



The Republic of The Union of Myanmar

Ministry of Transport

Directorate Of Water Resources and Improvement of



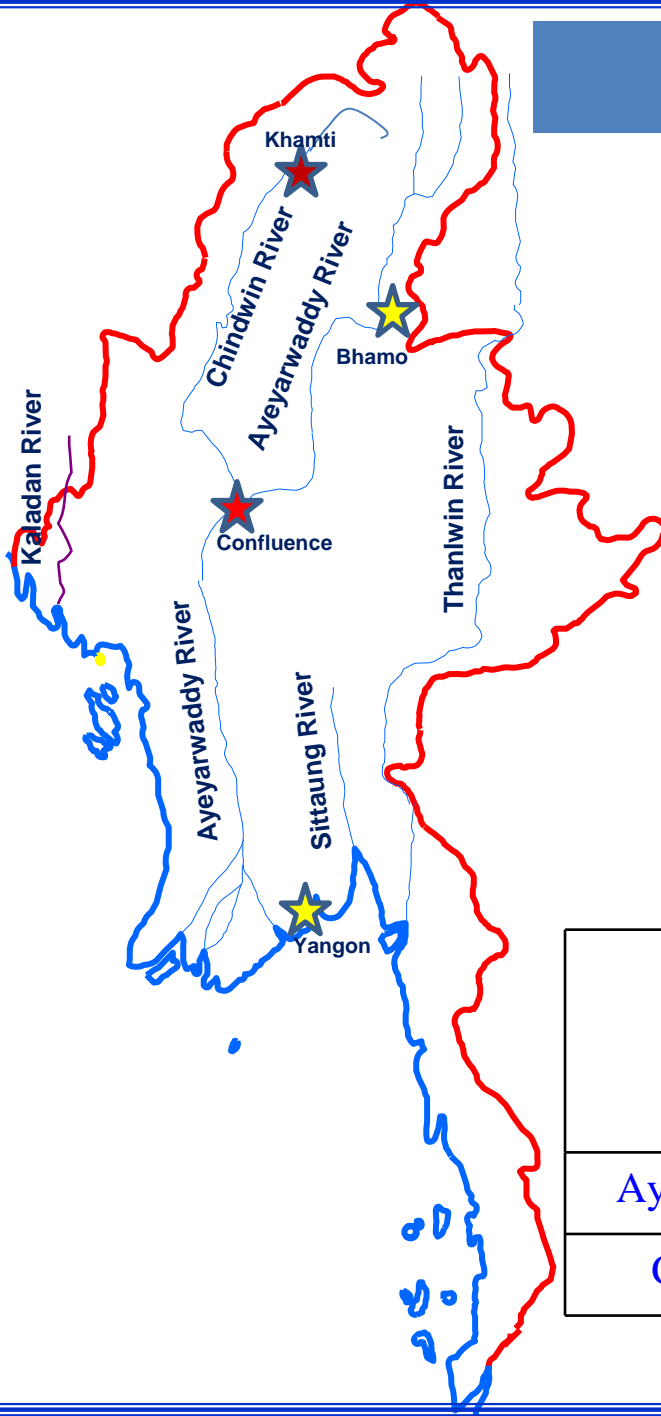
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Ayeyarwady Integrated River Basin Management Project

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Myanmar Rivers



- **Ayeyarwaddy River - 1534 km**
 - **Chindwin River - 730 km**
 - **Thanlwin and rivers in Mon State - 380 km**
 - **Rivers in Ayeyarwaddy Delta - 2404 km**
 - **Rivers in Rakhine State - 1602 km**
- Total - 6650 km**

Name of river	Catchment (sq-km)	Discharge (million cu-m)	Sediment Transport (million ton)
Ayeyarwaddy	288900	313720	278
Chindwin	115300	141290	131

Background Information of Ayeyarwady River

Length - 2100 km
Average width - 1200 m
Catchment area - 288900 Sq-km

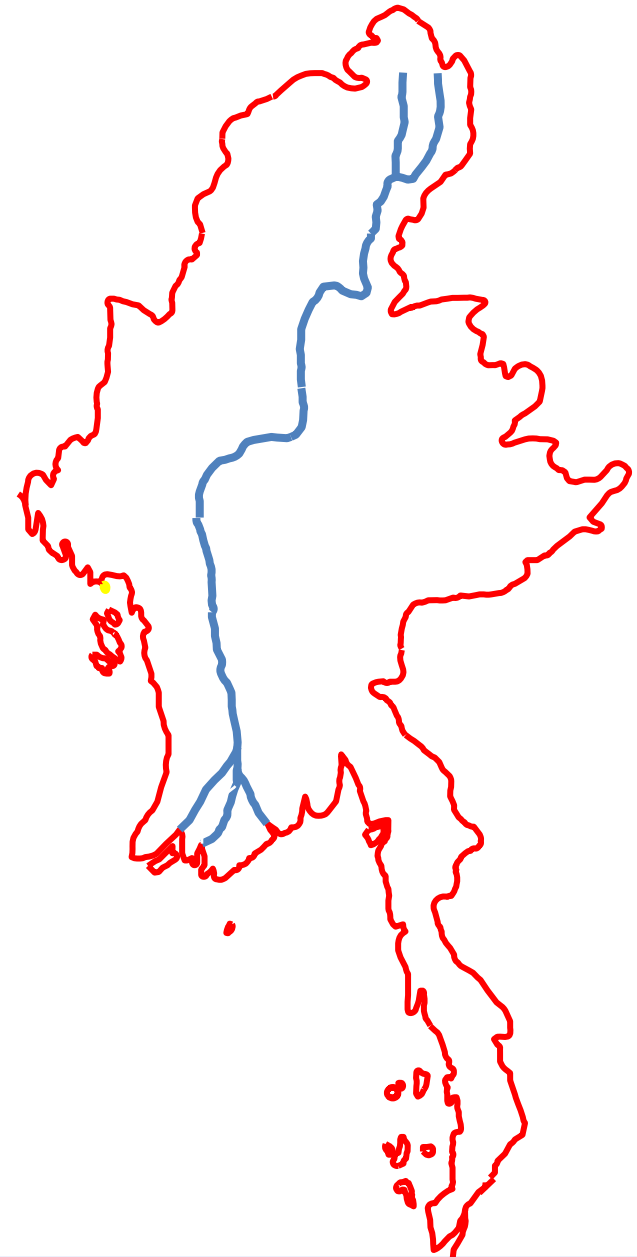
Average discharge - 313720 mil-cubic m

Navigable length - 1534 km

-Five defines

-Delta (35,000 square kilometer)

(Rice bowl of Myanmar)



Background Information for Waterways Improvement

- Master Plan for waterways improvement in Ayeyarwady river was developed by Royal Haskoning Co.,Ltd from the Netherlands and by world bank fund in 1986.
- To improve the navigation channel of Ayeyarwaddy river between Bhamo and Yangon, 46 constraint locations are necessary to maintain by means of river training works.
- Braided channels and widen channels in low water season with insufficient depth make challenges for navigation.
- Erosion in high water season that can be change river pattern, lost of agriculture land and dwellings.

Way Forward to AIRBM

- Myanmar has high potential for social economic development owing to its abundant water resources.
- Several agencies and departments under different ministries are involved independently in water sector.
- Those agencies implement their main duties according to their segregated and sometimes even conflicting mandates.
- **Sustainable Water Resources Development Standing Committee was formed on 19th Nov 2012 for the special economic zones.**
- **National Water Resources Committee(apex body in Myanmar) has been established by the Presidential decree in July 2013, to maximize the benefit of water resources with equality, integrity, sustainability and inclusiveness.**

Ayeyarwaddy Integrated River Basin Management Project

- **Funded by the World Bank through a Loan.**

- **Implementing Agency – Directorate of Water Resources and Improvement of River Systems (DWIR)**

- **Concerned Sectors**
 - 1. General Water, Sanitation and flood protection**
 - 2. Ports, Waterways and shipping**
 - 3. Public administration – water, sanitation and flood protection**

Objectives of AIRBM Project

- 1. To strengthen integrated, climate resilient management**
- 2. To develop the Ayeyarwaddy river basin and national water resources**
- 3. To develop the institutions and tools needed to implement integrated river basin management**
- 4. To deliver related livelihoods benefits from enhanced navigation and hydromet warning and advisory services**

AIRBM Project Design

- 1 . Water Resources Management Institutions, Decision Support System and Capacity Building**
- 2 . Hydromet Observation and Information Systems Modernization**
- 3. Navigation Enhancement on Ayeyarwady river**

The Project Cycle of World Bank



**Strategic Country
Diagnosis**

**Project Identification
(7 -18 Oct, 2013)**



Evaluation

**Preparation
(Jan 29 -Feb 7, 2014)**

Pre-appraisal (12-23 May ,2014)

**Implementation
Completion**

Draft ESMF Consultation (18 & 20 Sept, 2014)
Appraisal (Sept,2014)
Negotiation (Oct, 2014)
Board Approval (Dec, 2014)



Loan program of World Bank

According to the discussion between NWRC and represents from World Bank,

The WB has to provide US\$ 100 million loan program as follows

2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
10 US\$(million)	25US\$ (million)	25US\$(million)	25US\$(million)	15US\$(million)

Funding for AIRBM

Component	Sub project name	Amount (US\$ in million)
Component 1	Water Resources Management Institutions, Decision Support System and Capacity Building	32,000,000
Component 2	Hydromet Observation and Information Systems Modernization	30,150,000
Component 3	Ayeyarwady river Navigation Enhancements	37,850,000
Total		100,000,000



Detail of Budget Allocation

Component 1 (1) - Water Resources Institutions, Information and Capacity Building		32,000,000 (USD)
1.1	Institutional Development	10,500,000
1.1a	NWRC building, refurbishments and equipment	6,000,000
1.1b	Institutional development and operations of the NWRC secretariat, HIC and EG	3,500,000
1.1c	Capacity Building	1,000,000
1.2	Ayeyarwady River Basin Master Plan and Decision Support System	10,000,000
1.2a	Ayeyarwady Integrated River Basin Master Plans and Decision Support System	6,000,000
1.2b	Surveys and equipment	3,000,000



Detail of Budget Allocation

Component 1 (2) - Water Resources Institutions, Information and Capacity Building		32,000,000 (USD)
1.2c	Ayeyarwady Basin Strategic Environmental and Social Assessment	1,000,000
1.3	Preparation of Future Investment	7,000,000
1.3a	Financing for Feasibility Studies, EIAs, SIAs	7,000,000
1.4	Implementation Support/Project Management Unit	4,500,000
1.4a	Consultant and advisory services to the project Management Unit	2,500,000
1.4b	Incremental Operating Costs	1,000,000
1.4c	Stakeholder Forum and Communications	1,000,000



Detail of Budget Allocation

Component 2 (1) – Hydromet Observation and Information Systems Modernization		30,150,000 (USD)
2.1	Institutional and Regulatory Strengthening, Capacity Building and Implementation Support	6,000,000
2.1a	Institutional strengthening and development of a legal and regulatory framework	500,000
2.1b	Capacity building and training	2,900,000
2.1c	Systems design and integration, component management and monitoring	2,600,000
2.2	Modernization of the Observing Infrastructure, Data Management Systems and Forecasting	17,100,000



Detail of Budget Allocation

Component 2 (2) – Hydromet Observation and Information Systems Modernization		30,150,000 (USD)
2.2a	Technical modernization of the observation network	9,250,000
2.2b	Modernization of data management, communication, IT and forecasting systems	5,350,000
2.2c	Improvement of numerical weather prediction system and hydrological modeling systems	1,900,000
2.2d	Reconstruction and refurbishment of offices and facilities	600,000
2.3	Enhancement of Hydromet Service Delivery System	7,050,000



Detail of Budget Allocation

Component 2 (3) – Hydromet Observation and Information Systems Modernization		30,150,000 (USD)
2.3a	Creation of a Service Delivery Platform for weather and hydrological services	1,200,000
2.3b	Support of DRM operations including introduction of impact forecasting and expansion of "end-to-end" EWS	1,600,000
2.3c	Development of an Agricultural and Climate Advisory Service	2,900,000
2.3d	Creation and implementation of a National Framework for Climate Service	1,350,000



Detail of Budget Allocation

Component 3 (1) - AYEYARWADY RIVER NAVIGATION ENHANCEMENTS		37,850,000 (USD)
3.1	Ayeyarwady River Navigation Study	500,000
3.1a	Ayeyarwady River Navigation Study [financed by the Govt of the Netherlands]	0
3.1b	Fleet Optimization Study	500,000
3.2	Navigation Improvements	30,350,000
3.2a	Navigation Channel Modelling, Detailed design and construction supervision	4,500,000
3.2b	Preparation of EIA/ EMP for Navigation Improvement Works	300,000
3.2c	Construction of River Navigation Improvement Works	25,550,000



Detail of Budget Allocation

Component 3 (2) AYEYARWADY RIVER NAVIGATION ENHANCEMENTS		37,850,000 (USD)
3.3	Navigation Aids	3,400,000
3.3a	Purchase and Installation of Navigation Aids	2,200,000
3.3b	Survey and pilotage services (survey boats, echosounding equipment, etc)	1,200,000
3.4	Water Quality Monitoring	2,000,000
	Design and pilot operation of a water quality monitoring system	2,000,000
3.5	Institutional Strengthening and Implementation Support	1,600,000
3.5a	Implementation Support	800,000
3.5b	Capacity building, training and awareness raising	800,000

(Ref: AIRBM Aide Mémoire of World Bank , Aug 18,2014)

Project Implementation Arrangement

National Water Resources Committee(NWRC)

AIRBM Steering Committee

(a sub-group of NWRC, headed by Deputy Minister MOT)

DWIR/NWRC Secretariat

Implementing Agency
On behalf of the Ministry of Transport

Expert Group

Project Management Unit

Include all project financial
management, procurement,
monitoring and evaluation

Stakeholder Forum

Component 1

Water Resources institutions,
information
and capacity building

Component 2

Hydromet Observation &
Information
Systems Modernization

Component 3

Ayeyarwady River
Navigation
Enhancements

Conclusions

- **AIRBM Project is fundamental work not only Ayeyarwaddy river basin management but for improving other river basin and also the first priority project to operate for the navigable management and maintained.**

THANK YOU

