

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: PIDA6082

Project Name	Ayeyarwady Integrated River Basin Management Project (P146482)
Region	EAST ASIA AND PACIFIC
Country	Myanmar
Sector(s)	General water, sanitation and flood protection sector (40%), Flood protection (25%), Ports, waterways and shipping (25%), Public administration- Water, sanitation and flood protection (10%)
Theme(s)	Water resource management (60%), Natural disaster management (20%), Environmental policies and institutions (20%)
Lending Instrument	Investment Project Financing
Project ID	P146482
Borrower(s)	Republic of the Union of Myanmar
Implementing Agency	Directorate of Water Resources and Improvement of River Systems, Ministry of Transport
Environmental Category	A-Full Assessment
Date PID Prepared/Updated	06-Oct-2014
Date PID Approved/Disclosed	06-Oct-2014
Estimated Date of Appraisal Completion	08-Oct-2014
Estimated Date of Board Approval	11-Dec-2014
Decision	July 22, 2014

I. Project Context

Country Context

Myanmar is the largest country in mainland Southeast Asia and is endowed with abundant natural resources. Its geographic location between China, India and Thailand, and more than 2,800 kilometers of coastline, leave it well positioned to resume its traditional role as a regional trading and transportation hub, and a key supplier of minerals, natural gas and agricultural produce.

In 2011, leaving behind decades of isolation, fragility, and conflict, Myanmar began a triple transition: from a military regime to democratic governance; from a centrally directed economy to market-oriented reforms; and from 60 years of conflict to peace in the border areas. To support this transition, the Government of the Republic of the Union of Myanmar (GoM) has embarked on an ambitious economic and political reform program, announcing a series of reforms to remove economic distortions, stimulate direct foreign investments, and create an environment conducive to job creation.

This transition has been accompanied by accelerated economic growth. Myanmar's economy has grown at an average annual rate of 6.5 percent since 2010/11, up from 5.1 percent between 2005/06 and 2009/10. In addition, inflation has declined significantly, from 22.5 percent in 2008/09 to as low as 2.8 percent in 2012/13. A recent McKinsey Global Institute report suggested that the Myanmar economy could quadruple by 2030.

Despite its recent growth Myanmar remains one of the poorest countries in East Asia with an estimated 2012/2013 GDP per capita of about \$1,105. Analysis carried out for the World Bank's Systematic Country Diagnostic (SCD) found that the absolute poverty rate in Myanmar in 2010 was 37.5 percent, with 76 percent of Myanmar's poor living in rural areas and dependent primarily on agriculture. Urban poverty, at 34.6 percent, was found to be relatively higher than expected.

The pace of change in Myanmar is rapid and expectations are high. In this period of profound transformation, the government will be challenged to ensure that growth is environmentally sustainable and inclusive. Water policies and early water infrastructure investment decisions will have profound impacts, both positive and negative, on the health and productive potential of the country's water resources. It will also set the stage for the way in which future developments in river navigation, agriculture, energy and industry will be carried out.

Sectoral and institutional Context

Myanmar is a land and water rich country. It has the world's 25th largest arable land area and was once the world's largest rice exporter. It has more than twice the renewable freshwater resources per capita of the United States, nearly ten times that of India and over 15 times more than China.

The development of the Ayeyarwady Basin and Myanmar's water resources more broadly will have long-term, far-reaching consequences for growth, poverty alleviation and inclusiveness across the economy. Providing reliable access to water of good quality at an affordable price creates economic opportunities. Not doing so effectively forecloses opportunities. Therefore the policies and infrastructure investments that are implemented, for example, to allocate water between alternative uses, to deliver water at specific times to specific geographic regions, to protect water quality, and to protect people and assets from water-related hazards, will create opportunities and risks for different regions, sectors, groups and individuals. This in turn can have a profound impact on growth, inclusiveness and the structure of the economy.

The Ayeyarwady is Myanmar's largest river basin and has been described as the heart of the nation. Today the basin accounts for about 60% of Myanmar's landmass and is home to some 70% of its population. The river runs from the mountain ranges in the north, through the agriculturally important Dry Zone, to the productive yet fragile Delta. Due to the relatively high share of the population in the Dry Zone and the Delta, these two regions account for nearly two-thirds of the poor in Myanmar.

The Ayeyarwady is a river of global proportions, with an average annual flow of over 400 billion cubic meters, equivalent to roughly 85% of the Mekong. Groundwater resources in the basin are not well documented but believed to be equivalent to at least 50% of the current surface water storage in the Ayeyarwady, and countrywide as high as perhaps 495 billion cubic meters.

The river's mainstream remains undeveloped. Construction on what would have been the first mainstream dam (a large storage-backed hydropower dam at Myitsone) was halted in 2011 in response to public concerns regarding environmental, social and livelihood impacts. The decision to suspend construction of the Myitsone Dam pending further consideration of potential impacts, demonstrates the Government's recognition of civil society's expressed concerns and its commitment to making careful informed decisions on infrastructure investments in the Ayeyarwady River Basin.

Hydropower development, however, remains a focus of interest and a potential source of significant economic benefits. In total, Myanmar has an estimated 100,000 MW of total hydropower resources. Of this, the Ayeyarwady River alone is believed to account for 38,000 MW of potential installed capacity. The total installed capacity of existing hydropower plants is 2,660 MW. Myanmar has tremendous opportunities to develop hydropower, but currently lacks the data and decision support tools needed to understand the basin-wide impacts of these developments and the tradeoffs of alternative development options.

Agriculture in the Ayeyarwady Basin has historically been the mainstay of the Myanmar economy. Myanmar's wealth of land and water resources have made the country food secure; but exports and incomes could be significantly enhanced by increasing agricultural productivity and diversifying production.

The river's high sediment load appears to be compromising navigation on the river. The Ayeyarwady has the 5th highest sediment load of any major river in the world and many believe that the rate of sedimentation is rapidly increasing as a consequence of deforestation in the river's fragile upstream landscape and widespread land use changes across the basin. Heavy, shifting sediment deposits now hamper navigation in the low flow season (November to May) when the depth is insufficient for large or heavily loaded vessels to ply.

Water quality and quantity are increasing concerns. Water quality concerns are being raised with regard to mining activities as well as the anticipated growth of cities and industrial zones. In response, the government has introduced Environmental and Social Impact Assessment (ESIA) requirements and taken steps to improve the regulation of industries, including its successful bid to obtain Candidate Country status with the Extractive Industries Transparency Initiative (EITI). Water scarcity is an issue today only in the basin's 'Dry Zone', but conflicting demands are likely to arise if Myanmar continues its current rapid growth and the development of Special Economic Zones in the basin.

Extreme climate events such as severe weather, storms and floods are another set of concerns in the Ayeyarwady Basin. Climate change will likely intensify these risks. The 'dry zone' is prone to droughts, the valley and delta experience extensive flooding, and the coastal zones are vulnerable to sea level rise and storms such as cyclone Nargis which in 2008 killed an estimated 138,000 people and affected 2.4 million.

Ecosystem health and related eco-tourism opportunities also need to be taken into account in the development of Myanmar's water resources. The Ayeyarwady Basin is home to a range of charismatic and endangered species including elephants, tigers, leopards, sea turtles, crocodiles, a broad range of waterfowl and migratory birds, and the Irrawaddy dolphin.

Looking forward and for the long-term it is clear that many of the growth opportunities considered most promising for Myanmar relate directly to water i.e., enhanced production and trade in agricultural products, hydropower generation, and the expansion of national and regional green transport systems via rivers and ports. Anticipated growth in cities, industry, and cultural/eco-tourism will also require more water. It is important that the government has the capacity to anticipate the inter-relationships among the various demands that will be placed on water across its burgeoning portfolio of development investments.

In addition many of the drivers of poverty are related to water management. The SCD identified low agricultural productivity, erratic rainfall and lack of access to markets due to poor rural infrastructure as major drivers of poverty. Better management of water resources could increase agricultural productivity; better weather forecasts and water storage strategies could mitigate the impacts of erratic rainfall as well as the devastating impacts of extreme weather events, and enhanced navigation on the Ayeyarwady could provide low cost access to markets for rural farmers.

In recognition of the importance and timeliness of water resources management during this period of rapid transformation, a National Water Resources Committee (NWRC) was established by Presidential decree in July 2013 to manage the broad inter-related risks and opportunities of the Ayeyarwady River and Myanmar's water resources. The NWRC, chaired by the Vice President, has three pillars: (a) a Secretariat, (b) a Hydro-Informatics Center (HIC), and (c) an Expert Group. The NWRC will function as an apex body to oversee the efforts of the 34 government agencies that currently have mandates affecting water.

II. Proposed Development Objectives

The program development objective for the Series of Projects (of which the AIRBM will be the first) is to strengthen integrated, climate resilient management and development of the Ayeyarwady River Basin and national water resources.

The project development objective of the AIRBM is to contribute to the development of integrated river basin management on the Ayeyarwady River.

III. Project Description

Component Name

Component 1: Water Resource Management Institutions, Decision Support Systems & Capacity Building

Comments (optional)

Component Name

Component 2: Hydromet Observation and Information Systems Modernization

Comments (optional)

Component Name

Component 3: Ayeyarwady River Navigation Enhancements

Comments (optional)

Component Name

Componen 4: Emergency Contingency Response

Comments (optional)

This 'zero component' (initially without any allocations of funding) will allow for the rapid reallocation of funds from other components to provide preparedness and rapid response support to disaster, emergency and/or catastrophic events, as needed.

IV. Financing (in USD Million)

Total Project Cost:	100.00	Total Bank Financing:	100.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
BORROWER/RECIPIENT			0.00
International Development Association (IDA)			100.00
Total			100.00

V. Implementation

Financial: The project is expected to be implemented over the period between May 2015 and September 2020. Disbursements are likely to follow a schedule revolving around the Myanmar Government's fiscal year calendar. The primary disbursement methods will be Advances and Direct Payments. Reimbursements and Special Commitments will also be made available.

Implementing Agency: The National Water Resources Committee (NWRC) Secretariat/Department of Water Resources and Improvement of River Systems (DWIR) will be the primary implementing agency. The NWRC Secretariat is headed by the Director General of DWIR who also serves as the Secretary of the NWRC. The Director General/Secretary's dual role will help to ensure coordination among different entities. Implementation arrangements are based on the evolving structure of the NWRC agencies but rooted in the existing organization and business processes of the DWIR.

Steering Committee: The NWRC will provide strategic guidance to the AIRBM and receive regular updates on progress. A Project Steering Committee (PSC) will be formed from the NWRC to review and advise on annual progress reports, work programs and key processes and outputs. The PSC will be chaired by the Deputy Vice Minister, Ministry of Transport, and include three or four officials of the NWRC. The Secretary of NWRC/DG of DWIR will have financial oversight of the project.

Project Management. A Project Management Unit (PMU) will be established under DWIR/NWRC Secretariat and led by a Project Director. The Project Director will be responsible for project management and technical coordination, as well as procurement and financial management, monitoring and evaluation, and compliance with environmental and social safeguards for all project components. Financial management and procurement functions will be undertaken by existing staff of DWIR, with additional support from consultants as needed. Component Management Units (CMUs) will be established for each of the three Components. Each CMU will be led by a Component Director. The Component Directors will report to the Project Director and will be responsible for coordination and technical management of their respective Components, as well as

providing technical support for the PMU's procurement efforts by managing the preparation of technical specifications, bidding documents and evaluation reports, and advising on the acceptance of works, goods and services.

Stakeholder Forum: A Stakeholder Forum will be created to support the PMU and ensure engagement of key stakeholders from the public sector, private sector, NGOs and CSOs throughout the life of the project. Input and feedback obtained from the Stakeholder Forum will be used to inform implementation of the AIRBM. The Stakeholder Forum will serve as a key platform to support the engagement of communities in project consultations, including consultations on the Basin development objectives for the Master Plan (Component 1).

Monitoring & Evaluation: The PMU will monitor progress against the agreed performance indicators and produce quarterly progress reports. Data will be collected for each of the indicators with support from the DWIR, DMH and CMUs who will be responsible for monitoring technical progress. The PMU will produce the data for the results framework indicators on an annual basis as well as for the mid-term review and at project completion, and will discuss progress and performance related to the changes in these indicators from one year to another. During implementation, the PMU will recruit dedicated staff to monitor project progress and update the intermediary indicators. The PMU's monitoring and evaluation (M&E) system will include all three project components. The PMU will also carry out a mid-term review to assess the status of the Project as measured against the performance indicators.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
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

Comments (optional)

VII. Contact point

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Borrower/Client/Recipient

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