Report Number: ICRR0023091

1. Project Data

Project ID P110481	**Project Name** ECSEE APL 5 DAM SAFETY
Country Albania	**Practice Area(Lead)** Energy & Extractives

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IBRD-81110,IBRD-88620,IDA-44800	31-Dec-2013	61,927,494.29
Bank Approval Date	**Closing Date (Actual)**	
30-Jun-2008	31-Dec-2021	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	35,300,000.00	0.00
Revised Commitment	71,800,000.00	0.00
Actual	61,927,494.29	0.00

Prepared by	Reviewed by	ICR Review Coordinator	Group
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2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) the Dam Safety Project (DSP) as articulated in the Financing Agreement (FA, page 5) was identical to the one in the Project Appraisal Document (PAD, paragraph 31) and aimed to:

"(i) contribute to safeguarding the hydroelectric dams on the Drin and Mat river cascades on the territory of the Recipient; and (ii) improve the operational efficiency of said hydroelectric dams and enhance the stability of power supply in the regional market."

Parsing the PDO. The PDO will be parsed based on the following three objectives:

1. To contribute to safeguarding the hydroelectric dams on the Drin and Mat river cascades in the territory of the Recipient.

2. To improve the operational efficiency of said hydroelectric dams.

3. To enhance the stability of power supply in the regional electricity market.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

The PDO was supported by the following two components:

1. Physical infrastructure investments (appraisal cost: US$15.70 million, actual cost: US$62.88 million). This component included three sub-components:

(a) Remedial Measures of Very High Priority: (i) Dam Safety Alarm Systems for Drin and Mat River Basins included the specification and implementation of water alarm systems in the Drin and Mat River basins (Euro 2 million); (ii) Dam Monitoring Systems for Drin and Mat River Basins included the specification and implementation of dam monitoring equipment including Geographical Positioning System (GPS), and implementation of a data acquisition system (Euro 1 million).
(b) Remedial Measures of High Priority: (i) Fierza Dam - Rehabilitation of spillway no. 3 (Euro 3 million); (ii) Fierza and Koman Geological Monitoring System- included the specification and implementation of movement/landslide alarm systems linked to GPS for identified potential geological slip zones (Euro 1.6 million); (iii) Vau i Dejes - Spillway rehabilitations and maintenance (Euro 1.8 million); (iv) KESH Dam Safety Department equipment for data archives, monitoring and documentation (Euro 0.1 million).
(c) Remedial Measures of Medium Priority and Operational Improvements: (i) Koman Dam this would include general rehabilitation of spillways 3 and 4 gate seals, stop-logs, as well as frames, cylinders and hydraulic power, and modification of outlet for spillway no. 4 (Euro 3 million); (ii) Koman Hydropower Plant would include rehabilitation of electromechanical equipment (Euro 6.3 million); (iii) Vau i Dejes and Fierza Dams would support the implementation of a Load Frequency Control system to allow for the integration of Albania's electricity system with the Union for the Coordination of Transmission of Electricity in Europe (UCTE) (Euro 1.5 million).

2. Technical Assistance and Training (appraisal cost: US$7.10 million, actual cost: US$9.34 million). This component included six sub-components:

(a) Hydrology Analysis and Water Management. The project would provide technical assistance to develop and train the Albanian Electricity Corporation (KESH) staff on an integrated water resources management approach for the management of the Drin and Mat river basins and the optimization of power dispatching and water resource management. The technical assistance was designed to: (i) improve the quality and availability of hydrological data, analysis and modeling; (ii) study the possibility of changes to operating rules to provide increased economic, environmental and social benefits, and (iii) incorporate implications of climate change in terms of hydrological profiles.

(b) Project Implementation Consultants. The project would require specialized consultants during its implementation to assist KESH with procurement, design and supervision of various contracts.

(c) Institutional Strengthening. The development of a Safety of Dams culture within KESH and the institutional strengthening of the Albanian Commission of Large Dams (AlbCOLD) was a requirement for the sustainability and long-term implementation of safety measures. Technical assistance would be provided to prepare an emergency preparedness plan and to strengthen the capacities of KESH's dam safety department and AlbCOLD.

(d) Studies for Further Hydropower Development. To address the initial upstream costs of feasibility studies this technical assistance component would finance detailed feasibility studies for new hydropower development in Albania.

(e) Financial Management Capacity Building for KESH. This sub-component would include establishing a new financial management system in KESH Gen and contribute to the allocation of assets and liabilities and creation of an opening balance sheet.

(f) Safety of Dams Experts Panel. This sub-component would finance the work of the independent panel of experts to oversee the design and implementation of various interventions in the project dams as per Safety of Dams safeguards policy.

Revised Components

1. During the first additional financing, the sub-component implementation of load frequency control was dropped.
2. The Additional Financing PAD had mentioned that additional financing was required as costs were revised following the completion of detailed inception reports for rehabilitation spillways and electromechanical equipment as well as newly identified items resulting from the spillways assessment report following the floods of 2010. The spillways underwater assessment highlighted areas that were not considered before:

i. Reinforcement of the spillway tower Nr.3 a Fierza HPP, which was not considered during the Feasibility Study (FS)

ii. Full rehabilitation of spillway gate of tunnel Nr.4 at Fierza, while the Feasibility Study included only the rehabilitation of spillway gate of tunnel Nr. 3

iii. Full rehabilitation for existing spillway gates at Vau I Dejes (Qyrsaq and Zadeja) while in the Study was considered only supplying of Vau I Dejes Maintenance (stop logs gate).

iv. Complete rehabilitation of hydromechanics equipment at Komani HPP, while at the time of preparation of the project only the emergency needs of HPP, and the missing spare parts were included.

3. The additional financing also included TA support to cover: i) Owner's Engineer and Panel of Experts contracts for the remaining period of the project, ii) the strengthening of KESH's financial management capacity; iii) support to continue strengthening the project implementing entity's dam safety department; and iv) completion of the study to assess an integrated water resources management approach for the management of the Drin and Mat river basins, as well as the optimization of power dispatching and water resources management.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost. The total project cost was estimated to be US$56.80 million equivalent. This amount was revised upwards to US$104.38 million after receiving two additional financings from the Bank, financing from European Bank for Reconstruction and Development (EBRD), and from Swiss Agency for Development & Cooperation (SDC) (see below for details). This amount was revised downwards to US$93.19 million due to lack of counterpart funding. The actual total cost of the project was US$83.31 million (ICR Data Sheet, page 2).

Financing. The project was financed through an IDA credit of US$35.3 million equivalent. The Project also received two IDA additional financings of US$21.60 million (AF1) and US$14.90 million (AF2). Total IDA financing was US$71.80 million and the actual amount disbursed was US$61.98 million. Co-financing of US$5.00 million equivalent would be provided by KESH. Parallel financing of US$16.52 million equivalent would be provided EBRD and US$7.36 million equivalent by SECO. The total amount of parallel financing was US$21.39 million and the actual amount was US$21.38 million (ICR Data Sheet, page 2).

Borrower Contribution. The borrower was expected to provide US$8.70 million of counterpart funds. According to the ICR Data sheet (page 2) none of the expected funds were contributed.

Dates. The project was approved on June 30, 2008 and became effective six months later on December 16, 2008. The Mid-Term Review (MTR) was conducted on April 7, 2016, which was about eight years after effectiveness, and about five and half years after the MTR date specified in the PAD (June 2011). The ICR (paragraph 81) attributed the rescheduled MTR to 2016 in order to "properly take stock of the situation and propose corrective actions to guide the project toward its objectives." The project closed on December 31, 2021 compared to an original date on December 31, 2013. The extension in the project by a total of eight years was to allow more time to implement activities associated with the two AFs and to accommodate implementation delays and allow more time to complete activities (ICR, paragraph 28).

The project was restructured five times including two AFs, all of which were Level 2 restructurings as follows:

1. On December 20, 2011, when the amount disbursed was US$2.50 million, in order to approve an additional financing of US$21.60 million and extend the project's closing date from December 31, 2013 to December 30, 2016.

2. On December 15, 2015, when the amount disbursed was US$25.39 million, in order to reallocate funds between disbursement categories.

3. On December 27, 2016, when the amount disbursed was US$31.01 million, in order to extend the loan closing date from December 30, 2016, to June 30, 2019.

4. On May 25, 2018, when the amount disbursed was US$43.57 million, in order to approve the second additional financing (AF2) of US$14.90 million and modify the results framework (RF), extend the loan closing date from June 30, 2019 to December 31, 2020, cancel activities under two sub-components, update of components' costs, and reallocate funds under existing categories.

5. On December 31, 2020, when the amount disbursed was US$57.41 million, in order to extend the loan closing date from December 31, 2020 to December 31, 2021 so as to accommodate disruptions due to COVID-19 restrictions.

Rationale for Changes and Their Implication on the Original Theory of Change (ToC).

The ICR did not discuss any changes and only stated that "the changes did not have material impact on the original theory of change (paragraph 30)."

3. Relevance of Objectives

Rationale

Context at Appraisal. Albania's hydropower plants had been a precious asset both for the country and the regional electricity system. The two main cascades on the Drin River and the Mat River have had an installed capacity of 1.45 GW, produce over 90% of domestic electricity and supply normally more than 65% of the country's total demand. This represented an annual value of more than US$ 450 million, while the asset value of these hydro dams could be well above US$3 billion (PAD, paragraph 13). Support for Albania's hydropower dams was needed not only because of the significant safety risks involved for the country and the need to bring dam safety in Albania to modem standards, but also to improve the country's overall hydropower operation and benefit the whole regional electricity system (PAD, paragraph 15).

Previous Bank Experience. The Bank remains heavily involved in the integration of the South East Europe (SEE) Energy Market. First, the Bank was participating in regional efforts to promote cooperation and integration in South East Europe and inter alia supports the Stability Pact. Second, the Bank was an active participant in the Athens process, at the request of the European Commission (EC). Third, the Bank has supported individual countries of South East Europe in their efforts to rehabilitate and restructure their power sectors through policy dialogue, technical assistance and financing since the early 1990s (in some cases even earlier). This deep regional and country knowledge and participation in the development of the Athens process puts the Bank in a strong position to provide regional lending, policy advice and technical assistance to further support the Athens process. The Energy Community of South East Europe Adaptable Program Loan (ECSEE APL) was approved by the Board on January 27,2005. It was a key component of the Bank's support for the Stability Pact and its working partnership with the EC.

Consistency with Bank Strategies. At appraisal, the PDO was in line with the Bank's Country Assistance Strategy for Albania (CAS, 2006-09). The project would contribute to improved energy production and

enhanced dam safety measures, as well as to improved, and more financially sustainable, infrastructure services in roads, energy, and irrigation (under Strategic Objective 1: Accelerating the recovery in Albania's economic growth through improved
competitiveness) and decreased vulnerability to natural and manmade disasters (under Strategic Objective 3: Reducing Albania's vulnerability to climate change). The project was included in the Country Assistance Strategy Progress Report for Albania (May 9,2008). The ECSEE APL facility was also a key component of the Bank's support for the Stability Pact and the working partnership with the European Commission. Objectives were in line with the findings of the Bank's Dam Safety Survey for Hydropower Plants Located on the Drin and Mat River Cascades (2006, funded by SECO).

At completion, objectives were in line with Bank's Country Partnership Framework (CPF, FY2015-2019) for Albania. Specifically, under the Focus Area 2, Creating Conditions for Accelerated Private Sector growth, where supporting enhanced energy security, efficiency, and supply was a core objective. The CPF also noted that the power sector suffered from significant inefficiencies related to the speed and reliability of power supply and that an unreliable
and expensive power supply dissuades large firms looking to enter emerging markets, and existing firms ranked electricity supply as one of the main constraints. This project helped improve the supply situation of the country by rehabilitating hydro assets and optimization of power dispatching.

Consistency with Government Strategies. At appraisal, the PDO was in line with Albanian Government priorities for hydropower. The Albanian Government recognized the high importance of hydropower for the country's and the regional electricity system and had a strategic objective of developing the remaining hydropower potential of the country (small and large-scale hydro) under a concession scheme and public-private partnerships.

At completion, the PDO was in line with Albania's development and energy security goals, as highlighted by the government's National Strategy for Development and Integration (NSDI-II 2015-2020). The NSDI emphasized connectivity, whereby the government was focused on the provision of energy
sources and the building of the necessary infrastructure for the safe supply of energy to clients.

Summary of Relevance of Objectives Assessment. The PDO was in line with the Government priorities and consistent with the Bank Strategies. Also, the safety and efficiency of hydroelectric dams will continue to be a priority for Albania in the future. However, the first statement of the PDO (to contribute to safeguarding the hydroelectric dams) could have benefitted from more specificity. The statement could have benefitted from specifying how the project would do this. The second statement of the PDO was clear and focused. However, the third statement "to enhance the stability of power supply in the regional electricity market" lacked a connection to the Results Framework as it was not clear how it would be tracked. Therefore, Relevance of Objectives is rated Substantial.

Rating
Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To contribute to safeguarding the hydroelectric dams on the Drin and Mat river cascades in the territory of the Recipient.

Rationale

Theory of Change (ToC). To achieve the stated objective, the project would support preparing an emergency preparedness plan and provide staff training, install monitoring and alarm systems and install geological monitoring systems, establish a financial monitoring system and a dam safety panel at KESH, rehabilitate dam spillways, gateway seals, frames and hydraulic power units and electromechanical equipment. These activities were expected to safeguard dams and generation capacity. Anticipated longer term outcome was the creation of an area without internal frontiers for energy which was expected to contribute to economic and social progress and a higher level of employment as well as balanced and sustainable development.

The ToC as stated in the ICR lacked any assumptions that underpinned the achievement of the stated PDO.

While the stated activities were directly linked to the outcome in a plausible causal chain, the infrastructure and the technical components of the project were not described and were not reflected in the results framework (ICR, paragraph 80).

Outputs

The ICR did not explicitly report outputs in Annex 1. Only intermediate outcomes were reported.

- The rehabilitation works for four spillways were completed.
- High priority remedial measures were completed including: the completion of the electro-mechanical rehabilitation works in Komani HPP, the completion of the dam's instrumentation and monitoring systems, completion of the Komani dam toe rehabilitation works, and the prefeasibility and feasibility studies were both completed.
- Remedial measures of medium priority and operational improvements were completed including: the completion of the risk analysis and preparation of Emergency Preparedness Plan (EPP), establishment of the new dam safety department, completion of internal organization at Kesh, completion of the rock-fall protection in Fierza HPP, Komani HPP and Vau Deja HPP, and completion of the Drin river
operation optimization.
- Safety of dams expert panel was established and fully operational.
- Hydrology analysis and water management studies were both completed.

Outcome

- By project completion, the dam’s geological seismic and geodetic monitoring systems were functional (ICR, paragraph 40). The rockfall danger protection works were completed in all three Drin River Dams, Komani dam downstream slope/toe rehabilitation and foundation treatment work was also completed. Rehabilitation works involving four generation units at Komani were finalized. Also, rehabilitation works in spillway tunnel NB3, radial gate Nb4, and stoplog Nb4 in Fierza HPP and

Spillway Tunnel Nb4, Radial Gate NB3, and Stoplog NB3 in Komani HPP were all completed (ICR, paragraph 40).

- In all dams the installations of monitoring systems were completed with a Data Processing and Management System (DPMS) located in the control room of the powerhouse. The data from the automatic readings was transferred directly to the DPMS and stored together with the data of the manual readings. The system allowed the graphical representation of the collected data for immediate plausibility checking and as a basis for comprehensive evaluation reports.
- According to the ICR (paragraph 40) KESH and Albanian authorities adopted the recommendations from the study "Strengthening of the Institution set-up and Dam Safety and Emergency Preparedness Study". The Emergency Preparedness Plan included: (i) Description of the Dam, the reservoir, and its environment; (ii) Organization, means, and resources; (iii) Action procedures for emergency situations and (iv) Flood areas and damages estimation. The outputs of the plan were communicated to all relevant stakeholders, focusing on the need for a coordinated approach.
- The Dam Safety department at Kesh was strengthened through trainings, hiring of skilled staff and the provision of instruments and equipment (ICR, paragraph 40). This helped KESH generate regular reports and data, which could be used by the government to manage the dam.

Summary of Efficacy Assessment. The project completed the dam rehabilitation works, monitoring systems were installed and the Dam safety Department was upgraded and strengthened. Also, an Emergency Preparedness Plan was prepared and adopted. By project completion Safeguard remedies were implemented at the Drin and Mat Rivers Cascades. Therefore, and based on the afore-mentioned information, it is evident that the project succeeded in contributing to safeguarding of the hydroelectric dams on the Drin & Mat River cascades. The efficacy with which this objective was achieved is rated Substantial.

Rating
Substantial

OBJECTIVE 2

Objective
To improve the operational efficiency of said hydroelectric dams.

Rationale
Theory of Change (ToC). Same as above.

Outputs

Same as under Objective 1.

Outcome

By project completion, there was an additional generation capacity of 31 GWh of electricity (target achieved). This was a direct result from the increase in reliability and efficiency due to the dam rehabilitation and refurbishment supported by the project. The rehabilitation of hydropower plants helped to increase the availability and reliability of energy production units and reduced leaks (ICR, paragraph 41). The elimination of water leakages, increased availability of generation units, and the adoption of customized criterion at Albania's largest hydropower plants (Fierza, Komani, Vau I Dejes), which resulted in improved dams' efficiency and increased energy output.

Summary of Efficacy Assessment. The project succeeded in improving dam efficiency and this resulted in an additional generation capacity of 31 GWh of electricity. Electricity Output increased by 11 GWh due to reduced water leakages and electromechanical equipment rehabilitation (exceeding the target of 6 GWH). Also, electricity output increased by 20GWh due to improved reservoir optimization procedures (target 100% achieved). Therefore, the efficacy with which this objective was achieved is rated Substantial.

Rating
Substantial

OBJECTIVE 3
Objective
To enhance the stability of power supply in the regional electricity market.

Rationale
Theory of Change (ToC). Same as under Objective 1.

Outputs

Same as under Objective 1.

Outcome

- The indicator (system load frequency variations) to track the progress of this outcome was dropped when the project was appraised for additional financing, as the related sub-component was being financed by the Italian Cooperation Credit. As a result of this, there was no direct indicator to measure progress on this outcome (ICR, paragraph 42).
- That said, it was evident that the project contributed to safeguarding dams and supported the additional generation of electricity. This was expected to prevent a prolonged fall in hydropower which would likely help stabilize the power prices in the SEE region.
- The project also contributed to improving operational practices of existing facilities, which according to the ICR (paragraph 42) "enabled Albania's effective participation in the regional electricity market." In addition, by supporting KESH improve its financial reporting

Summary of Efficacy Assessment. While the project enhanced electricity supply through improving dam safety and supporting rehabilitation work, the stability of power supply in the regional electricity market could not be assessed due to the lack of indicators to measure this outcome. Also, stability of power supply in the regional electricity market is a function of other factors related to the electricity grid and demand, and not only generation capacity and dam safety. Therefore, the efficacy with which this objective was achieved is rated Modest.

Rating
Modest

OVERALL EFFICACY
Rationale
Overall Efficacy is rated Substantial. The project succeeded in contributing to safeguarding of the hydroelectric dams on the Drin & Mat River cascades. The project also succeeded in improving dam efficiency and this resulted in an additional generation capacity of 31 GWh of electricity. However, enhancing the stability of power supply in the regional electricity market could not be fully assessed due to dropping the indicator to assess this outcome.

Overall Efficacy Rating

Substantial

5. Efficiency
Economic and Financial Analysis (EFA)

ex ante

- The EFA at appraisal estimated the project's Internal Rate of Return (IRR) at 47% under a 12% discount rate.
- A cost-benefit analysis of the improvement of dam safety was not undertaken because of the difficulty of estimating the probability of failure of one or more of the dams in the absence of the project. Also, the difficulty of measuring the consequences of failure (PAD, paragraph 72). Also, a cost-benefit analysis was not done for the implementation of a load frequency control system at Vau i Dejes and Fierza.
- Cost-benefit analyses were carried out for the investment and technical assistance sub-components designed to improve efficiency of operation. Three of the investment sub-components would involve elimination of water leakages, which would result in increased electricity production.

- Economic benefits did not take into account benefits from dam failure prevention.

ex ante

- The economic Internal Rate of Return (EIRR) ranged from 9.2% (at 7.5 Euro per kWh) to 12.9% (at 20 Euro per kWh), which was above the 7.5% discount rate.
- The total costs of the infrastructure aspect of the project increased almost three times from EUR17.3 million at appraisal to EUR48.4 million. Also, the 80 GWh of electricity that were estimated at appraisal to be generated annually due to improved reservoir management proved to be unrealistic.
- In order to compare the EIRR fairly, the appraisal analysis was conducted again, excluding the additional 80 GWh benefits, but including benefits such as GHG emissions and O&M savings (which were included only in the second additional financing and ICR) to make it consistent with the ICR economic analysis. The resulting ex ante EIRR was 22.5%.
- Implementation efficiency. The implementation period of the project was a total of 13 years, more than double the envisioned timeline during appraisal. The first three years of implementation were spent on conducting technical and ancillary investments and led to significant delays in the beginning. Disbursement was low for the first phase of this project. Delays were also experienced as a result of sectoral consolidation which, in turn, led to delays in owners' engineer being contracted (ICR, paragraph 73). Procurement issues also contributed to implementation delays with regards to the contract for spillway gates and stop-logs rehabilitation works in Fierza and Komani HPPs. The project also faced higher costs than originally estimated at appraisal. Cost increases because of new cost items, which were discovered during the course of the project, including the extent of rehabilitation needed and higher bid prices. Finally, the project implementation was negatively impacted by the COVID-19 related restrictions which resulted in an overall slowdown in implementation.

Summary of Efficiency Assessment. The ex post EIRR ranged from 9.2% to 12.9% which was below the original EIRR of 47% at appraisal and the recalculated appraisal EIRR at 22.5%. However, the ex post EIRRs were above the 7.5% discount rate. The project experienced significant implementation delays and costs increments. These were partially due to the rushed preparation of such a complex project. That said, with the added benefits of positive externalities and reduced risk of catastrophic dam failure, the project was economically justified. The project still generated positive economic returns above the discount rate, despite not accounting for benefits arising from dam safety improvements.

Overall, Efficiency is rated Substantial, despite implementation delays and increments in cost that were not envisioned during the appraisal.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	47.00	57.00 ☐ Not Applicable
ICR Estimate	✓	12.90	0 ☑ Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Relevance of Objectives was rated Substantial. Overall efficacy was rated Substantial. The project succeeded in contributing to safeguarding of the hydroelectric dams on the Drin & Mat River cascades. The project also succeeded in improving dam efficiency and this resulted in an additional generation capacity of 31 GWh of electricity. However, enhancing the stability of power supply in the regional electricity market was not fully assessed due to dropping the indicator to assess this outcome. Efficiency was rated Substantial. The project generated positive economic returns above the discount rate, despite not accounting for benefits arising from dam safety improvements.

Based on a Substantial rating for each of the three criteria: Relevance of Objectives, Overall Efficacy and Efficiency, the outcome of the project is rated Satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

The ICR discussed the following four risks that could potentially impact the development outcome of the project:

1. Operational Risks. These were assessed as low, since all of the rehabilitation and refurbishment works were completed. Other dam safety measures were also in place (ICR, paragraph 102).

2. Sectoral Risks. These were assessed as moderate. KESH's operating expenses are subject to weather variability, irregular tariff adjustments, and consistency of payments on electricity invoiced to the Power Distribution Operator. In turn these factors, might impact KESH's overall operations and hence the sustainability of this project. That said, the Bank-financed Power Sector Recovery Project would support the financial stability of the sector through establishing an escrow account mechanism to ensure timely payments (ICR, paragraph 103).

3. Country Risks. These were assessed as low. According to the ICR (paragraph 104) the country rebounded from an economic contraction in 2020, which reduced macroeconomic risks. Also, the

Government's National Strategy for Development and Integration (NDSI) highlighted energy as a pillar of growth, and the Government is committed to secure energy supply. This will help preserve the development outcome of the project.

4. Environmental/Natural Disasters Risks. Climate related events and/or extended drought are major risks to the development outcome, as they could directly result in changes in hydrology. Changes in hydrology, specifically a reduction in the amount of water stored in the dam reservoirs, might lead to a reduction in hydropower generation and could potentially reverse the gains achieved under the project (ICR, paragraph 105).

8. Assessment of Bank Performance

a. Quality-at-Entry

- Strategic relevance and approach. The ECSEE APL facility was a key component of the Bank's support for the Stability Pact and the working partnership with the European Commission (PAD, paragraph 20). The PDO was in line with the priorities of the Albanian government to develop hydropower potential of the country. The PDO was also in line with the Bank strategies where the project was included in the Country Assistance Strategy Progress Report for Albania dated May 9,2008 (see section 3 for more details).
- Technical, financial, and economic aspects. The technical preparation was guided by the Dam Safety Survey (2006) undertaken by the Swiss Secretariat of Economic Affairs (SECO) which identified hazards and deficiencies. While the project design in itself was simple, it included complex rehabilitation works. Design featured two main activities: (i) physical infrastructure rehabilitation and (ii) technical assistance and training. The EFA at appraisal showed high economic returns of the project, but did not take into account benefits from dam failure prevention.
- Implementation Readiness. Implementation readiness was poor. While the project included complex rehabilitation works, it was prepared relatively fast "to avail the last opportunity for IDA window financing as Albania was soon graduating from IDA and the availability of the ECSEE allocation (ICR, paragraph 73)". The first three years of implementation experienced low disbursement and significant delays as technical and ancillary studies were being prepared. Despite that price and physical contingencies were part of the costing exercise, the contingency amount was not enough given the complexity of the project (ICR, paragraph 73).
- Poverty, gender, and social development aspects. The project was expected to have a beneficial social impact by improving the safety of the persons living downstream of the dams on the Drin and the Mat rivers and by reducing the amount of load-shedding, thereby contributing to poverty alleviation (ICR, paragraph 95).
- Environmental aspects. The project was expected to have a positive impact through the prevention of a dam failure and associated environmental disasters. According to the ICR (paragraph 96) "environmental aspects were studied carefully."
- Fiduciary aspects. Financial management risks were identified at appraisal for: project, company and country levels. Overall fiduciary aspects were adequate.
- Adequacy of risks and mitigation measures identification. Three main risks were identified at appraisal: financial risks, climate-related risks, and monitoring risks. The main financial risk was

identified as the inability of the sector to finance improvements (maintenance and operations) in hydroelectric plants. This risk was mitigated through supporting the financial stability of the sector through the parallel Power Sector Recovery Project which put in place an escrow account mechanism to ensure timely payments (ICR, paragraph 72). In addition, KESH improved their financial reserves through selling additional electricity sales in the regional power market, derived from high water levels at its dams. Climate-related risks identified were changes in weather that would require temporary shutdowns of plants and hence cause delay. During the Second Additional Financing phase, risks from earthquakes and landslides were estimated to be high. The monitoring risks were expected to be addressed through the implementation of maintenance and the Bank's monitoring. A project related risk was overlooked where the size and magnitude of rehabilitation works turned out to be much larger than initially estimated.

- M&E design. The RF design had shortcomings with regards to the clarity of indicators that required multiple revisions during implementation. The ICR (paragraph 68) noted that "the results framework could have been developed slightly better."

Summary of Quality at Entry (QAE) Assessment. The fast preparation of the project resulted in poor implementation readiness and implementation delays. Technical studies were not ready at effectiveness and costs of rehabilitation works were underestimated. M&E suffered from design shortcomings that necessitated multiple revision to the RF indicators. Overall, QAE suffered from significant shortcomings and is therefore rated Moderately Unsatisfactory.

Quality-at-Entry Rating
Moderately Unsatisfactory

b. Quality of supervision

The Bank team had to deal with a project that was prepared very fast, which compromised implementation readiness. The Bank supervision conducted 20 implementation support missions over the timeframe of the project. According to the ICR (paragraph 99) "the Bank conducted regular, adequately staffed supervision missions and site visits with sufficient attention to fiduciary and safeguards aspects." The Bank team informed the management regularly about the project progress. The project benefited from continuity among the project's task team despite several TTLs overseeing the project due to its time length. The ICR (paragraph 99) noted that the Bank team facilitated implementation through addressing issues between the contractor and the implementing agency to ensure that the project progress was not delayed further. Finally, the Bank team was successful in dealing with a lot of unknowns that surfaced during implementation due to the rushed preparation process.

Overall, Bank Performance is rated Satisfactory.

Summary of Bank Performance Assessment. QAE suffered from significant shortcomings as noted above. Bank supervision successfully guided the project to achieve its outcomes. Overall, Bank Performance is rated Moderately Satisfactory.

Quality of Supervision Rating
Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

- The PAD did not include a Theory of Change (ToC) or results chain. Nevertheless, the ICR included an ex-post ToC that was constructed based on the PDO, the project activities and the results indicators as reported in the PAD. However, the infrastructure and the technical components of the project were not described in the ToC and were not reflected in the results framework (ICR, paragraph 80). Also, the ToC lacked the assumptions that underpinned the achievement of the PDO.
- The first PDO could have benefited from more specificity as it was unclear how the objective was to be achieved or what the results meant. For example, the outcome indicator for the first objective (to contribute to safeguarding the major hydropower plants in Albania) was total safeguarded generation capacity, and this was to be tracked numerically with the end target being 95% of Albania's capacity affected by the safeguard measures. However, it was unclear what this percentage meant (ICR, paragraph 80). Also, it was unclear how "enhancing the stability of power supply in the regional market" aspect of the PDO was tracked and what intermediate indicators were linked to it. The outcome indicator that measured the improvement of system load frequency variation was linked to stability, but this outcome indicator was related to the sub-component Vau I Dejes and Fierza Dams implementation of load frequency control systems to allow for the integration of Albania's electricity system with Union for the Coordination of Transmission of Electricity in Europe (UCTE), and that outcome indicator was later dropped.
- The ICR (paragraph 80) pointed out that the intermediate indicators were designed in "a vague manner." For example, it was unclear what physical infrastructure was tracked under the intermediate indicator "High Priority Remedial Measures Completed." The intermediate indicators were not quantifiable as they answered a simple yes/no question. According to the ICR (paragraph 80) "baselines were adequately measured." This Review also notes that the RF was deficient in indicators that tracked the physical activities supported by the project.
- Overall, M&E design suffered from significant shortcomings related to a deficient Theory of Change, poorly defined indicators and lack of indicators to assess the third part of the PDO.

b. M&E Implementation

- Monitoring of the project was conducted via normal review procedures for procurement, regular supervision missions, financial monitoring reports, and independent annual audits of the project and of KESH's accounts (ICR, paragraph 80).
- The mid-term review was rescheduled to 2016 to accommodate implementation delays. This allowed enough time in order to properly take stock of the situation and propose corrective actions to guide the project toward its objectives (ICR, paragraph 81).

- Restructuring and revision of the RF indicators. The results indicators were revised to make them more robust. Also, the definitions and targets were corrected during implementation to make the indicators less ambiguous and simplify data collection. While these actions remedied some M&E design weaknesses, the ICR (paragraph 82) noted that not all design shortcomings were corrected.

c. M&E Utilization

- M&E data was utilized to assess the project's performance and progress. Dam safety require detailed inspection and assessment of structural conditions including underwater and sub-surface ones. Monitoring and evaluating the progress of the project helped inform changes and create rationales for additional financing (ICR, paragraph 83).

Summary of M&E Quality Assessment. M&E Quality is rated Modest. M&E design suffered from significant shortcomings, implementation had moderate shortcomings, and utilization was adequate.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project was assigned an Environmental Category B (Partial Assessment). It triggered three safeguard policies: Environmental Assessment (OP/BP 4.01), Safety of Dams (OP/BP 4.37), and Projects on International Waterways (OP/BP 7.50). The project's environmental impact was overall positive as it aimed to prevent a dam failure and any accompanying environmental disaster. Its focus on improving hydrological analysis and monitoring and better water management was expected to result in further positive environmental impacts (PAD, paragraph 92). Potential negative environmental impacts concern mainly the management and disposal of limited waste during rehabilitation works.

The ICR did not include an explicit statement on the compliance with any of the Bank's safeguard policies. Also, no information was reported under Projects on International Waterways (OP/BP 7.50).

Compliance with Environmental Safeguards. An Environmental Assessment report was prepared. In terms of health and safety, the ICR (paragraph 87) reported that "workers were well-trained, provided with protective kits, and the working conditions were consistent with the World Bank’s requirements." However, hazardous waste management experienced some breaches of management protocol and the PMU was advised on that.

Compliance with Social Safeguards. While no social safeguards were triggered at appraisal because activities did not require resettlement and/or land acquisition, a grievance redress mechanism (GRM) was set up. According to the ICR (paragraph 86) the GRM system received no complaints.

Compliance with Safety of Dams. The project involved significant and complex remedial works for Komani and Fierza dams. A Panel of Experts for dam safety was established to conduct an independent dam safety review as recommended by OP/BP4.37. Also, an Emergency Preparedness Plan and annual operation and management reports was prepared. The project contributed to enhancing the dam safety and improving operational safety and reliability of three hydroelectric dams in Albania. The project also contributed to developing institutional capacity for dam safety both at the operational and governance level (ICR, paragraph 88).

b. Fiduciary Compliance

Financial Management (FM). According to the ICR (paragraph 89) "the financial management, funds flow and disbursement arrangements for the project have been adequate and in compliance with Bank requirements." FM benefited from experienced and qualified FM experts. There were no significant issues and reporting conditions were revealed by the external audits of the project financial statements. However, FM ratings were mostly affected by an overall weak financial reporting at the company level and delays in audits (ICR, paragraph 89). The ICR (paragraph 89) pointed out that KESH had low consideration to the technical expertise of the audit and consulting firms when it came to selecting and appointing auditors. This practice was challenging to efforts by project management to improve FM reporting quality.

Procurement. According to the ICR (paragraph 90) "procurement was conducted as per the rules of the World Bank." However, in 2015 there were delays by the implementing agency in the processing of the Bid Evaluation Report (BER) for the rehabilitation of spillways. Procurement performance was downgraded to moderately unsatisfactory as the evaluation bids were delayed. Also, the contract award for the main package (the spillway package) failed 3 times. It took more than a year for concluding the bid evaluations and signing the contract as client was late in addressing the Bank's comments on bid evaluations. This delayed the project implementation.

c. Unintended impacts (Positive or Negative)

There were unintended outcomes (ICR, paragraph 61).

d. Other

There were no other outcomes (ICR, paragraph 61).

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	

Bank Performance	Satisfactory	Moderately Satisfactory	QAE had significant shortcomings.
Quality of M&E	Modest	Modest	
Quality of ICR	---	Substantial	

12. Lessons

The ICR included eight lessons. The following three are emphasized with some adaptation of language:

1. Ensuring implementation readiness for complex infrastructure projects is critical to avoid future delays during implementation. Early preparation of documents and sites can help avoid unnecessary initial delays. Feasibility studies and technical designs need to be identified during the preparation stage and concluded by the time the project goes to the Board. However, often, studies might take longer, and projects need to be prepared fast (depending on whether the bank is ensuring the IDA window is met or some regional concessional financing window). In such cases, a vertical Multi Phase Programmatic Approach (MPA)could be utilized wherein the technical studies represent the first phase and some rehabilitation works to correctly identify issues and major infrastructure investment could be the second and/or third phases.

2. The timing of support and coordination between development partners is important to ensure timely completion of project activities. While the project served as remarkable example of cooperation between financial development institutions, the timing of support and coordination needed to be planned better. For instance, Vau I Dejes works were originally supposed to be funded by the World Bank and had been part of the project appraisal, and KfW took over the project at a much later stage. Similarly, EBRD did not come into the picture before 2011. Proper delineation of tasks during the appraisal stage could have helped bring on EBRD and KfW at an earlier stage to complete the project earlier. Proactive coordination and collaboration between various development partners need to be improved by proper communication between the World Bank, the Government, and other bilateral and multilateral partners before or during appraisal.

3. Regional adaptive program loans, such as the ECSEE APL, are complex operations that need sufficient time and resources to conduct technical studies, engage client governments, and train implementation agencies to ensure technical correctness, implementation feasibility, and political supportability. The program has shown that regional energy market development is a complex and long-term undertaking and is affected by national/EU regulations. The main challenges in the implementation of such projects could range from the implementation of a regional action plan for a wholesale market to the integration of transmission lines into a regional network.

13. Assessment Recommended?

Yes

Please Explain

Further assessment of the APL program is warranted to assess the achievement of the program's objective. Also, this project had a poor M&E design, and further assessment would allow verifying the achieved results on the ground as well as generating useful lessons for similar future operations.

14. Comments on Quality of ICR

Quality of Evidence. The ICR acknowledged that M&E design had shortcomings which were partially corrected during implementation. That said, enough data was collected to enabled tracking the progress of activities and assessing the achievement of the PDO. However, the third element of the PDO could not be assessed as the indicator tracking its outcome was dropped.

Quality of Analysis. The ICR provided clear linking between evidence and findings to the extent possible and used the evidence base to serve the arguments under the different sections, in particular the discussion on outcomes.

Lessons. Lessons reflected the project experience and were based on evidence and analysis.

Results Orientation. The ICR included a comprehensive discussion on the achievement of the PDO. The discussion was adequately balanced between reporting on the achievement of outcome indicators and what the project actually achieved on the ground.

Consistency with guidelines. The ICR successfully used the available data to the extent possible to justify most of the assigned ratings. Discussion of outcomes was adequate. However, the efficiency analysis could have benefited from further evidence to justify the validity of the project investments.

Conciseness. The ICR provided comprehensive coverage of the implementation experience and candidly reported on shortcomings. However, reporting on safeguards did not include an explicit statement on compliance with the Bank's safeguard policies, and no information was reported under Projects on International Waterways (OP/BP 7.50). Also, the ICR did not discuss the impact of the restructurings and associated changes in the RF on the ToC. The results reported in Annex 1 were lengthy and could have benefited from some consolidation. Finally, the ICR reported component costs in Euros rather than US dollars.

Overall, the Quality of the ICR is rated Substantial, but with shortcomings.

a. Quality of ICR Rating
Substantial