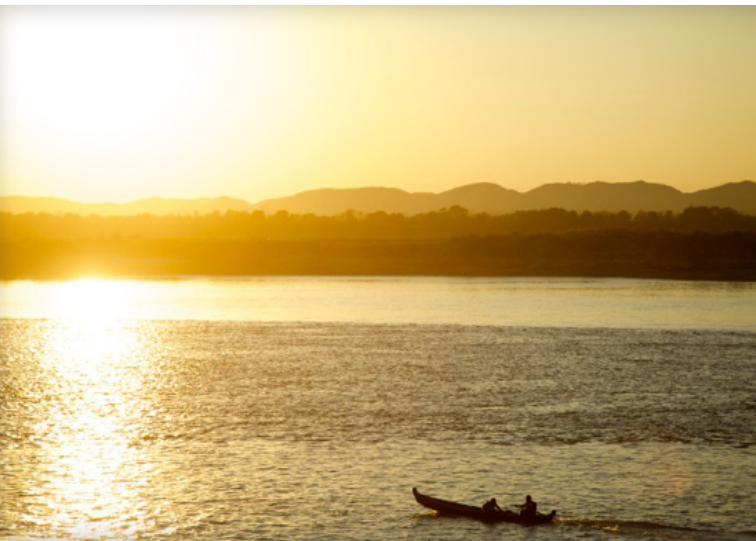


## Harnessing Myanmar's Hydropower and Negotiating Conflict

*Elliot Brennan & Stefan Döring*



*As the country develops, Myanmar urgently needs to increase electricity generating capacity. In order to do so Naypyidaw must continue to develop the country's hydropower sector if it hopes to meet ambitious development targets pressed by demands placed on it by new investment projects. This Focus Asia paper looks at the perilous process of harnessing Myanmar's hydropower, with a particular focus on the volatile developments along the Salween River and their already very present ability to create conflict.*

Many of Myanmar's rivers are highly suitable for hydroelectric power generation. Many of them already help provide the base load of the country's electricity needs. As the country develops it is not surprising that dozens of dam projects are planned for construction around Myanmar.

However, constructing dams often alters the natural environment and usually requires a relocation of local populations; moreover, with the country being in the midst of a nationwide ceasefire process – the next round of nationwide ceasefire talks are due in March – dam sites have the potential to stir latent or suspended conflicts. The planned and future projects also have the potential to cause diplomatic incidents with neighboring countries, as currently the majority of the electricity generated from these projects ultimately ends up outside of Myanmar's borders, as was shown in the recent government shutdown of the Chinese-led hydropower dam in Myitsone in northern Myanmar.

This is further complicated by, what many believe, is an overrepresentation of Chinese companies engaged to construct hydropower plants in Myanmar.<sup>1</sup> This has the potential to affect relations with other countries such as Thailand, but also, through diminished commercial competition, hinder the quality of constructed dams.

Access to water has long been a source of conflict. Multiple stakeholders – from farmers to factories – often stretched across national borders make water a difficult resource to manage. For Myanmar's nascent legal environment, still governed largely by old structures of nepotism and patronage, regulating water-use

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is particularly difficult and will continue to be difficult as the country's economy adds new industry on riparian land. The lack of roads and infrastructure means that transporting goods by water will remain an important transport route for at least a decade to come. Similarly, Myanmar's water will be crucial in providing the country's base load of power generation through hydropower dams.

### *Energy Hungry, Infrastructure Poor*

In order to support its development, Myanmar has a growing need to generate electricity. According to media sources, the country is planning to build around 45 new hydropower dams.<sup>2</sup> The need for development of infrastructure in Myanmar's energy sector is apparent with frequent power shortages. According to World Bank data, the present-day electricity output only reaches 25 percent of the country's population.<sup>3</sup> Furthermore, power shortages significantly impinge on Myanmar's economic development as businesses necessitate consistent supply and a reliable infrastructure.

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For the next 20 years, a business as usual estimation by the Asian Development Bank forecasts a 3.1 percent annual growth of the country's energy demand.<sup>4</sup> Within the same timeframe, about one fifth of the generated

electricity will come from hydropower, which is anticipated to have the fastest annual growth rate of all energy sectors. Nonetheless, much of the newly generated energy is set for export to China and Thailand.<sup>5</sup> The regulations for planned dam projects on the Salween River reserve only 25 percent<sup>6</sup> of the produced energy to Myanmar, while the Kunlong hydropower project, for instance, will reportedly only transmit 15 percent<sup>7</sup> of the produced energy into the domestic grid system.

It is on the Salween River, one of the country's main rivers, that many of these projects, such as the Kunlong project, have been planned.

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**Cover photo:** The Ayeyarwaddy River at sunset taken by Elliot Brennan.

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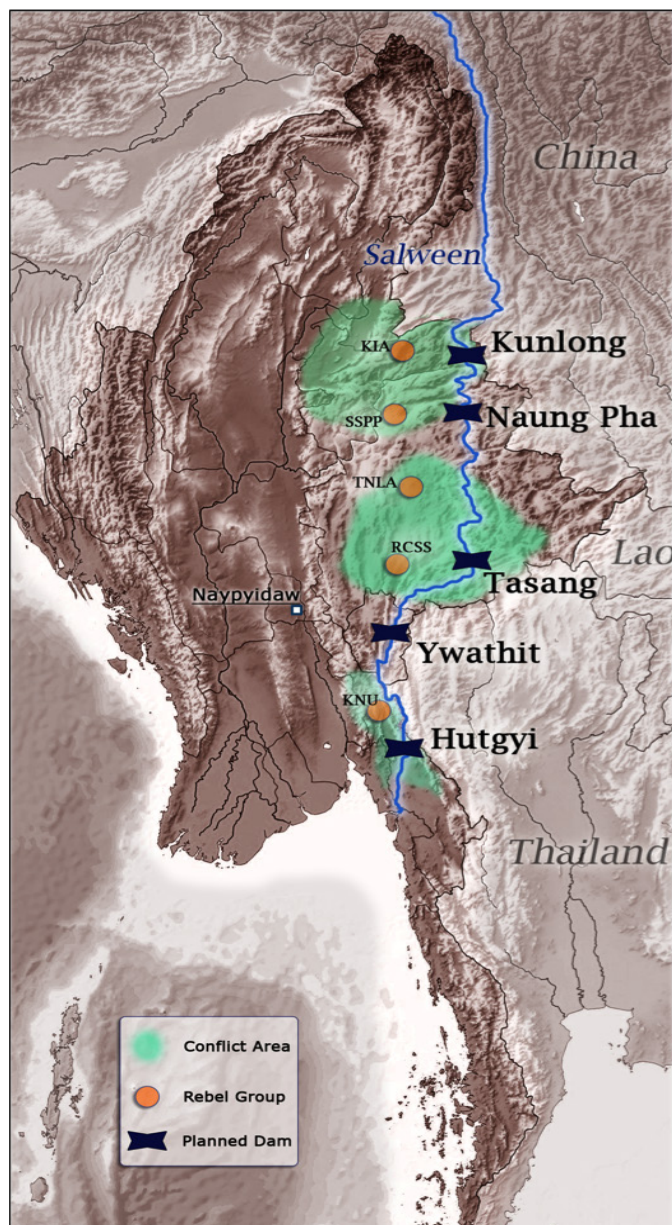
## The Salween River

The Salween River, a largely under utilized river that runs along the countries eastern border, exemplifies the huge potential for Myanmar's hydropower future. Depending on the source, there are currently between six and twelve dam projects planned for hydropower use on the Salween.

### Facts on the Salween:

- Also known as Nu in China and Thanlwin in Myanmar
- 2400 km long (second longest river in South East Asia)
- Originates at an altitude of 4 000 m in Tibet (China)
- A transboundary basin with a total area of 320,000 square kilometers. China (53 percent), Myanmar (42 percent), and Thailand (5 percent)
- Annual flow from China (Nu River) to Myanmar (Thanlwin River) is 68.74 cubic kilometers
- Predominantly not navigable because of strong rapids
- Among the ten most polluted rivers in the world

**Map 1. Salween dam projects of at least 1,000 MW**



Compiled by the authors. Abbreviations: KIA (Kachin Independence Organization/ Army); KNU (Karen National Union); RCSS (Shan State Army South/ Restoration Council of Shan State); SSPP (Shan State Army South/ Shan State Progress Party); TNLA (Tà'ang National Liberation Army). Conflict zones according to armed ethnic group clashes with government forces in proximity to the Salween. Conflict data based on Myanmar Peace Monitor archive, May 2013 to December 2013, available online: <http://www.mmpeacemonitor.org/conflict/conflict-overview>

In September 2013, U Maw Tha Htwe, the director-general of the Hydropower Implementation Department, disclosed that feasibility studies are ongoing for six hydropower-generating projects on the Salween.<sup>8</sup> Five of those projects are targeted to generate

1,000 MW or more (compare map). Thus far, feasibility studies have been concluded for the dams near Kunlong, Naung Pha as well as a smaller project near Manntaung.<sup>9</sup> The most ambitious project is the Tasang hydropower dam, which is projected to generate more than 7,000 MW. Standing 228 meters/ 750 feet high, the Tasang will be South Asia's highest dam, even exceeding the Three Gorges Dam in China.

**Table 1. Principal Salween dam projects**

	Region	Capacity (MW)*	Companies involved
<b>Kunlong</b>	Shan	~1,400	Asia World (Construction), Hanergy Holding Group [China]
<b>Naung Pha</b>	Shan	~1,000	Asia World
<b>Tasang</b>	Shan	~7,110	Asia World, Three Gorges Corp. [China], Electricity Generating Authority of Thailand (EGAT)
<b>Ywathit</b>	Kayah	~4,000	Asia World (Const.), Datang Corporation (Const.);
<b>Hutgyi</b>	Karen	~1,360	Asia World (Const.), Datang Corporation (Const.); Sinohydro [China], EGAT [Thailand]

\*Given the difficulties of triangulating this data to reliable sources, the authors note that this should offer an indication, rather than exact figures, capacities may vary.

*Dams: Bartering Tools in the Peace Process*

As the Salween runs through Shan, Kayah, Karen and Mon states, all planned dam sites are situated in ethnic minority areas home to armed groups. As such, the construction sites are within or near recent conflict zones (see map in left panel). Thus, some of the construction plans have been indirectly or directly interlinked with the ceasefire and peace agreement processes. This applies especially to those armed ethnic groups who demand economic concessions as part of upcom-

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“According to media sources, the country is planning to build around 45 new hydropower dams ... present-day electricity output only reaches 25 percent of the country’s population.”

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ing peace agreements. This emerging peace economy in Myanmar has been explored in a previous ISDP *Focus Asia* paper<sup>10</sup> on mineral resources, and unsurprisingly it appears that similar concessions and conflicts surround water resources in the country. For instance, a portion of the area surrounding the proposed Hutgyi dam site had long

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“some of the construction plans have been indirectly or directly interlinked with the ceasefire and peace agreement processes.”

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been under control of the Democratic Karen Benevolent Army Brigade 5 (DKBA-5; a splinter of the DKBA, an armed ethnic group). However, in April 2013 government forces clashed

with the DKBA close to the dam site as the latter refused to leave their nearby base.<sup>11</sup>

The Burma Rivers Network, an alliance of several local environmental activist groups, believe that up to 50 clashes between army forces and armed ethnic groups have occurred in connection with the ongoing hydro projects in the last three years.<sup>12</sup> While this cannot be independently verified, it is nevertheless apparent that the ongoing peace process needs to address land rights and other issues that are directly associated with dam construction. The hydropower projects will be severely affected if sites where they are built do not remain conflict free. As such the dam construction remains a bartering chip for ethnic groups, armed or otherwise, to use at the negotiating table.

Land acquisition has been a key driver for protests in dam construction across the country. This was most notable in the case of the Myitsonne dam, a Chinese venture that was suspended by Naypyidaw much to the chagrin of the Chinese. The protests concerning Myitsonne dam, in Kachin in northern Myanmar, have received the most attention in recent years. The dam construction has been partly blamed for the breakdown of the 17-year ceasefire with the Kachin Independence Army in 2011.<sup>13</sup> Clashes between the Tatmadaw and the KIA, who were concerned over the expansion of the dam, left dozens dead. Yet, as construction remains suspended at the Myitsonne dam, pending further evaluation and negotiation, protests and clashes at other dam sites<sup>14</sup> and international media coverage.<sup>15</sup>

## Environmental and Socioeconomic Impacts

In addition to land acquisition, much of the local protest focuses on the environmental impact of the hydropower projects and consequences for people's livelihoods. Indeed, it remains difficult to measure the impact of the planned constructions beforehand. The Salween River is still quite under-researched and comprehensive analysis from the hitherto conducted feasibility studies is not available. Thus, in trying to predict the environmental impact, one can currently only refer to studies from other comparable river basins. Some research has been conducted on the Upper Salween/Nu River in China but the results of these studies cannot at present be easily adapted to the downstream sections in Myanmar. The area around the upper Salween region is more mountainous with deep gorges, whereas mountain ranges become more moderate with wider valleys on the Myanmar side.<sup>16</sup> It should also be noted that the original plans for the Nu River included a cascade of smaller dams, which differs from the current plans for the Salween. Considering the lack of available data on the Lower Salween, it seems however valuable to consider at least some of the results.

Socioeconomic consequences for dam projects are certainly easier to determine than the biophysical effects. Tullos et al. assume houses are the most valuable assets of people living in the rural area around the Upper Salween.<sup>17</sup> Reports about the construction of Kunlong dam, for instance, mention that an area with 64 houses and 300 acres of agricultural land will probably have to be flooded.<sup>18</sup> It remains to be seen if land and house owners will be compensated adequately for the expected losses. Recent reports<sup>19</sup> from the work by the Paunglaung, a river not far from Naypyidaw, indicated that locals have allegedly not been informed about whether their village would be affected or not. Studies by the Electricity Generating Authority of Thailand (EGAT), involved with at least two large-scale projects, identified 13 villages to be affected partially while another six villages need to be relocated. Though, some environmental rights organizations suggest that 30,000 people have been forced to relocate. Additionally, complaints about adequate compensation have frequently been made public.<sup>20</sup>

## Concluding Remarks

As well as issues with local residents and ethnic groups, agreements between all riparian states – China, Myanmar and Thailand – are needed. Changes to upstream river systems can have a significant effect on downstream users. A formal multi-lateral agreement would help the sustainable management of the river system. Such agreements can be a vital institutional step towards more integrative water management and averting transboundary water disputes.

In order to minimize conflict, the development of Myanmar's hydropower dams should focus on scientific and environmental assessments during planning as well as extensive community and regional engagement. Yet the harnessing of Myanmar's hydropower can, and should, be looked at as an opportunity for Naypyidaw and ethnic groups to work together on a development of mutual interest. While problems are likely, it is this that should be highlighted in dialogue and in cooperation going forward.

## Recommendations

### *Myanmar Government:*

- Independent evaluations and environmental assessments should be carried out by reputable international bodies and made freely available in Burmese and where appropriate local ethnic languages or Chinese/Thai/English.
- Greater community engagement and dialogue with local populations is needed to prevent or mitigate conflicts and the costly suspension of construction work.
- Armed ethnic groups and local civil society organizations must be consulted and, if relevant – perhaps through Disarmament, Disintegration and Reintegration programs – given roles in the construction, operation or security of the infrastructure.
- Myanmar must diversify its energy sources while also ensuring that the development of its hydropower sector is well-planned and sustainable.
- Greater infrastructure is required to connect hydropower sites with the country's power grid to minimize waste.

### *Regional/International:*

- A multi-stakeholder conference, which includes all riparian states and relevant companies, should be held to discuss and promote understanding between actors. A joint body, such as the Mekong River Commission, should be established thereafter.
- Trans-boundary water law should be strengthened along the entire length of the Salween River.
- More extensive dialogue is needed to engage local communities and businesses in the process of local development and in the fair distribution of profits from hydropower resources.
- Relocations are inevitable when large infrastructure is constructed but greater efforts are needed to adequately compensate inhabitants for lost land and livelihoods in the affected areas in a timely fashion.
- Research on the Salween is very limited. In order to reach more concrete policy recommendations, extensive research should be conducted on the river. This should include aspects concerning the social and the environmental impact of the current and planned projects.

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## KEY POINTS

- Hydropower will continue to provide the base load of Myanmar’s energy mix for the coming decade and as such development of new hydropower dams is important but will remain politically charged.
- Myanmar’s hydropower projects have the ability to create conflicts and will continue to be used as bartering items in the ongoing peace process.
- River resources may be adversely affected by increased hydropower construction and great care must be taken to ensure sustainable and environmentally conscious development.
- The Salween River, which runs through numerous contested areas in Myanmar, but also through China and Thailand, is a potential flashpoint for conflict as the peace process continues in Myanmar but also as upstream developments affect downstream communities.

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