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Myanmar Myitsone Dam protest. Source: AK Rockefeller, Flickr Creative Commons

A major boom in dam development is under way globally with [at least 3,700 dams](#)¹ either planned or already under construction. These are expected to increase global hydropower production [by 73% to 1,700 GW](#)¹ in the coming years. [34 GW of capacity](#) was added in 2015 alone², equivalent to 2.5 times of [Africa's current total installed capacity](#).³ Asia is a particular hotspot of dam construction with capacity additions of almost [28 GW in 2015](#)², more than in any other region of the world.

Fifty years ago, engineers constructing large-scale infrastructure such as dams struggled most with the technical challenges of these mega-projects. However, the greatest obstacles faced by such projects today are [almost always socio-political](#)⁴. Indeed, public protests delay large dam projects all around the world. Examples of current contested large dam projects are [Myanmar's Myitsone Dam](#)⁵ or [Myanmar's Mong Ton Dam](#)⁶, [Brazil's Belo Monte Dam](#)⁷ and [Mozambique's Mphanda Nkuwa Dam](#)⁸.

Scholars have mostly explained the emergence of significant anti-dam-protests with the [political system of a country](#).⁹ According to these scholars, significant anti-dam-protests emerge only if the country in which the dam is constructed is reasonably democratic; if a country is autocratic, [no protests emerge](#)¹⁰. Protests such as those against Myanmar's Myitsone Dam, which [started when Myanmar was still under military rule](#), could therefore not be explained by these academicians¹¹.

This work seeks to address this by examining the root causes of protests. For this purpose, we have carried out [a study that features 12 cases](#) (available [here](#)) to analyse protests

against recent dam projects in Asia - some occurring in rather authoritarian, some in democratic countries. Our overall analysis is based on field research conducted in Asia (mostly in Myanmar and Thailand) over the course of several months, complemented by online surveying and document analysis.

Our study reveals that the political system indeed impacts the emergence of anti-dam-protests. We thus corroborated the scholarly consensus on this topic. However, we also found a set of additional root causes that determine the likelihood of significant anti-dam-protests. These are project-specific root causes which can be altered relatively unproblematically (unlike the political system) by those responsible for a project, e.g. the dam developer or the funder pursuing it.

These are the three key findings from our study that are likely of most interest to dam developers and funders that hope to prevent significant protests against a dam project:



The Bakun Dam under construction in Malaysia. The Bakun Dam faced particularly fierce resistance. Source: Photoshoox, Flickr Creative Commons

First, we found that the non-adherence to international social safeguards such as [those by the International Finance Corporation \(IFC\)](#)¹² or [the World Commission on Dams \(WCD\)](#)¹³ to be the most significant determinant of massive anti-dam-protests. Indeed, projects lacking international social safeguards (such as [Malaysia's Bakun Dam](#)¹⁴ or [Myanmar's Myitsone Dam](#)¹⁵) faced particularly fierce resistance since project-affected people were felt to bear all of the project's costs, while gaining none of its benefits. Implementing social safeguards

such as those recommended by the WCD - [the gold standard for dam building](#)¹⁶ - is the choice of the dam developer and funder.

Second, we found that projects in countries with high levels of perceived corruption faced a lot of resistance. A particular case in point is again Myanmar's Myitsone Dam. 90% of its electricity is supposed to be exported to China in exchange of USD 500 million annually¹⁷. Our field research revealed that revenues generated via the electricity exports were expected to only benefit the country's elites, not the people of Myanmar and their development. While the overall level of corruption in a country is unlikely to be influenced by those responsible for a dam project, various transparency policies and additional non-corruption measures can be implemented for a specific project.

Third, we found that a project's environmental risk significantly determined if massive anti-dam-protests would occur. Every large dam project entails [major environmental risks](#)¹⁸, yet the magnitude of risk still varies from project to project. For instance, not every project is prone to earthquake risks. We learnt that projects reported to be close to a major fault line - such as [Myanmar's Myitsone Dam](#)¹⁹ or [India's Sardar Sarovar Dam](#)²⁰ - faced greater resistance because those downstream feared an earthquake-induced [dam breach](#)²¹. Because such environmental risk is impacted by the dam site chosen it can be controlled by the dam developer and funder.

The interviews carried out for our study indicate that dam developers increasingly choose dam sites that will only require limited resettlement - assuming that dam projects with such limited resettlement would not face major resistance. Our study rebuts this assumption. Indeed, we found several projects with limited resettlement (e. g. Thailand's Kaeng Suea Ten Dam requiring the resettlement of 5,000 people or Laos' Xayaburi Dam requiring the [resettlement of 2,100 people](#)²²) that still faced massive protests. A combination of the political system, lacking social safeguards, corruption, and environmental risk can largely explain these protests.

Root causes such as poor social safeguards, corruption, or environmental risk are widely seen as the inversion of [good governance principles](#)²³. While our study indicates that the application of good governance principles may be able to prevent massive anti-dam-protests, more research will be needed. After all, our sample size of 12 is limited which thus mandates caution regarding the study's generalizability. Furthermore, our quantifications of root causes such as lacking social safeguards - necessary for the modeling of protest emergence likelihoods - are at least partly subjective. We thus provided all raw data used for our paper in its appendix to ensure that our quantifications can be scrutinized.

Massive anti-dam-protests are a major concern of dam developers and funders today. We hope that our research helps to illuminate why such protest occur and what can be done to prevent them. Implementing international social safeguards is the most promising starting point we identified. There is a moral imperative to implement such safeguards and our research suggests there may also be a business one.

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