

THE INTERNATIONAL JOURNAL ON
**HYDROPOWER
& DAMS**

www.hydropower-dams.com



SPECIAL ISSUE:

- 82nd Annual Meeting of ICOLD, Bali
- Hidroenergia 2014, Istanbul

Volume Twenty One, Issue 3, 2014

**DAM ENGINEERING AND HYDROPOWER IN INDONESIA ~ RCC DAMS IN SOUTHEAST ASIA
ENVIRONMENTAL ASPECTS ~ SMALL HYDRO ~ HIDROENERGIA PREVIEW**

Hydropower in Myanmar: Sector analysis and related legal reforms

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The momentous transformation of Myanmar's political and economic landscape, which began in 2010, has created many investment opportunities, particularly in the hydropower sector. Myanmar is uniquely fortunate to have growing electricity demand both domestically and from its neighbours, eager to buy clean power, as well as a wealth of potential hydropower resources. Rapid economic growth is being experienced across nearly every sector, with a significant focus on energy and infrastructure. According to the International Monetary Fund, GDP per capita in Myanmar as of October 2013 was US\$ 1040, an increase of 20 per cent since 2012. In addition, pledged foreign direct investment in Myanmar is also at record levels, exceeding US\$ 44 billion in 2013 and showing no signs of slowing.

The transition process from military to civilian rule in Myanmar, being led by President U Thein Sein, has included widespread reforms, in an effort to modernize the legal and regulatory environments to reflect international norms. A number of new laws have been ratified, such as the Foreign Investment Law, while a new Electricity Law is expected later this year. Myanmar's geostrategic position between nations with populations totalling nearly 2.5 billion people with an insatiable demand for energy, in combination with its own growing domestic electricity requirements, are enormous incentives to develop the energy infrastructure necessary to capitalize on those demands. This is most notable in the hydropower sector, where less than 10 per cent of Myanmar's proven potential is currently being utilized.

In *H&D Issue One, 2007*, James Finch, the founding partner of DFDL's Yangon office in 1995, wrote a paper on the regulatory framework for hydropower projects in Myanmar. This topic is revisited here, seven years on, and after many changes made during the recent transformation of Myanmar's legal and political system. This article will also look at other key issues and changes in Myanmar legal and regulatory environment related to hydropower project development.

1. Industry overview

Across its four major rivers and numerous tributaries, Myanmar harbours an estimated 40 000 MW of exploitable hydropower potential. However, rolling brownouts plague consumers who do have access to electricity, and for nearly 75 per cent of the population electrical access is currently unobtainable and will remain so for the immediate future. In response to the growing domestic demand for electricity, the Government of Myanmar has announced plans to increase its electricity generating capacity five-fold within the next 15-20 years. Private sector participation and finance will be essential in this effort.

There are currently 20 hydropower projects operating in Myanmar with a capacity greater than 5 MW, 17 of which are owned by the Government, one that is locally owned, and two that are joint ventures between the Myanmar Government and Chinese state-owned enterprises. However, according to the Ministry of Electric Power, the number of hydro projects in the planning stages is significantly weighted towards joint ventures, standing at 44 to date. This, in combination with the new Foreign Investment Law, discussed in

detail later in this article, is reflective of a shift in policy towards the easing of access for foreign companies to invest in a hydropower sector that is growing at an annual average rate of nearly 18 per cent.

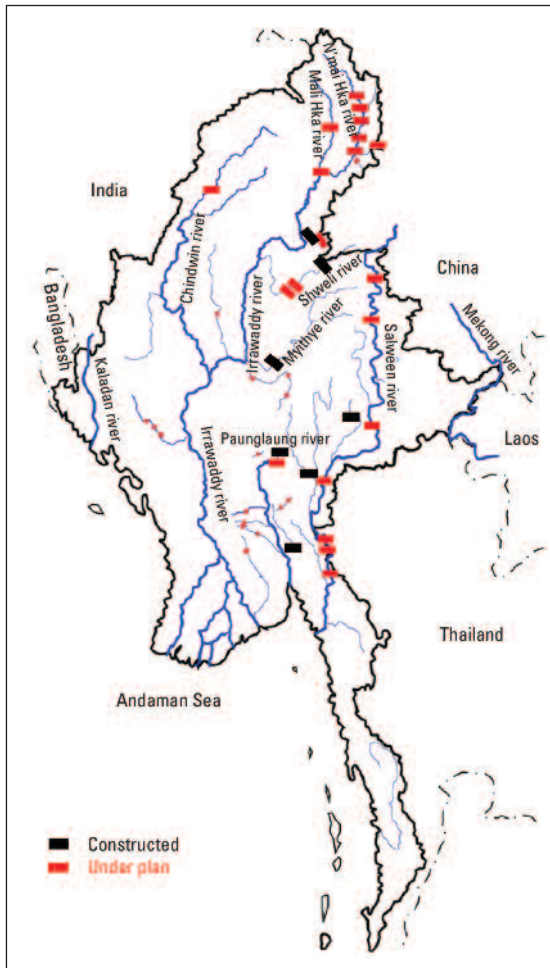
Until recently, broad government-to-government agreements for the sale and purchase of a specific amount of energy over a given time period (Memoranda of Understanding or MoUs) were typically the method through which the Myanmar Government negotiated power trading deals with its neighbours. Myanmar signed an MoU with Thailand in 1997 for the trade of 1500 MW of electricity, which expired in 2010 and has not been renewed. According to the Ministry of Power, Energy, and Mineral Resources of Bangladesh, negotiations are currently underway for the purchase of 500 MW of hydropower by Bangladesh from Myanmar by 2017. However, apart from this pending agreement, no other broad power-trading MoUs are reported to be under consideration.

The Myanmar Government instead appears to be negotiating project-specific MoUs with its neighbours, to help encourage regional investment into its energy infrastructure. India's National Hydroelectric Power Corporation (NHPC) signed an MoU with the Myanmar Government in 2004 for the development of the 1200 MW Tamanthi dam on the Chindwin river, with an estimated 80 per cent of the power going to India. A new agreement was signed in 2008 between NHPC and the Myanmar Hydroelectric Power Department to form a joint venture with NHPC for the development of the Tamanthi and Shwesayay dams.

Thailand is reported to be in negotiation for up to 10 000 MW of hydroelectricity from Myanmar over an unspecified time period. This MoU is linked directly to the Salween dam projects, five proposed dams along the Salween river, which would have a combined capacity of more than 18 000 MW. Specifically, Thailand will receive most of the power from the 7110 MW TaSang dam, which is planned along its border with Myanmar. Thailand, through its generating authority EGAT, is also to receive the majority of power generated from the 1200 MW Hatgyi dam, currently under construction, as well as the Weigy dam, with an estimated total capacity of up to 5600 MW. Both are to be located in northeastern Karen State. EGAT has announced that power from the Hatgyi dam will be supplying the Thai national grid by 2019.

Although Thailand has significant investments, China is by far the largest financier of hydropower in Myanmar, and has a number of MoUs signed for various power trading arrangements. Chinese state-owned

Hydro schemes in Myanmar in operation and planned.



enterprises are publically involved in nearly every large-scale hydropower project either at the advanced planning stage or under construction in Myanmar. Together these projects represent 31 451 MW of potential generating capacity, a significant percentage of which will be exported to China. The largest of these project-specific MoUs was signed in 2007 between the Government of Myanmar and the China Power Investment Corporation for the implementation of seven large dams along the Irrawaddy, Mali, and N'Mai rivers in Kachin State totalling more than 17 000 MW. However, the implementation of these projects has met with resistance. The largest of the proposed projects in this cluster, the 6000 MW Myitstone dam, has been suspended since 2011 by order of the Myanmar Government as a result of mounting pressure from local populations and environmental impact concerns.

One potential issue that may arise for the Myanmar Government as it continues to sign project-specific MoUs with neighbouring countries is that its huge domestic electricity deficit may begin to make it politically difficult to support the use of Myanmar's natural resources to generate electricity for export abroad. As the standard of living continues to rise for Myanmar citizens, the Government will soon be required to allocate a significant amount of funds towards internal electricity transmission infrastructure. On one hand these funds can be generated through the export of electricity; on the other, that electricity is also needed locally.

Power sector organizations in Myanmar	
Regulator	None
Generator	MEPE; Hydropower Generation Enterprise (HPGE); Joint ventures
Distributor	Yangon City Electricity Supply Board (Yangon); Electricity Supply Enterprise (national)
Policy-maker	Ministry of National Planning and Economic Development; Department of Hydropower Planning (DHPP)
O&M	Department of Hydropower Implementation
Equity investment	MEPE

2. Relevant ministries

Before 1997, the Ministry of Energy was responsible for power generation and the distribution of electricity throughout the country. In late 1997, the Ministry of Electric Power (MOEP) was established to improve administrative control over the generation and distribution of electricity. In 2006, MOEP was reorganized into MOEP 1 and 2. According to the Government, this was with a view to achieving economic nation building and fulfilling development tasks more effectively in connection with the use of electricity. Regarding hydropower, MOEP 1 consisted of: a policy-making body, the Department of Hydropower, to implement the projects; the Hydropower Implementation Department; and, an investment vehicle; the Hydroelectric Power Enterprise.

MOEP 2 dealt with the electricity sector as a whole, and consisted of the Department of Electric Power, the Myanmar Electric Power Enterprise, and the Electric Power Distribution Enterprise. The Board of Yangon City Electric Power Supply was also under the jurisdiction of MOEP 2, and was formed with the ratification of a law in 2005 bearing its name, for the purpose of providing electricity to the national capital at the time, Yangon (Rangoon). Specifically, this Board has the responsibility to carry out exploration works, and the production, transmission, and distribution of electric power. It may also grant permission in localities, where it cannot fully supply electric power itself, for private electric powerplant operators to supply electricity and charge the public, with the approval of MOEP. MOEP was reintegrated back into a single government ministry in September 2012.

3. Potential purchasers of Myanmar's electricity

Hydropower development on a public-private partnership (PPP) basis depends fundamentally on two key factors: the existence of water resources that can be developed on a profitable basis; and, a willing, long-term, and credit-worthy purchaser of the plant's electrical capacity. The state-owned Myanmar Electric Power Enterprise (MEPE) is the designated purchaser under power purchase agreements (PPAs). However, MEPE is perceived by potential financiers as lacking the track record and credit-worthiness of other power purchasers in the region, such as the Electrical Generating Authority of Thailand (EGAT). This may be a fundamental hindrance to the rapid development of hydropower projects in Myanmar.

Lao PDR is an example of how the resolution of this issue can quickly unlock hydropower potential.

Electricité du Laos (EdL), is the Lao equivalent of EGAT and MEPE. It has the same issues related to credit-worthiness as MEPE. To unlock hydropower development, in the early 1990s the Lao government authorized the sale of electricity to Thailand (EGAT). Approaching financiers with pre-agreed EGAT PPAs in their pockets, developers were able to convince lenders to offer large sums to finance Lao hydropower projects. Banks were also more confident and comfortable in taking on other types of local project risks with a reliable foreign off-taker on hand. Having successfully financed a few such export-oriented projects, banks are now becoming more comfortable with lending to domestic supply agreements as well.

To unlock financing for its own hydropower projects, Myanmar could pursue the same policy as Laos by initially focusing development on projects that sell electricity to neighbouring countries. However, as previously mentioned, one key difference between Myanmar and Laos is that Myanmar has a strong unmet domestic demand for electricity. Selling natural resources (water) in the form of electricity to Thailand while the citizens of Myanmar lack an adequate supply of energy for their own use may prove too politically unpopular.

Another option for Myanmar would be the one pursued by the Malaysian state of Sarawak under the SCORE project (Sarawak Corridor of Renewable Energy). While the complexities of SCORE are beyond the scope of this paper, it is noteworthy that the basic principal on which SCORE was formed could be a feasible option for Myanmar. The SCORE development strategy is to bring electricity-intensive private sector industries into Sarawak, and require such industries to enter into long-term PPAs directly with the state utility. Sarawak has since become attractive to industries because of the lowered cost of hydroelectricity, proving this project successful. In addition, the PPAs entered into by such industries paved the way for the financing and development of the hydropower projects themselves. Thus, they created a domestic market for their hydropower capacity through incentivized government policy.

Given the global interest in Myanmar, a combined Sarawak/Laos (domestic private buyer/foreign utility buyer) model may be a realistic way of encouraging lenders to become comfortable with Myanmar's political and commercial risk. Of course, one cannot discount the important role that multilateral institutions such as the Asian Development Bank and the International Finance Corporation will play in the development of Myanmar's power sector, as well as sovereign guarantees from the Government of Myanmar, but there will also be a place for entities such as EGAT and private industry.

4. Awarding contracts

Unlike the oil and gas sector, there is no standardized procedure for open tender or direct hydropower contract negotiations with the Government, and steps vary on a case-by-case basis. However, based on the authors' experience, research, and discussions with relevant officials, the awarding of contracts for hydropower projects in Myanmar generally follows the following steps:

1. MOEP or the Department of Electric Power (DEP) will publish an invitation for bids to implement a hydropower project in state-owned newspapers.

2. The bidder will have the following documents endorsed for authenticity by the Myanmar Embassy of country of incorporation:
 - a copy of the company's Certificate of Incorporation;
 - a copy of the by-laws or the memorandum and articles of association;
 - a copy of the most recent annual report;
 - a copy of a financial statement or financial report;
 - a profile of the company and its past experience;
 - a profile of the project manager, engineering manager and site manager (who would be in charge of the power project) including academic qualifications and past experiences.
3. The bidder will prepare an Expression of Interest.
4. Submit the Letter of Expression of Interest and the documents mentioned above to MOEP or DEP.
5. Complete the initial technical and legal due diligence.
6. Meeting with the relevant Government entities to discuss proposal for development of power plant.
7. Buy the tender form and pay the deposit to MOEP or DEP
8. Conduct feasibility study.
9. Submit the proposal with the tender form.
10. MOEP will assess the proposals, and will select one of the bidders.

5. Environmental considerations

Any hydropower project by its very nature alters the surrounding area in which it is built. Recognizing that Myanmar must balance infrastructure development with environmental protection, the Government has mandated that once a power project has been awarded through the direct negotiation or open tender processes, the project investor should submit a complete project proposal to the Department of Environmental Conservation (DEC) for consideration. The DEC will then inform the project investor if a preliminary environmental impact assessment (PEIA) or a full environmental impact assessment (EIA) is required. With regard to hydropower generation projects, any project of less than 15 MW or with a water storage capacity of less than $200 \times 10^6 \text{m}^3$, or with a reservoir area of less than 1500 ha only requires a PEIA; any project with specifications greater than any those listed requires a full EIA. However, the DEC may take other considerations into account when deciding on the environmental assessment requirements. Project investors should conduct either investigation by consulting with a third party organization that is qualified under Myanmar law. Once the assessment has been conducted and submitted to the DEC it will, following approval, publish the announcement in a state-owned newspaper.

6. Basic legal and commercial structure

There are three types of legal structures for hydro projects in Myanmar. The first and most prevalent to date is the state-owned model; specifically, projects implemented and owned by MOEP. The second are projects to be developed on a build operate transfer (BOT) basis that are owned and implemented by Myanmar companies. The third category comprises projects to be developed on a BOT basis owned partially by foreigners, known as JV/BOT projects. The MEOP currently plans to develop 67 hydro projects over the next 20 years, as follows: 11 state-owned, totalling 2132 MW; 4 domestic BOTs, totalling 377 MW; and, 43 for-



Myanmar's 790 MW Yeywa hydro station on the Myitnge river, the country's largest hydro plant in operation to date.

eign JV/BOT schemes, totalling 41 655 MW.

Current MOEP policy requires a maximum royalty to be paid to the Myanmar Government in the form of free shares in the project company, and the supply of free power to the MEPE. The Government requires 10 to 15 per cent of equity to be given to the MOEP in free shares and requires 10 to 15 per cent of free power to be supplied to MEPE. However, the Government caps the royalty at 25 per cent, meaning the percentage of free shares and free power should not exceed 25 per cent. It should also be noted that current policy is such that at least 50 per cent of the electricity capacity must be sold to Myanmar (MEPE). Concession terms are 30 years maximum.

7. Related legal reforms

Widespread economic growth cannot take place unless it is built on a foundation of law that outlines the rights and obligations of investors, while providing protections like independent regulatory oversight and dispute resolution that are in line with accepted international practices. Accordingly, Myanmar has taken a number of positive steps since 2011, by updating laws to reflect a path of democratic transition. Notably in relation to investment in the hydropower sector are the following:

7.1 Foreign Investment Law

Myanmar's new Foreign Investment Law (FIL) was passed on 2 November 2012, replacing the previous law dating back to 1988. The Ministry of National Planning and Economic Development issued the implementing rules, Notification 11/2013, on 31 January 2013. The FIL focuses on which industries and international companies are permitted to enter particular markets and in what form.

Foreign participation in the generation of electricity is possible only as a joint venture with a government entity. Foreign companies are also restricted to a 20 per cent ownership in electrical generation facilities that have a capacity of less than 10 MW. The minimum capital requirement under the FIL for an investment into industry by a foreign company is US\$500 000; although in practice the Government tends to set the requirement at levels higher than what is stipulated under the FIL. The foreign capital may be in kind or in cash. Foreign currency and in-kind contributions such as machinery, equipment,

and raw materials brought in as foreign capital will be evaluated and registered in kyat at the official rate. Regarding the land on which the hydropower project will be built, ownership is restricted to Myanmar nationals, but the FIL allows investors to enter into a lease for up to 50 years, with two additional extensions of 10 years each for a total of 70 years.

The regulatory authority that oversees foreign investment is the Myanmar Investment Commission (MIC), which is established and empowered by the FIL. The MIC has broad discretionary powers to implement the objectives of the FIL, including granting project approvals and dictating the terms and conditions under which such projects can be carried out. The MIC has significant discretionary authority to grant exemptions to any restrictions.

The implementing rules include a series of official lists that set out the types of businesses that are permitted, conditionally permitted, and restricted. Businesses that build hydroelectric and charcoal-fuelled power stations and sell the electricity to the State must first be approved by the Cabinet before the MIC will issue a permit to operate. A licence will then be issued by a regulatory authority, which at present is the Ministry of Industry, under the Electricity Law of 1984. With respect to these specific types of projects, permits and licences are only granted to foreign investors who establish a joint venture with the State. In addition, approval is required for hydropower and other large-scale heavy electric power production facilities from the Ministry of Environment Conservation and Forestry. This is dependent on impact minimization, as confirmed by official environmental and social impact assessments.

In resolving disputes between parties, under Rule 170 of the Foreign Investment Rules, it is stated that in the case that a dispute mechanism is not mentioned in an agreement, disputes must be settled using the laws of Myanmar, namely the Arbitration Act of 1944 and the Protocol and Conventions Act of 1939. Although these laws date back to pre-independence, on 15 July 2013, Myanmar became the 149th contracting state to the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards 1958. Once domestic legislation adopting the Convention comes into effect, courts in Myanmar will be obliged to recognize foreign arbitration clauses and to enforce arbitral awards made in other member states.

7.2 Foreign Exchange Management Law

Passed in 2012, the Foreign Exchange Management Law (FXML) replaces the 1947 Foreign Exchange Regulations Act, in an effort to introduce liberalization components into the foreign exchange regime. The FXML replaces the strict approval requirement by the Central Bank of Myanmar for all foreign currency transactions, by breaking foreign payments into capital account transactions and current account transactions, with only capital account transactions requiring Central Bank approval. However, the implementing regulations for the FXML have not yet been published, so there is a lack of clarity at present regarding the operational procedures for a new foreign exchange system.

Transferring funds out of Myanmar remains problematic, except in cases of profits and liquidation of funds under the FIL, which is a reason why the FIL is widely used.

7.3 Electricity Law

The Myanmar Government, in conjunction with the Asian Development Bank, is currently in an advanced drafting stage for a new electricity law that will replace the current law of 1984. It is widely expected that the new law will be passed during the next Parliamentary session set to begin in the middle of this year. Based on the stated objectives of the most current draft, the new law is significantly more focused on creating an attractive environment for foreign investment, while emphasizing transparency and the adherence to international norms and standards. Also, it provides for the establishment of training schools to promote modern technology and cultivate local technicians and experts, with a view to creating a knowledge base within Myanmar to further the Government's goal of universal electrification by 2030.

One of the major changes set to take place with regard to the governing structure of the electricity sector is the establishment of the Electricity Regulatory Commission. It is the stated duty of the Commission to create an environment conducive to investment into the power sector, and for compliance with electric power rules. Although the details as to its operational processes and relationship to the Ministries will not be clarified until the release of the implementing regulations, this is a significant step forward. The new electricity law will, at a minimum, create a semi-independent regulatory body to assist in the management of Myanmar's electricity sector, by increasing its effectiveness and credibility for international investors.

The draft Electricity Law also decentralizes some authority over the electricity sector by empowering regional and state governments to grant permission, regulate, or withdraw permission for medium- and small-scale power generation and distribution projects (no greater than 30 MW) which are not connected to the national grid. The necessary infrastructure to provide grid access to the entire country is still 15-20 years away; therefore an opportunity exists nationwide for small- and medium-scale off-grid hydro projects to electrify rural areas. This represents major progress since the 1984 Electricity Law, which effectively limited foreign investors to projects of less than 500 kW unless express permission had been given by the Cabinet.

Although there are still revisions to be undertaken before the final version of the new electricity law is passed in Parliament, at this stage it appears that the Government is taking a number of progressive steps to provide a solid and transparent foundation for its electricity sector, to facilitate widespread domestic and foreign investment.

8. Conclusions

Myanmar's potential for developing its hydropower sector over next 20 years is undeniable. Its large and growing domestic market and power-hungry neighbours will give power producers in Myanmar a solid market for decades to come. However, before the first large public-private partnership hydropower projects can get off the ground, the Government of Myanmar will need to clarify its policies in a number of key areas, and create credit-worthy buyers of the generated electricity, while ensuring that royalties, regulatory infrastructure, financial incentives, free shares and free power are harmonized to be attractive to both domestic and foreign investors. This process is already well under way, and substantial development in the immediate term is widely expected. ♦



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