2	3.5	4.9	-0.3	3.3
Exports of goods and services	5.5	11.8	-11.8	-5.0	5.5
STRUCTURE of the ECONOMY					
	1984	1994	2000	2004	
(% of GDP)					
Agriculture	44.2	46.4	38.0	35.6	
Industry	14.5	18.9	25.6	25.9	
Manufacturing	5.8	7.7	2.8	3.4	
Services	41.3	34.6	36.4	38.5	
Household final consumption expenditure	52.1	61.2	76.5	78.3	
General govt final consumption expenditure	10.6	11.3	8.5	10.1	
Imports of goods and services	32.8	42.5	35.9	35.2	
	1984-94	1994-04	2000	2004	
(average annual growth)					
Agriculture	5.2	3.0	17.7	-4.7	
Industry	3.2	8.4	-9.4	-0.3	
Manufacturing	5.2	-3.2	-5.5	20.8	
Services	0.9	4.8	9.1	9.1	
Household final consumption expenditure	1.5	3.2	-1.1	7.0	
General govt final consumption expenditure	3.7	7.4	133.8	16.6	
Gross capital formation	3.7	9.5	35.2	-15.2	
Imports of goods and services	2.6	7.1	11.1	-0.8	

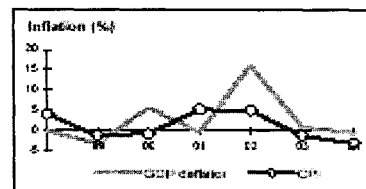


Note: 2004 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

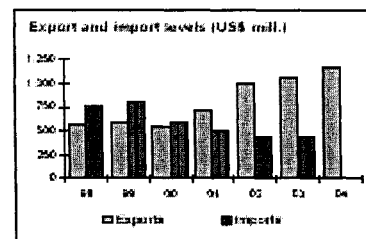
PRICES and GOVERNMENT FINANCE

	1984	1994	2003	2004
Domestic prices				
(% change)				
Consumer prices	..	24.7	-1.3	-3.0
Implicit GDP deflator	15.3	27.9	3.9	-3.5
Government finance				
(% of GDP, includes current grants)				
Current revenue	10.8	16.9	17.3	17.5
Current budget balance	-1.3	3.4	4.7	3.8
Overall surplus/deficit	-1.6	-10.4	-3.7	-6.0



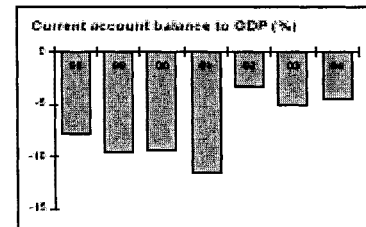
TRADE

	1984	1994	2003	2004
(US\$ millions)				
Total exports (fob)	190	357	1,054	1,158
Cotton	98	153	291	408
Gold	..	50	604	551
Manufactures	..	..	..	..
Total imports (cif)	369	629	438	..
Food	131	55	..	..
Fuel and energy	52	52	..	..
Capital goods	80	193	..	..
Export price Index (2000=100)	95	102	109	113
Import price Index (2000=100)	63	89	97	99
Terms of trade (2000=100)	150	114	112	114



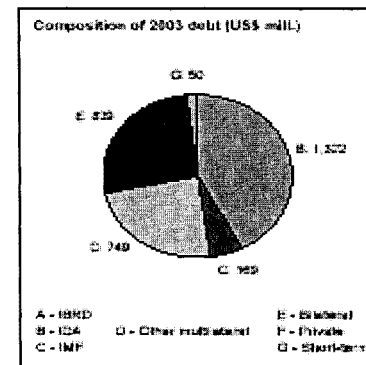
BALANCE OF PAYMENTS

	1984	1994	2003	2004
(US\$ millions)				
Exports of goods and services	233	406	1,317	1,445
Imports of goods and services	430	756	1,591	1,703
Resource balance	-198	-350	-274	-258
Net income	0	-23	-157	-153
Net current transfers	68	228	210	192
Current account balance	-130	-145	-221	-217
Financing items (net)	154	230	219	322
Changes in net reserves	-34	-87	3	-104
Memo:				
Reserves including gold (US\$ millions)	33	229	309	1,019
Conversion rate (CFA franc/US\$)	437.0	565.2	561.2	526.3



EXTERNAL DEBT and RESOURCE FLOWS

	1984	1994	2003	2004
(US\$ millions)				
Total debt outstanding and disbursed	1,237	2,695	3,129	..
IBRD	0	0	0	..
IDA	191	770	1,322	..
Total debt service	31	88	77	..
IBRD	0	0	0	..
IDA	2	12	13	..
Composition of net resource flows				
Official grants	125	221	284	..
Official creditors	104	59	159	..
Private creditors	2	-1	0	..
Foreign direct investment (net inflows)	10	17	129	..
Portfolio equity (net inflows)	0	0	0	..
World Bank program				
Commitments	51	120	0	..
Disbursements	21	93	95	..
Principal repayments	1	5	5	..
Net flows	21	87	90	..
Interest payments	1	6	6	..
Net transfers	19	82	82	..



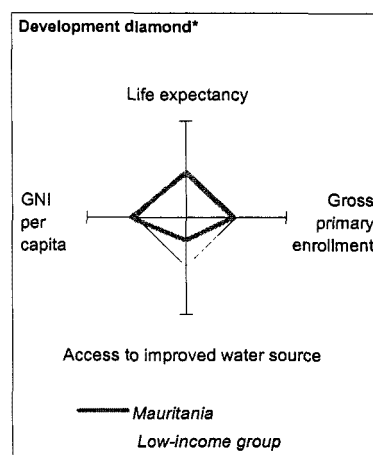
The World Bank Group: This table was prepared by country unit staff; figures may differ from other World Bank published data.

8/25/05

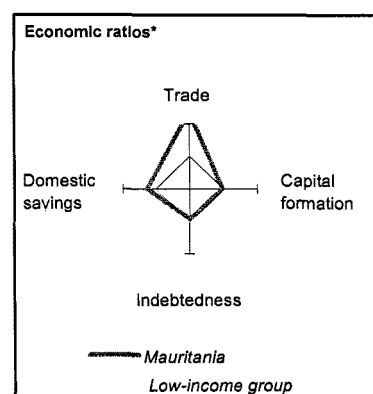
Mauritania at a glance

4/3/06

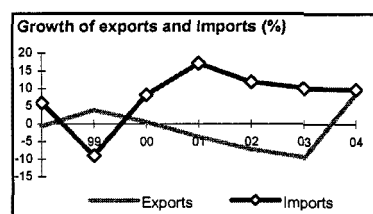
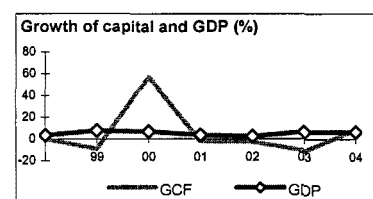
POVERTY and SOCIAL	Mauritania	Sub-Saharan Africa	Low-income
2004			
Population, mid-year (millions)	2.7	719	2,338
GNI per capita (Atlas method, US\$)	570	600	510
GNI (Atlas method, US\$ billions)	1.6	432	1,184
Average annual growth, 1998-04			
Population (%)	2.4	2.2	1.8
Labor force (%)	3.2	1.0	2.1
Most recent estimate (latest year available, 1998-04)			
Poverty (% of population below national poverty line)	46	..	..
Urban population (% of total population)	62	37	31
Life expectancy at birth (years)	54	46	58
Infant mortality (per 1,000 live births)	87	101	79
Child malnutrition (% of children under 5)	30	..	44
Access to an improved water source (% of population)	35	58	75
Literacy (% of population age 15+)	41	65	61
Gross primary enrollment (% of school-age population)	88	95	94
Male	89	102	101
Female	85	88	88



KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1984	1994	2003	2004
GDP (US\$ billions)	0.83	1.0	1.3	1.5
Gross capital formation/GDP	21.3	20.7	19.5	21.5
Exports of goods and services/GDP	39.7	42.0	26.8	29.4
Gross domestic savings/GDP	-2.7	16.9	21.3	25.4
Gross national savings/GDP	..	21.2	5.4	19.4
Current account balance/GDP	-26.1	-3.6	-18.0	-35.6
Interest payments/GDP	4.3	7.0	1.1	0.9
Total debt/GDP	158.5	216.5	133.8	123.3
Total debt service/exports	20.1	22.2	26.8	21.0
Present value of debt/GDP	..	..	46.5	41.1
Present value of debt/exports	..	..	131.3	104.6
	1984-94	1994-04	2003	2004
(average annual growth)				
GDP	2.2	4.8	6.4	6.9
GDP per capita	0.0	2.3	3.8	4.3
Exports of goods and services	-2.1	-3.1	-9.5	8.5



STRUCTURE of the ECONOMY	1984	1994	2003	2004
(% of GDP)				
Agriculture	28.6	27.0	20.0	18.3
Industry	25.4	31.1	30.4	33.6
Manufacturing	..	11.6	10.2	10.1
Services	46.0	41.9	49.6	48.1
Household final consumption expenditure	75.6	66.6	63.0	59.7
General gov't final consumption expenditure	27.1	16.5	15.7	14.9
Imports of goods and services	63.7	45.8	63.9	69.7
	1984-94	1994-04	2003	2004
(average annual growth)				
Agriculture	3.3	1.3	6.0	-2.7
Industry	2.8	2.5	5.6	5.6
Manufacturing	0.0	-6.5	6.8	6.3
Services	3.5	7.9	6.6	10.5
Household final consumption expenditure	4.2	4.9	22.2	7.0
General gov't final consumption expenditure	-3.2	7.2	3.8	8.4
Gross capital formation	-4.2	8.5	-10.8	8.3
Imports of goods and services	-5.2	4.7	10.1	9.8

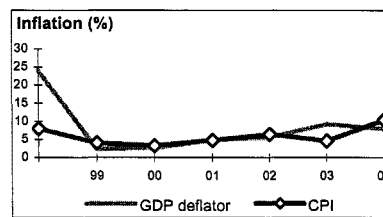


Note: 2004 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

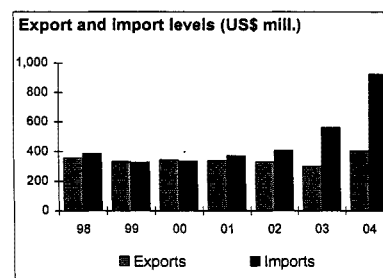
PRICES and GOVERNMENT FINANCE

	1984	1994	2003	2004
Domestic prices				
(% change)				
Consumer prices	..	4.1	4.6	10.4
Implicit GDP deflator	10.9	6.8	9.2	7.9
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	24.7	29.5	29.2
Current budget balance	..	6.7	-10.2	-2.6
Overall surplus/deficit	..	-3.1	-10.2	-2.6



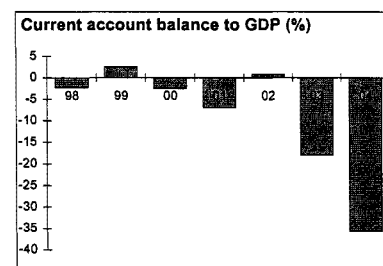
TRADE

	1984	1994	2003	2004
(US\$ millions)				
Total exports (fob)	299	393	303	408
Iron ore	144	163	172	193
Fish	148	207	145	146
Manufactures	..	..	..	..
Total imports (cif)	302	328	564	925
Food	76	95	110	114
Fuel and energy	43	36	125	122
Capital goods	85	73	61	68
Export price index (2000=100)	..	115	104	107
Import price index (2000=100)	..	101	100	100
Terms of trade (2000=100)	..	114	105	107



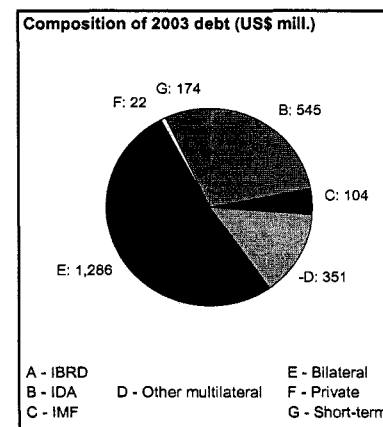
BALANCE of PAYMENTS

	1984	1994	2003	2004
(US\$ millions)				
Exports of goods and services	322	431	328	429
Imports of goods and services	480	470	753	1,196
Resource balance	-158	-39	-425	-767
Net income	-39	-53	66	101
Net current transfers	86	55	117	121
Current account balance	-218	-37	-239	-545
Financing items (net)	211	26	..	..
Changes in net reserves	6	11	..	..
Memo:				
Reserves including gold (US\$ millions)	81	44	32	39
Conversion rate (DEC, local/US\$)	63.8	123.6	265.0	265.6



EXTERNAL DEBT and RESOURCE FLOWS

	1984	1994	2003	2004
(US\$ millions)				
Total debt outstanding and disbursed	1,322	2,223	1,780	1,887
IBRD	49	13	..	..
IDA	55	301	545	546
Total debt service	67	102	126	126
IBRD	7	9	0	0
IDA	0	3	10	10
Composition of net resource flows				
Official grants	..	..	..	..
Official creditors	77	..	86	..
Private creditors	20	0	0	0
Foreign direct investment (net inflows)	9	2	214	242
Portfolio equity (net inflows)	0	..	..	..
World Bank program				
Commitments	0	20	0	0
Disbursements	5	35	42	42
Principal repayments	3	9	6	6
Net flows	2	26	36	37
Interest payments	4	3	4	4
Net transfers	-2	23	32	33



Senegal at a glance

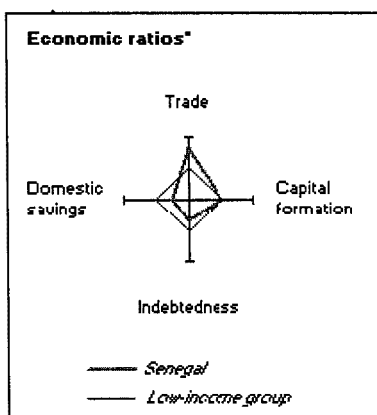
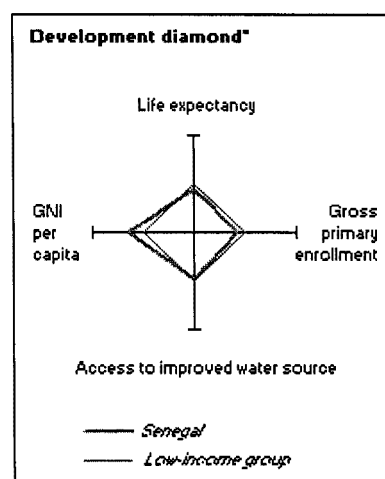
4/3/06

POVERTY and SOCIAL

	Senegal	Sub-Saharan Africa	Low-income
2004			
Population, mid-year (millions)	10.5	719	2,338
GNI per capita (Atlas method, US\$)	660	600	510
GNI (Atlas method, US\$ billions)	6.9	432	1,184
Average annual growth, 1998-04			
Population (%)	2.4	2.2	1.8
Labor force (%)	2.6	1.0	2.1
Most recent estimate (latest year available, 1998-04)			
Poverty (% of population below national poverty line)	57	..	..
Urban population (% of total population)	50	37	31
Life expectancy at birth (years)	52	46	58
Infant mortality (per 1,000 live births)	78	101	79
Child malnutrition (% of children under 5)	23	..	44
Access to an improved water source (% of population)	72	58	75
Literacy (% of population age 15+)	39	65	61
Gross primary enrollment (% of school-age population)	80	95	94
Male	83	102	101
Female	77	88	88

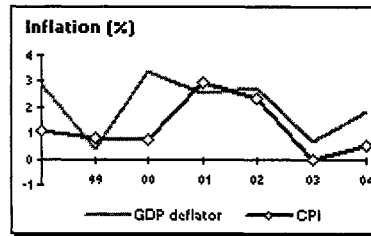
KEY ECONOMIC RATIOS and LONG-TERM TRENDS

	1984	1994	2003	2004	
GDP (US\$ billions)	2.3	3.6	6.4	7.6	
Gross capital formation/GDP	12.8	18.5	20.7	23.4	
Exports of goods and services/GDP	36.6	34.9	28.5	27.8	
Gross domestic savings/GDP	0.7	11.8	7.7	9.8	
Gross national savings/GDP	-5.0	13.5	14.2	16.7	
Current account balance/GDP	-17.9	-5.0	-6.5	-6.7	
Interest payments/GDP	4.3	2.2	1.2	..	
Total debt/GDP	94.3	100.8	..	..
Total debt service/exports	16.6	16.7	9.8	..	
Present value of debt/GDP	..	..	29.9	..
Present value of debt/exports	..	..	76.6	..
(average annual growth)					
GDP	2.1	4.4	6.5	6.2	5.3
GDP per capita	-0.6	1.7	4.1	4.0	3.4
Exports of goods and services	2.2	6.4	0.1	3.6	3.4



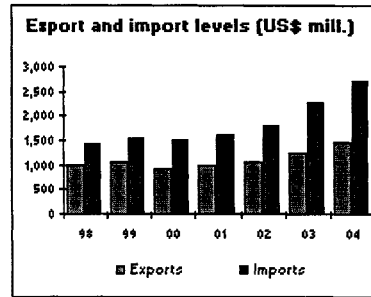
PRICES and GOVERNMENT FINANCE

	1984	1994	2003	2004
Domestic prices				
<i>(% change)</i>				
Consumer prices	12.3	32.0	0.0	0.5
Implicit GDP deflator	12.6	27.8	0.7	1.9
Government finance				
<i>(% of GDP, includes current grants)</i>				
Current revenue	19.1	18.3	20.1	19.5
Current budget balance	-1.0	2.6	5.9	5.8
Overall surplus/deficit	-5.0	-2.7	-3.0	-5.0



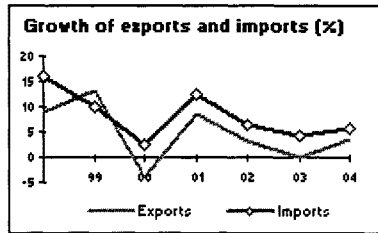
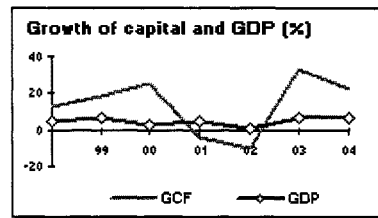
TRADE

	1984	1994	2003	2004
<i>(US\$ millions)</i>				
Total exports (fob)	598	791	1,257	1,467
Groundnut products	125	89	43	33
Phosphates	56	117	168	203
Manufactures	181	201	303	336
Total imports (cif)	931	1,161	2,280	2,711
Food	252	293	409	464
Fuel and energy	258	142	386	413
Capital goods	108	154	324	370
Export price index (2000=100)	73	107	99	99
Import price index (2000=100)	59	102	100	101
Terms of trade (2000=100)	124	105	99	98



STRUCTURE of the ECONOMY

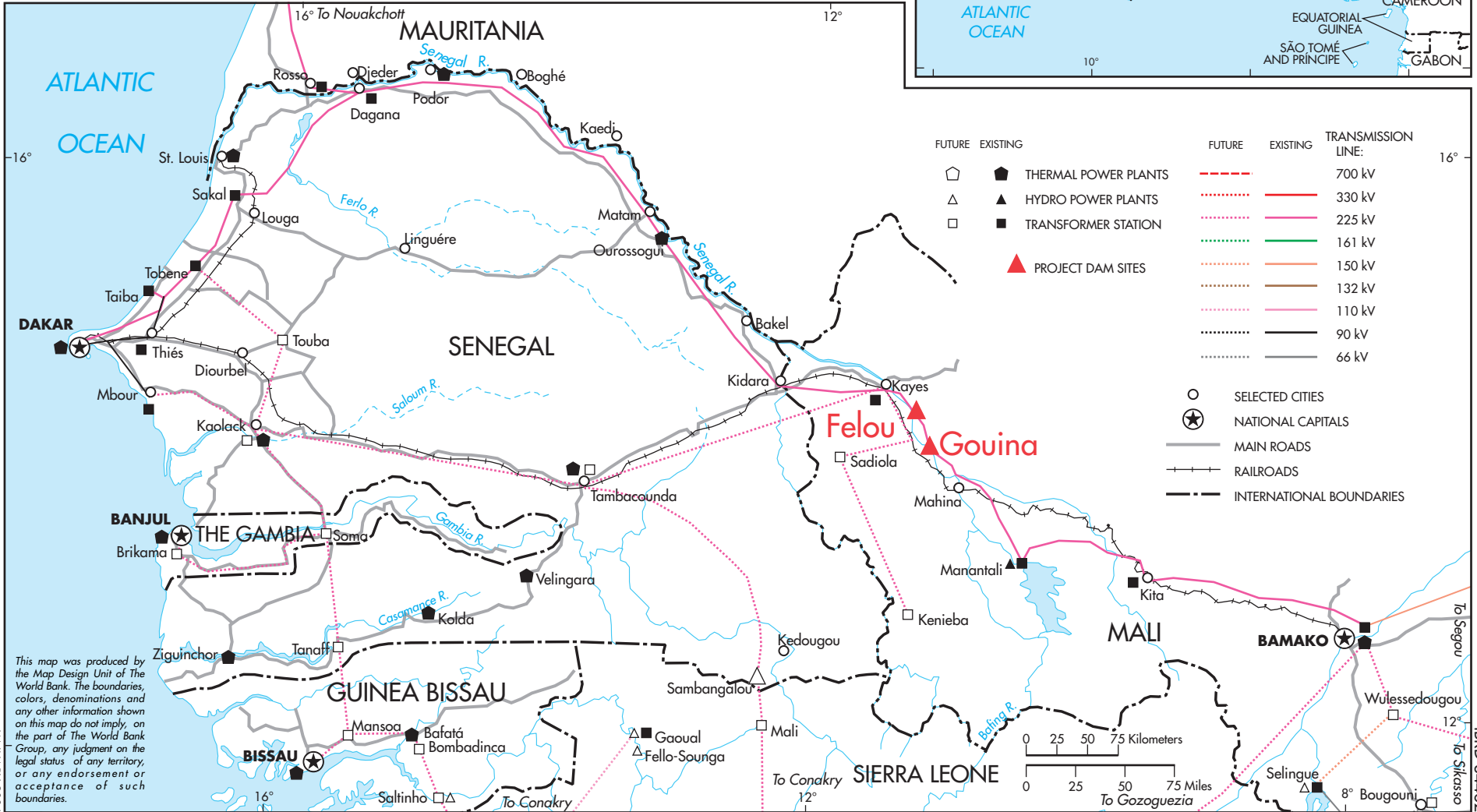
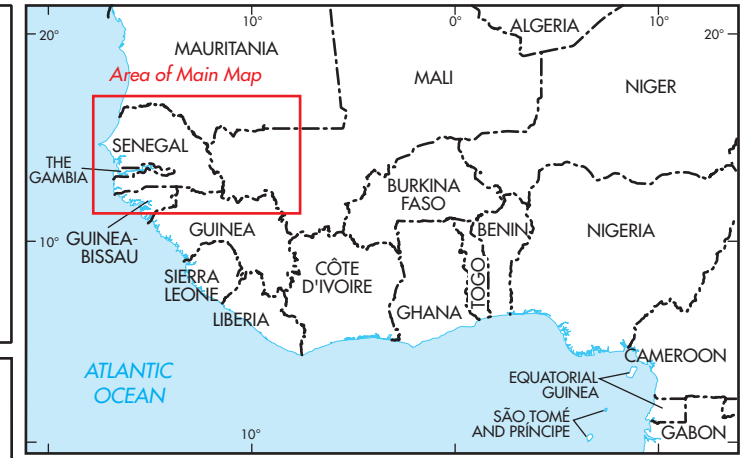
	1984	1994	2003	2004
<i>(% of GDP)</i>				
Agriculture	16.9	18.8	17.6	17.0
Industry	17.0	21.0	19.8	19.7
Manufacturing	12.1	14.4	11.7	11.5
Services	66.0	60.2	62.6	63.4
Household final consumption expenditure	80.8	75.4	78.8	76.4
General gov't final consumption expenditure	18.5	12.8	13.4	13.9
Imports of goods and services	48.7	41.6	41.5	41.5
<i>(average annual growth)</i>				
Agriculture	1.7	2.7	19.4	4.3
Industry	3.0	5.7	5.0	7.5
Manufacturing	2.7	4.6	0.7	6.5
Services	1.9	4.4	3.7	6.3
Household final consumption expenditure	1.2	2.8	1.3	0.7
General gov't final consumption expenditure	0.9	7.2	8.5	11.2
Gross capital formation	4.2	10.9	33.1	22.1
Imports of goods and services	0.0	7.5	4.1	5.7



Note: 2004 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

WEST AFRICA WEST AFRICA POWER POOL APL PROGRAM FELOU AND GOUINA HYDROELECTRIC PROJECTS, APL 2



This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.