



Water in Myanmar

Myanmar is a country in a relatively favorable situation with respect to water resources. It has more fresh water per capita than all surrounding countries. With its abundance in natural resources, the country has great opportunities to achieve a balanced and sustainable development. All water resources of Myanmar are within the national borders and 3 out of 4 are national rivers. The country is still to a large extent unspoiled. Myanmar and The Netherlands, both with large and low lying deltas and large river systems, share many common challenges.

Myanmar is fortunate to have full control over most of its water resources; more than 19,000 m² per capita each year, which is about 9 times the available levels in China, 16 times India, 5 times Vietnam and 16 times Bangladesh. As liberalization and industrialisation continues, Myanmar's waterways will become increasingly important for regional integration and transportation of goods and persons. The national government has indicated highest priority will be given to infrastructure projects that boost economic integration, such as developing deep seaports and dredging the inland waterways. The devastation caused by cyclones Nargis in 2008 and Komen in 2015 shows that Myanmar is very vulnerable to water-related disasters. There is a demand for measures that improve the country's security against these disasters.

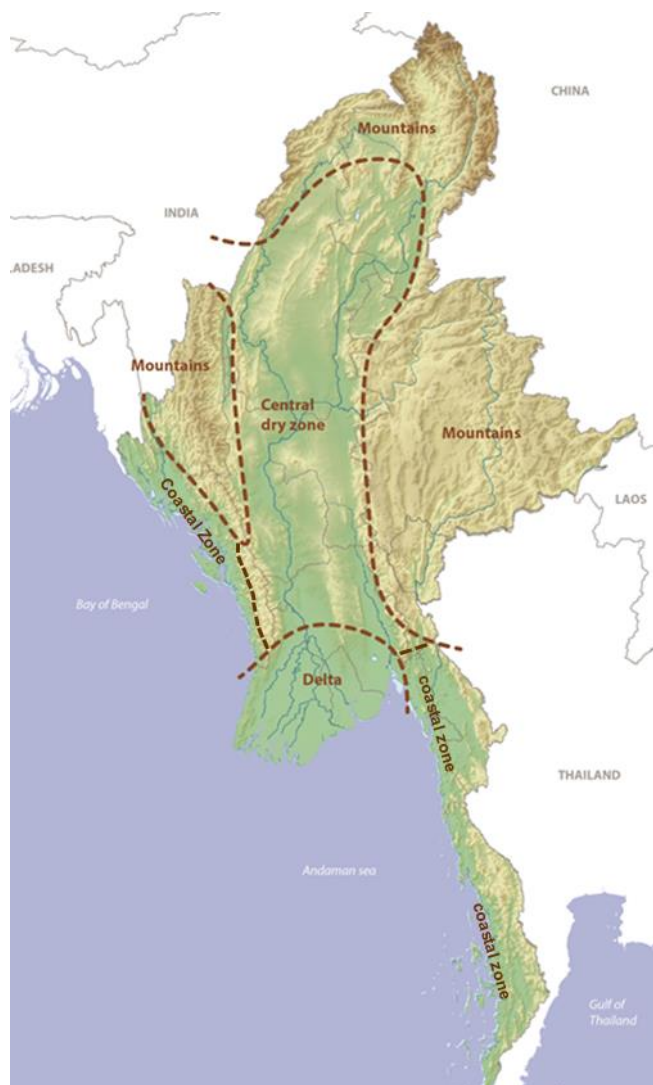
Myanmar's National Water Resources Committee (NWRC) has developed a National Water Policy with a clear vision on sustainable water management. The challenges in Myanmar and the Netherlands, both low lying delta's, are very similar and so is the need for integrated water management in both

countries. In May 2013 a Memorandum of Understanding (MoU) on cooperation in the field of IWRM was signed between the Netherlands and Myanmar. A strategic study on integrated water resources management (IWRM) has been executed by a consortium from The Netherlands. The first steps have been taken, but it's only the beginning. The time is right to work from vision to action, and from action to vision. In 2015 five Learning by Doing projects have been executed. The lessons learned are relevant for the next step in 2016: an Integrated Ayeyarwady Delta Strategy.

Potential

There are distinct regional water differences in Myanmar. For example lack of water in the Central Dry Zone and salinization in the Ayeyarwady Delta area, flooding in the deltas, flash floods in the mountains and Dry Zone, cyclones and surges along the coast are primary hazards. Inadequate rural and urban drainage cause trouble and damage. The availability of – safe – drinking water depends on reservoirs, communal ponds, private collection of rainwater and

groundwater. Future socio-economic perspectives and the associated pressure these have on water, need to be taken into account. Higher demands for agricultural and domestic water, potentially a boom in the demand for industrial water and consequent pollution problems, a sharp increase in the demand for hydropower, increased risks of river floods, changing courses and magnitudes of cyclones and longer droughts are key factors to be considered for future integrated water resources planning, implementation and management. And provide opportunities for the Dutch water sector.



Action ↔ Vision

Based on the IWRM study, the following key messages were derived for Myanmar:

- Optimize what you have! *“Maintain and upgrade what you have, so that you have time to plan for the future and do it right.”*
- Take a “broad view” in the analysis of problems! *“Aim for multi-purpose use of water infrastructure.”*
- Focus on education, capacity building and training! *“Key success factor for integrated water resources planning, implementation and management.”*

Water policies & governance

The National Water Policy (NWP) of Myanmar is the first integrated water policy for the watersheds, rivers, lakes and reservoirs, groundwater aquifers and coastal and marine waters, was approved in March 2014. The NWP should result in a framework for creating a system of laws and institutions and a plan of action including the Myanmar Water Framework Directive (MWFD). This MWFD is to be an umbrella statement of general principles governing the exercise of legislative and executive powers. In Myanmar no single institution is responsible for the management of water resources.

Good governance plays an important role in water management; e.g. collaboration between Ministries and stakeholder participation. Joint fact finding and joint problem formulation among the sectors will open up new perspectives for integrated solutions in the field of water or related fields.

Whether a policy or law works, depends very much on monitoring and enforcement power of the distinguished institutions and their capability of collaboration. That's why one of the key messages of the Netherlands is to focus on capacity building together with the private sector.



Opportunities

Myanmar's interrelation between water, food, and energy security is key to Myanmar because food and energy production have a large impact on the water resources in Myanmar. The Dutch Water Sector can play an active role and contribute to a sustainable and better use of the Myanmar water resources.

Agriculture

The main challenge is to provide the people with more profitable and therefore more sustainable forms of livelihood. In agricultural areas water is key for growing crops, and hence providing income and jobs. As a large rice producing country and with huge potential in agricultural development, good and sustainable use of water is of major importance. Water User Associations are an existing phenomenon, but turning them into true consumer/water users' organizations is an opportunity. Also a drought early warning system and improved drainage systems are necessary. Region specific challenges are:

- Implementation of integrated watershed management in the mountains
- Upgrading irrigation systems in the dry zone
- Modernization of agricultural polders; delta water quality
- Excessive sedimentation forms at reservoirs.

Energy

Development of Myanmar's vast sustainable hydropower sources and other forms of sustainable energy are high on Myanmar's agenda in order to provide energy to the growing demand of a population of 51 million people. The development of many hydropower dams is foreseen.

Floods

The necessity to address risks of extreme weather events is increasing since cyclone Nargis in 2008. After the heavy monsoon rains and floods caused by cyclone Komen in July 2015, flood protection and Disaster Risk Reduction is a high priority in Myanmar again. The Netherlands supported Myanmar in the first weeks by a DRR-Team in the Kalay/Monywa area and Delta area.

(See www.myanmar.nlembassy.org for the full DRR-Report). Needs regarding flood risk management are an early flood warning system, operations of reservoirs, flood risk approach, innovative flood protection measures, improvement of dyke inspections and training, insight in river movements, strengthen public resilience and evacuation plans, improvement of shelter scheme, stakeholder involvement in flood protection management, drainage systems and multi-purpose dam operations. This means many opportunities for companies with experience in among others stakeholder participation, river modelling, flood protection design, spatial planning and flood risk management.



Forestry

Deforestation in the Northern parts of Myanmar has large impact on the landslides and other water related issues in the country. Also the deterioration of the mangroves in the Ayeyarwaddy delta is problematic, since mangroves are the only natural protection against floods. Mangroves are mainly cut down to provide firewood and to clear the land for agriculture. Increasing awareness of the vulnerability of mangroves is a major challenge. The conservation of the habitat of mangroves and other forest needs to be embedded in larger schemes for agricultural water management and aquaculture. Dutch solutions can help.

Industry

Water (too much, too little, too dirty) is one of the main challenges for sustainable development of industry in this emerging market. A sustainable framework of legislation for the rapid industrial developments is needed. Setting quality standards, enforcement and attention to water utilization savings are required. Another opportunity might be to develop water foot printing as a (data) base for IWRM and water pricing. For more information, check the Factsheet on Urban and Industrial Water in Myanmar.

Sustainable urban development

IWRM plays a crucial role in sustainable urban planning, e.g. available local water resources, groundwater and surface water, water infrastructure and water quality, in particular because of the increasing demand of water supply. Myanmar, and more specifically urban areas like Yangon, run the risk of becoming one of the sinking cities. Climate resiliency of the Delta region requires attention. For more information, check the Factsheet on Urban and Industrial Water in Myanmar.

Ports and navigation

Inland water transport is still the main way of transport within Myanmar and will remain so. Therefore improvement of water depths for navigability, transport, river ports contribute to new perspectives on economic growth, job creation and income generation. The inland rivers, ports and banks need to be stabilized. Modern hydrographic and navigational information will reduce risks for shipping and improve navigation. The Dutch water sector can contribute to these developments.

Sanitation

Safe drinking water and sanitation is a nationwide priority. In the future, more drinking water supply needs to be based on piped water systems. The transition for solid waste collection from individual to collective responsibility is an important challenge, as is sewage water treatment.

Capacity building

A general challenge in Myanmar is the lack of well trained, educated people. Currently, several initiatives are being formulated, under the auspices of different donors and funds, to improve capacity building and education in the field of IWRM and water governance. Three required steps are:

- Strengthen existing capacity of key Ministerial departments; Enhance awareness of local water users;
- Capacity at Universities and Ministerial training centres;
- Capacity development through Training-of-trainers.

The Netherlands has a long tradition in training water specialists from around the world. The Niche-NUFFIC programme supports capacity building and higher education projects. But also the Dutch private sector invests in building capacity by providing training on the job opportunities and scholarships.



Learning by doing

Through 5 Learning by Doing projects, ranging from a feasibility study for the Pan Hlaing Sluice, to a developing a masterplan for Meiktila Lake, many lessons have been learned and a network built. Key element in this approach is

the exchange of knowledge and expertise by working together between the client and the Dutch institutions or companies during execution of the project. Through these projects not only the IWRM concept is applied on small scale in Myanmar, but they also provide an opportunity to Dutch companies to gain experience in working in Myanmar and building their network. In 2016 two new projects will be identified, both related to the Ayeyarwady Delta Strategy. For more ongoing and upcoming projects please follow:

www.tenderned.nl, www.rvo.nl and www.nwp.nl



Business support

Most development partners have re-engaged with Myanmar and embarked on the formulation and implementation of programmes. After the enactment of a new foreign investment law in November 2012 high added value / high revenue potential sectors such as oil & gas, power generation, industrial zone development and related port and maritime infrastructure attracted massive foreign investor interest. Development partners like the World Bank and Asian Development Bank are involved in the field of water via technical assistance grants, concessional loans and a Trust fund, NL funded Water programme.

Others are IFC, UNDP, EU, and EIB. Furthermore the engagement of private finance (equity & debt) through PPP arrangements or other forms of private sector participation is rapidly developing. The Netherlands has several instruments available to support Dutch business to enter the market in Myanmar, like the fund for smaller demonstration projects, feasibility studies and investment studies (DHI), and DRIVE (infrastructure projects). Please check for the latest news: www.rvo.nl or contact the Embassy.

Furthermore, Myanmar is on the country list of PUM, CBI, Atradius and FMO.

Further reading

Contact the Embassy of the Kingdom of The Netherlands or take a look at our website for an overview of recently published reports and activities in the field of water in Myanmar.

Relevant fairs

17-19 May 2016: Annual Myanmar Upstream Oil & Gas Summit & Exhibition

Topics: updates on oil & gas production sharing contracts, geological data, updates on the fiscal regime and a platform for debate and discussion relating the sustainable development of hydrocarbon resources

Venue: Sule Shangri-La Hotel in Yangon

23-24 May 2016, Global Water Conference

<http://www.globalwaterconference.com/>

Venue: Sule Shangri-La Yangon

2-4 August 2016, Urban and City Planning Conference

Topics: City Planning, Urban Build & Transport Infrastructure, as well as Heritage & Real Estate Conservation

Venue: to be announced, Yangon

14-16 Oct 2016, Myanmar Aqua Fisheries conference

Venue: to be announced, Yangon

20-22 Oct 2016, MyanWater

<http://www.myanmarwater.com>

Venue: Myanmar Event Park, Yangon

1-3 December 2016, Myanmar Water,

www.myanmarwater.org

Venue: to be announced, Yangon

Relevant contacts

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Others

- Netherlands Enterprise Agency: www.rvo.nl
- Embassy of Myanmar in Brussels: www.embassyofmyanmar.be
- Union of Myanmar Federation of Chambers of Commerce: www.umfcci.net
- Netherlands Water Partnership (NWP): www.nwp.nl

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