

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC962

Project Name	Naghlu Hydropower Rehabilitation Project (P132944)
Region	SOUTH ASIA
Country	Afghanistan
Sector(s)	Hydropower (100%)
Theme(s)	Infrastructure services for private sector development (90%), Other environment and natural resources management (5%), Other social development (5%)
Lending Instrument	Investment Project Financing
Project ID	P132944
Borrower(s)	Ministry of Finance
Implementing Agency	Ministry of Energy and Water, Da Afghanistan Breshna Sherkat
Environmental Category	A-Full Assessment
Date PID Prepared/ Updated	30-Apr-2013
Date PID Approved/ Disclosed	15-May-2013
Estimated Date of Appraisal Completion	15-Oct-2013
Estimated Date of Board Approval	17-Sep-2013
Concept Review Decision	Track II - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

1. The Afghan economy needs sustainable sources of long-term inclusive growth. The extremely high level of current annual aid (estimated at \$15.7 billion in 2010) is roughly the same dollar amount as Afghanistan's GDP and will not be sustained at such levels post 2014. This slowdown in aid will exert a drag on the overall economy at a time when growth is vitally needed to cope with fiscal and demographic pressures. Growth, under reasonably optimistic scenarios, is projected to fall from a ten year average of over 9% to between 5-6% in 2011-18. By 2021/22, the Government of Afghanistan's financing gap is projected to be 25% of GDP. Unemployment and underemployment, already at 8% and 48% in 2009/10, is projected to rise just as the labor force is expanding by 300,000 new entrants per year. Afghanistan will experience a major security and development transition over the next years. The next presidential election is scheduled for April 2014. The outcome of the elections is very uncertain due to the fragmented political fractions in the

country. There is a wide-spread concern that the election could be accompanied by an increase in insurgency activities which could undermine economic and development progress in 2013 and 2014. Moreover, at the Kabul and Lisbon Conferences in 2010, NATO and the Afghan government agreed that full responsibility for security would be handed over to the Afghan National Security Forces (ANSF) by the end of 2014. The country now faces the drawdown of most international military forces over the coming several years with an expected accompanying decline in civilian aid as international attention shifts elsewhere and aid budgets come under increasing fiscal pressure. The decline in external assistance is likely to have widespread ramifications for Afghanistan's political and economic landscape well beyond 2014. Falling aid flows in Afghanistan will have the most impact on public spending as present levels of expenditure will be fiscally unsustainable for Afghanistan once donor funds decline. The main issue is how to manage this change, mitigate impacts, and put aid and spending on a more sustainable path. At the Tokyo Conference on July 8, 2012, the international community committed to \$16 billion of aid to Afghanistan (annual average of \$4 billion over the next four years) and agreed to the Tokyo Mutual Accountability Framework (TMAF) with the Government of Afghanistan that focuses on (i) Representational Democracy and Equitable Elections, (ii) Governance, Rule of Law and Human Rights, (iii) Integrity of Public Finances and Commercial Banking Systems, (iv) Government Revenues, Budget Execution and Sub-National Governance, and (v) Inclusive and Sustained Growth and Development.

2. Agriculture and natural resource development are likely to be the most important sectors to drive growth, but alone will be insufficient. Investment by industrial, processing and logistic enterprises as a means to add value to the agriculture and resource sectors will be the key drivers of growth and, especially of job creation. To bring about inclusive jobs and growth, further development of infrastructure, including of electric power supply, is essential.

Sectoral and Institutional Context

3. The Afghan power system is small and underdeveloped but demand is growing rapidly. Grid-based electricity is estimated to meet the needs of about 25 percent of Afghanistan's population, mainly in the urban areas and along a few transmission corridors. About 80 percent of electricity is imported from Iran, Tajikistan, Turkmenistan and Uzbekistan, and accounts for about 600MW of the capacity available in the country. Domestic diesel generators, thermal and hydropower account for about 340MW across the country. The transmission system consists of about eight islands linking the different generation sources, the largest of which is the North East Power System which connects Tajikistan, Uzbekistan and much of Afghanistan's domestic hydropower generation with Kabul. The growth, which brings increasing dependence on imports, compromises Afghanistan's energy security, which is of increasing concern to government and civil society.

4. The National Energy Supply Program (NESP), one of GoA's National Priority Programs (NPPs), articulates an ambitious program for development of the power sector up to 2015. It plans to increase the number of consumers connected to the grid from today's 850,000 to 1.15 million requiring investment in generation, transmission and distribution estimated in the NESP at about \$2.7 billion. To accompany the physical growth, other plans include efforts to reduce losses, improve billing and collections and attract private sector investment. Although NESP may be as much aspirational as achievable, it underlines the government's clear understanding of the linkages between a better electricity supply and economic growth.

5. Sector institutions are evolving, with a gradual separation of policy and operations. The

main government department responsible for the power sector in Afghanistan is the Ministry of Energy and Water (MEW). It is increasingly focused on policy, strategy and planning issues and has taken the lead on preparation of the NESP and the Power Master Plan. Given Afghanistan's dependence on imports and external financing, MEW also has a significant role in dealing with its neighbors and donors.

6. Operations and investment are increasingly devolved to Da Afghanistan Breshna Sherkat (DABS). Until 2009, the entity responsible for power supply, Da Afghanistan Breshna Mossesa (DABM), was a department of MEW. With World Bank and other donor support, DABM was converted into DABS, which is now focused on developing into a fully commercial power utility while remaining under state ownership. Initially responsible for day to day operation of the transmission and distribution system, DABS carried out about \$26 million of investment in the 1391 financial year ended December 20, 2013. DABS remains weak in institutional, financial and human capacity to rehabilitate and operate the power system. If it is to be able to manage a growing system it need to improve its ability to rehabilitate and operate the assets it has, as well as to invest in new plant.

7. While there is significant potential for domestic generation in the longer term, the options in the short term are limited. The only new domestic generation project in the last five years (the 105 MW diesel project at Tarakhil completed in 2010) has been little used for reasons of high operating cost and fuel shortages. In the medium term, the development of mining-related generation investments offer some scope for domestic generation. They include a 400MW coal fired power plant at Ispushta linked to the copper mining concession at Aynak of which about 100MW would be available to the North East Power system. Also under development, but much delayed, are 18MW of additional capacity at Kajaki hydropower plant in the south of the country and the 42MW Selma hydropower plant in the west of the country. In the longer run, there is a possibility of domestic gas discoveries in commercial quantities being available for large-scale generation, and the option to develop the significant hydropower potential in the country, estimated at 23,000MW. In the light of these limited prospects, rehabilitation of the existing assets so that they can reach their maximum potential assumes greater importance.

8. The Naghlu hydropower plant is in urgent need of rehabilitation. Naghlu hydropower plant provided about 6.5 percent of total supply in 2012. The electrical and electromechanical equipment is part-way through being rehabilitated but currently only three out of the four units are available for operations, with the fourth awaiting a new or repaired rotor shaft and other spares that are being made in Russia. Further funding is needed to complete the work. In addition inoperability of the bottom outlet, unavailability of auxiliary methods of operating spillway gates and independent operation of power intake gates, presence of unexploded ordnance on parts of the structure and lack of essential instrumentation render the dam unsafe. Last, despite earlier training, poor operations and maintenance practices at the plant do not allow safe and sustainable operation.

Relationship to CAS

9. Sufficient and reliable power supply is central to the Interim Strategy Note (ISN) Pillar 3, "Inclusive Growth and Jobs". The ISN recognizes the need to scale up power supply to secure private sector led growth, particularly in the agricultural and resource sectors. It aims to do this through support of the government's NPPs. The proposed project would support the rehabilitation and possible expansion of Afghanistan's largest hydropower plant, allowing a modest reduction in dependence on imported electricity. The planned approach would improve the capacity of

Afghanistan to absorb on-budget investment at a larger scale and over the longer term its ability to build and operate hydropower plants in a technically sound, safe and environmentally and socially responsible way thus contributing to Pillar 1 of the ISN which is aimed at building the legitimacy and capacity of institutions.

II. Proposed Development Objective(s)

Key Results (From PCN)

11. The following key results will be sought:
- Increased availability of the Naghlu hydropower plantwide and unit by unit;
 - Reduction in likelihood of accidents at Naghlu;
 - Livelihoods of those affected by the project at least maintained at pre-project levels;
 - Evidence of satisfactory compliance with environment management plans;
 - Decision on whether to proceed with raising the dam height taken based on detailed analysis.

III. Preliminary Description

Concept Description

12. The project is proposed to consist of the following six components, with a total estimated cost of \$77.5 million.

13. Component 1: Electrical and Electromechanical Works (ARTF \$14 million). This component is aimed at finishing the rehabilitation of the electrical and electromechanical parts of the plant and ensuring their sustainable operation. It will consist of three sub-components:

- Rehabilitation of Unit 1 and balance of plant. Ongoing electromechanical rehabilitation work will be completed, focused on Unit 1. In particular, the bent rotor shaft will be tested and either repairs undertaken, if possible, or a replacement ordered. Balance of plant rehabilitation, which is not yet complete, will also be finished.
- Spare parts and consumables. Although the original contract for the rehabilitation of the electromechanical works included spare parts, additional parts and consumables are required for the sustainable operation of the plant. A separate supply contract will be procured for the parts, aimed at covering a period of three years.
- Additional training for plant staff. Although some training in the rehabilitated plant has been undertaken, experience suggests that it has been inadequate to ensure sustained and safe operation of the plant. Further, more systematic and thorough training for plant staff will be undertaken in this component.

14. Component 2: Dam Safety Improvements (ARTF \$28 million). This component is aimed at ensuring the safe operation of the dam and will consist of three subcomponents as follows:

- Dam safety audit. Consultants will undertake an audit of the dam's structural and operational safety, and preparation of plans and bidding documents for civil works to improve safety to acceptable standards – though it should be noted that this will be done with the aim of ensuring sustainability in the Afghan context. This work will cover identified issues such as reactivating the bottom outlet, installation of auxiliary power and other systems, improvements to the headgates closing system, installation of instrumentation and clearance of unexploded ordnance

from the dam structure. The subcomponent will also include studies on hydrological and seismological safety.

- Non-structural measures. Consultants will also support DABS to introduce modern dam safety measures that do not entail structural or other works. This will include setting up a procedure and staffing for independent dam safety inspections; preparation of dam safety plans including operations, maintenance and surveillance manuals for civil works, emergency preparedness plans, and post-earthquake response plans. The operating manuals for the electrical and electromechanical works will be revised. Training for staff in all aspects will be conducted.
- Structural and other works. Based on the findings of the safety audit, a contractor will be procured to undertake the improvements required to bring the dam to acceptable safety standards. Work to be included under this subcomponent includes reactivation of the low level outlet; introduction of independent operation of the power intake gates; installation of a standby generator for emergency opening of the spillway gates and closing of the power intake gates; and installation of essential instrumentation. Other work identified in the audit will be included.

15. Component 3: Feasibility and Design Studies on Increasing Reservoir Regulation Capacity (ARTF \$15 million). This component is aimed at examining the potential for increasing the active storage volume of the Naghlu reservoir. This would compensate for reductions caused by sedimentation and potentially increase the amount of energy produced by the dam. The component will consist of two subcomponents:

- Feasibility study. This will study the feasibility of raising the dam crest. Studies will include review of topography, geotechnical, hydrological and electricity generation, engineering and economic and financial aspects. Since raising the dam would increase the size of the reservoir, an ESIA will also be conducted by a separate consultant.
- Detailed design. Should the feasibility study return a positive result, a detailed design would be prepared. Based on the findings of the ESIA, resettlement and livelihoods restoration, environment management, health, and other action plans would also be prepared. These activities would then allow swift preparation of a follow-up investment project to raise the dam, should financing be available and security and other circumstances permit.

16. Component 4: Environmental and Social Sustainability (ARTF \$7 million). This component will aim to ensure the environmental and social sustainability of the dam. It will consist of three subcomponents:

- Addressing legacy issues. Early consultations with people in the project area indicate that there are a number of social legacy issues from the project. They include land, buildings and other assets for which compensation was not provided and promises of provision of electricity and jobs which have not been fulfilled. It would support electrification in the project area, and improved access to skills and training to enable local people to gain employment at the plant. As consultations proceed other activities may emerge. The subcomponent would not address land-related legacy issues.
- Environment management. This subcomponent will support (a) the monitoring of the existing environment management plan for Component 1; and (b) the preparation implementation and independent monitoring of an environment management plan for the structural and other works subcomponent of Component 2.
- Resettlement and livelihoods restoration. This subcomponent will support the preparation, implementation and independent monitoring of a resettlement and livelihoods development plan for the structural and other works subcomponent of Component 2. It will not finance land acquisition.

17. Component 5: Project Management (ARTF \$7.5 million). This component is aimed at ensuring that DABS receives advice on good international practice. It will consist of the consulting services needed to support implementation of the project by DABS. Consistent with the principle of “learning by doing” the consultant assignment will be designed to support and mentor concerned DABS staff, rather than implement the project. The component will also finance an Environment and Resettlement Advisory Panel, the duties of which will embrace the requirements of OP 4.01 for an independent environment panel of experts and an Engineering Advisory Panel, the duties of which will embrace the requirements of the dam safety review panel as set out in OP 4.37.

18. Component 6: Capacity Development and Scale-up (ARTF \$5.0 million). The Capacity Development and Scale-up Component will support early actions needed to develop the Kunar River hydropower cascade. It is expected to finance studies to complement existing feasibility studies on planning and implementation for social development; environment and health management, consideration of alternatives and mitigation measures; hydrological, geological, geotechnical, seismic and dam safety studies; project preparation and management and preparation of financial and economic documents.

19. A phased approach. The proposed project would be phased to allow build up of project implementation capacity in parallel with the technical work that must be undertaken. Three phases are envisaged:

- Preparation. In addition to the normal activities undertaken during preparation, the work currently being undertaken to rehabilitate the electrical and electromechanical works would continue. In addition the Environment and Resettlement Advisory Panel and Engineering Advisory Panel would be recruited. A project preparation grant not to exceed \$5 million will be requested to finance these costs.
- First phase. Upon completion of the preparation phase, ARTF financing will be sought to cover the costs of a first phase focused on the completion of Component 1, covering electrical and electromechanical works, the safety audit and non-structural subcomponents of Component 2, the feasibility study under Component 3, and Components 4 and 5.
- Second phase. When the scope and cost of the structural and other works planned under Component 2 have been identified, and if a decision to move to the detailed design for increasing the reservoir regulation capacity under Component 3 is made, additional ARTF financing will be sought.

20. The phased approach is summarized in Table 1.

Table 1: Phasing and Financing

21. A solid monitoring and evaluation system will be key to successful outcomes at component and project levels. Close monitoring of the progress of the proposed project will be essential to ensure that preparation of the second phase of financing is triggered at the right time and set at the right level of financing.

IV. Safeguard Policies that might apply

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	x		

Natural Habitats OP/BP 4.04		x	
Forests OP/BP 4.36		x	
Pest Management OP 4.09		x	
Physical Cultural Resources OP/BP 4.11		x	
Indigenous Peoples OP/BP 4.10		x	
Involuntary Resettlement OP/BP 4.12	x		
Safety of Dams OP/BP 4.37	x		
Projects on International Waterways OP/BP 7.50	x		
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	77.50	Total Bank Financing:	0.00
Total Cofinancing:		Financing Gap:	0.00
Financing Source			Amount
Borrower			0.00
Afghanistan Reconstruction Trust Fund			77.50
Total			77.50

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