THE ANTI-DAM PROTEST CYCLE: EVIDENCE FROM ASIA

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PREFACE

ABSTRACT

A major surge in dam construction is under way, and Asia is a hotspot of it. Various policy-makers in Asia frame dams as avenues for economic development, yet project-affected communities and civil societies frequently oppose these projects due to their negative environmental and social impacts. While resistance against dam projects in Asia is well documented in the popular press, such environmental activism remains underresearched by scholars. This dissertation addresses this gap. For this purpose, more than 130 semi-structured interviews were carried out via snowball sampling in Myanmar, Thailand, China and Singapore over the course of two years, complemented by online surveying and document analysis. Based on these data, an anti-dam protest cycle is proposed that conceptualizes root causes, strategies and impacts of anti-dam movements in Asia. It also highlights the significant influence of anti-dam activists on Southeast Asia's dam industry. The cycle commences with the attempt to construct a dam, which can induce significant protests even in countries with limited political opportunity structures, if limited social safeguards in a project coincide with significant environmental risk and rampant corruption. Even if the movement is operating with an extremely limited budget, these protests can cause project suspension and thus continue the cycle — provided that the dam project is framed in a manner that appeals to a broad popular base and/or the movement operates with a sophisticated strategy. Project suspension has been found to have far-reaching effects, with the suspension of Myanmar's Myitsone Dam being identified as a game changer. While Chinese dam developers had previously adopted limited social safeguard norms prior to this dam's suspension, international norms have been increasingly adopted after this incident, since these norms are seen as a pathway to mitigate protests. Yet the negative effects of dams' remaining non-mitigated can continue the anti-dam protest cycle.

ACKNOWLEDGEMENTS

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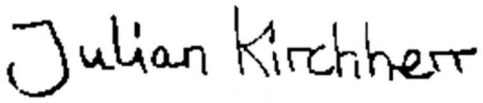
My doctoral work was financially supported by a scholarship from Friedrich Naumann Foundation as well as a contribution from the Programme on Modern Burmese Studies at St Antony's College, University of Oxford. I am very grateful for this support since without it this research would not have been possible. This work would also not have been possible without those agreeing to be interviewed for my research. I am grateful for their time and the many insights they shared with me regarding Asia's dam industry.



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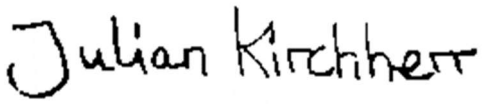
CO-AUTHORSHIP ARRANGEMENTS REGARDING PAPERS PRESENTED IN THIS DISSERTATION

Three of the four papers presented in this dissertation are presented as co-authored papers. I herewith confirm that I designed the research presented in these papers, drafted the various papers, and managed the submission and revision process. Katrina Charles, Matthew Walton and Nathanial Matthews provided regular feedback to the respective co-authored papers during the research, writing and revision process. Teerapong Pomun carried out half of the interviews conducted in the villages fearing to be displaced because of Thailand's Kaeng Suea Ten Dam and was thus included as a co-author for paper 8. Tim Disselhoff developed the financial model of Ghana's Bui Dam (under my supervision); he also researched various data points for paper 9 and was thus included as a co-author for this paper. Confirmations regarding this statement by Katrina Charles and Matthew Walton, my supervisors, are to be found below.

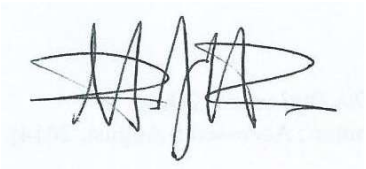


Oxford, September 2016

CONFIRMATION OF CO-AUTHORSHIP ARRANGEMENTS

We confirm, in line with the candidate's statement, that Julian Kirchherr has designed the research presented in this dissertation, drafted the various papers, and managed the submission and revision process.

Dr Katrina Charles, Supervisor



Dr Matthew Walton, Co-Supervisor

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1 INTRODUCTION

1.1 INTRODUCTION

A European dam developer interviewed for this dissertation noted that anti-dam activists "are an extremely important actor in this [dam industry]. They are the independent police force that always will nag you and bite you and keep on your tail and make sure that you stay in line as a big, gigantic international cooperation" (TP6; e.g., see section 6.2 for details on this code). The research presented in this dissertation corroborates this viewpoint, in that activists are portrayed throughout as a powerful source of change in Southeast Asia's dam industry. It is found that even in the most restrictive political environments and when operating with limited resources, these 'water warriors' can stage effective protests and impact the dam industry if certain root causes of protest are present and broad issue framing and/or a sophisticated strategy is adopted. The results of this research should be of interest to activists, dam developers, international donors and scholars alike.

In focusing on anti-dam activists and movements, this dissertation attempts to answer the following three substantive research questions relating to their root causes and tactical repertoires, as well as their impacts and impact pathways.

- Why do significant anti-dam protests emerge? (chapter 4/paper 2)
- What does a successful anti-dam movement entail (with 'success' defined from the perspective of the activist as the suspension or cancellation of the project)? (chapter 5/paper 3)
- What are the impacts and their pathways of anti-dam movements on the dam industry (chapter 6/paper 4)?

A methodological research question relating to snowball sampling is also answered in this dissertation. This question developed from discussions during the transfer-of-status assessment. Much of the data collected were gathered via snowball sampling. This method is frequently criticized because of various sample diversity issues (Atkinson & Flint, 2001; N.

Cohen & Arieli, 2011; further discussed in chapter 4), yet it is extremely powerful when researching difficult-to-access populations such as Southeast Asia's dam industry; thus it has been adopted herein. The methodological research question addressed in this dissertation is as follows:

- How can the sample diversity of snowball samples be enhanced? (part of chapter 3/paper 1).

The remainder of this chapter is organized as follows. The next section addresses the global boom in dam construction, which provides a rationale for the regional focus of this dissertation. Section 3 analyzes drivers of this boom, outlining the relationship of dams and development. It also includes a discussion of dams' overall socio-economic benefits. Section 4 describes major anti-dam protests from the past decades until today, while section 5 provides an overview of the subsequent chapters.

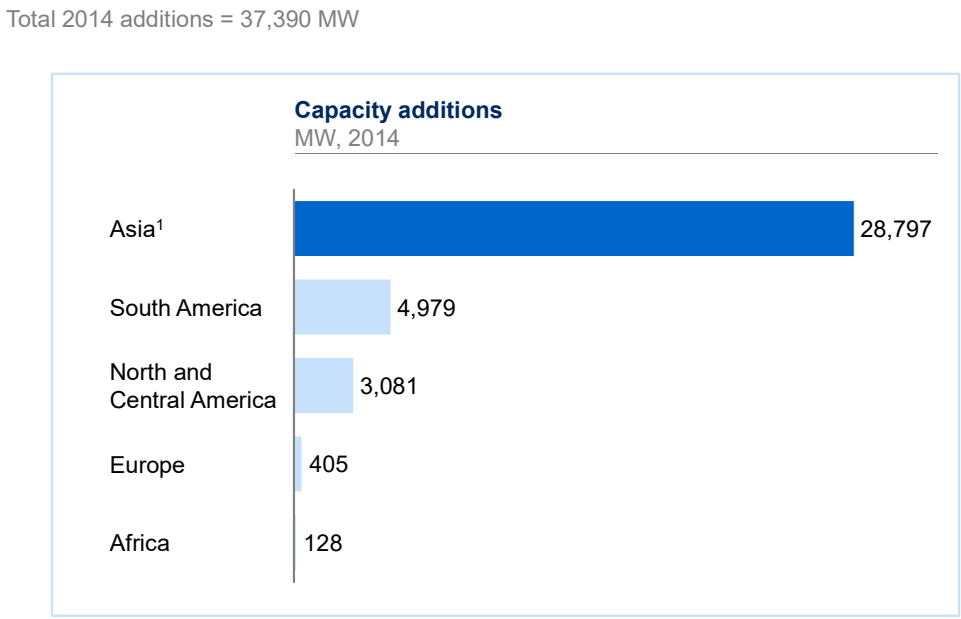
1.2 A GLOBAL BOOM IN DAM CONSTRUCTION

A significant boom in dam construction is under way. A recent study by Zarfl et al. (2014, p. 161) estimated that at least 3,700 major hydropower dams (with a capacity of at least 1 MW) are either planned or are already under construction. These dams are expected to increase global hydropower production by 73%, to about 1,700 GW (Zarfl et al., 2015). In 2014 alone, 37 GW of capacity was added (IHA, 2015), equivalent to almost three times Africa's current total installed capacity (World Energy Council, 2016). Up to 47% of the projected USD 57 trillion to be invested in infrastructure by 2030 is expected to be in power and water (Dobbs et al., 2013).

Future hydropower development is likely to be concentrated primarily in developing countries in Asia, South America and Africa, according to Zarfl et al., 2014 (p. 165). This projection is also largely reflected in the 2014 hydropower capacity additions. In Asia, 29 GW capacity additions (78% of total additions) were undertaken, with most dams constructed in China, followed by South America (with 5 GW of additions) and North and Central America (with 3 GW of additions) (Figure 1). Of the continents suggested by Zarfl et al., 2014 (p. 165)

as future hydropower investment hotspots, only Africa is not yet one from a capacity additions perspective.[1]

FIGURE 1: GLOBAL 2014 HYDROPOWER CAPACITY ADDITIONS



From a hydropower potential perspective, the current dam construction boom could continue for the foreseeable future. Indeed, most such potential in emerging economies remains untapped: 82% of the economically viable hydropower potential in East Asia and the Pacific, 75% in South Asia, 62% in Latin America and the Caribbean and even 93% in Africa (World Bank, 2009). Meanwhile, countries participating in the Organization for Economic Cooperation and Development (OECD), on average, have developed nearly 70% of their economically viable hydropower potential (Biswas, 2012b). Data on economically viable hydropower capacity are not comprehensive enough to provide a global estimate (IRENA, 2012, p. 13).

[1] IHA, 2015 (p. 42) suggests that political instability resulting in a lack of finance and weak inter- and intra-national transmission connections have held back further development of hydropower resources.

This dissertation focuses on anti-dam movements in Asia, which was chosen as its regional focus for two reasons. First, because of its current massive hydropower development and its significant untapped potential, as discussed above. Second, because I have lived and worked in Asia for roughly two years (not only in Myanmar and Singapore, but also in Kazakhstan, Thailand and Vietnam). This residency has created numerous links to the continent that proved valuable for this research. I first encountered the global dam industry in 2012, while conducting field research for Oxfam International in Myanmar. In our conversations, many of the farmers I interviewed (to prepare a report on the effectiveness of micro-finance in Myanmar's Pyapon District) mentioned contestations regarding dam construction, particularly the 2011 suspension of the Myitsone Dam. Because so many people were so vocal about the dam during these interviews, I followed up on the topic.

Myanmar's and Asia's overall economic rise are common knowledge. Dam construction relates to this rise because infrastructure is instrumental to economic development. Indeed, Calderón & Servén (2014) find a consensus in the scholarly literature regarding the positive effects of infrastructure development on economic growth.

1.3 DAMS AND DEVELOPMENT

Echoing this literature, Biswas (2012, p. 6) claims that "no country […] has ever managed to make significant economic progress without harnessing adequately its water resources". The relationship of dams and economic development is also discussed by Khargram (2003, p. 27), who argues that large dams symbolize "the progress of humanity from a world constrained […] by nature to one where […] nature is harnessed by technology". This reasoning has been repeated by leaders in the developing world. For instance, Jawaharlal Nehru, India's first Prime Minister, famously called the country's Bhakra Dam a 'temple of modern India' (Verghese, 2006).

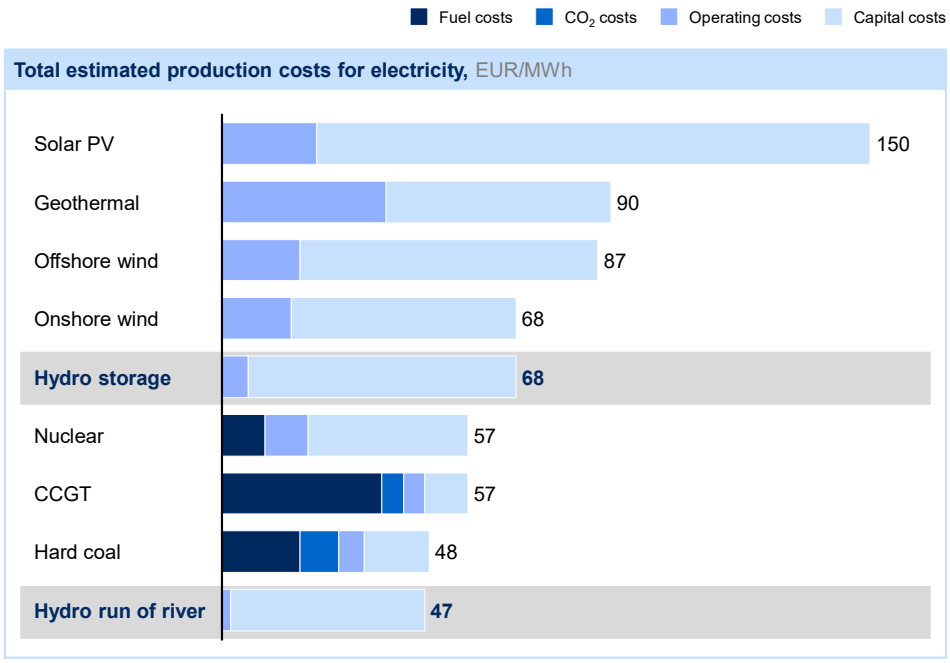
Accelerating electricity demands (indicating economic development) are the key driver of the current boom in dam construction, according to Tortajada (2015, p. 401). This demand, in

turn, is driven by population and income growth (Tortajada, 2015, p. 401), which is likely to be dramatic in Asia in the coming decades. The United Nations (2015) projects that Asia's population will grow to 5.3 billion by 2050, a total increase of 20%. Particularly rapid growth is expected in Laos (+50%), Cambodia (+45%) and Malaysia (+34%). Meanwhile, the GDP of the United States will allegedly be only third in the world in 2050, outpaced by China (45% larger) and India (2% larger). The fourth largest economy in the world will be Indonesia (all estimates based on purchasing power parity in 2014 USD; PwC, 2015).

Asia's need for electricity, induced by its growing populations and economies, may raise the global importance of dams as sources of electricity. Hydropower already produces 17% of the world's electricity, making it the third largest source — outpaced only by coal (39%) and gas (22%) (TSP, 2015). Hydropower contributes to approximately 85% of global renewable electricity (IEA, 2016). Many countries run almost entirely on electricity produced by hydroelectric power plants. According to data from the World Bank (2015), ten countries worldwide produce more than 95% of their electricity via dams (Albania, Congo, Ethiopia, Mozambique, Namibia, Nepal, Norway, Paraguay, Tajikistan and Zambia).

Although Asia's need for electricity could be addressed via various energy sources, the electricity generated by large dams is particularly cost-competitive, a key appeal for policy-makers. Adapted from Erste Group (2009, p. 87), Figure 2 depicts hydropower's favorable cost structure compared to caloric alternatives and multiple renewables. These estimates include CO_2 costs, but these calculations can be contested if all CO_2 emission costs are included — as well as additional greenhouse gas (GHG) emissions costs relevant for climate change. Hydropower reservoirs account for about 62% of the total surface area of the world's reservoirs (Varis et al., 2012, p. 81). These man-made reservoirs are potentially an important source of emissions, but data on this topic are scarce. Thus, their overall contribution to global GHG emissions remains unclear (Varis et al., 2012).

FIGURE 2: ENERGY SOURCES FROM A COST PERSPECTIVE



Note: Estimations based on following assumptions: CO_2 costs of EUR 12.1/t, hard coal costs of EUR 65/t, gas costs of EUR 21.7/MWh

SOURCE: Erste Group (2009, p. 87)

Because a single dam can turn around a country's energy supply, they are pursued by many policy-makers as energy sources. The largest power plants in the world are all hydro-electric. The list is led by the Three Gorges Dam in China, with a capacity of 22.5 GW (Pentland, 2013), followed by the Itaipu Dam on the border between Brazil and Paraguay (Platts, 2015). The latter dam supplies 26% of the electrical power consumption of Brazil and 78% of Paraguay (Krauter, 2015). The largest non-hydroelectric power plant is the Kashiwazaki-Kariwa nuclear plant in Japan, with a capacity of 8.2 GW; it is the sixth largest power plant globally (Platts, 2015). This capacity will be far exceeded by the largest currently planned dam: the Grand Inga Dam in the Democratic Republic of the Congo, with a capacity of 40 GW. Its backers claim that this single dam could provide 40% of Africa's electricity needs (Vidal, 2013).

The provision of cost-competitive electricity at scale is likely a key reason for policy-makers in Asia to construct dams. However, the benefits they offer beyond electricity provide additional economic development rationales for their construction. The World Commission of Dams (WCD, 2000, p. 12) estimates that one-third of them serve two or more purposes, with the

number of multi-purpose dams increasing in recent years. Listed purposes beyond electricity generation include irrigation, water supply and flood control. "The existing 50,000 large dams […] provide irrigation water for feeding 800 million people" (Nombre, 2014, p.1). No global data could be obtained on the flood control benefits of dams. The most common purpose of single-purpose dams is irrigation and water supply (61%), followed by electricity generation (17%) and flood control (10%). A few single-purpose dams are also constructed for recreation, navigation and fish farming (ICOLD, 2015b).

Benefits such as electricity, irrigation and water as well as flood control also create various indirect benefits that also motivate policy-makers to build large dams. The various socio-economic impacts of dams as conceptualized by Kirchherr & Charles (2016) are shown in Figure 3 (this framework is not the integrative framework for this dissertation, which is introduced in chapter 2). The purposes outlined by WCD (2000) and the International Commission on Large Dams (ICOLD; 2015) would be largely infrastructure components within this framework. Additional impact components to be considered include livelihood and community. For instance, additional electricity generated by a dam may enhance employment opportunities and income in a country (a livelihood impact). An example would be reduced energy shortcuts that increase the total weekly operating hours of a factory. Meanwhile, policy-makers may view a completed dam as a cultural asset (a cultural change and community impact).

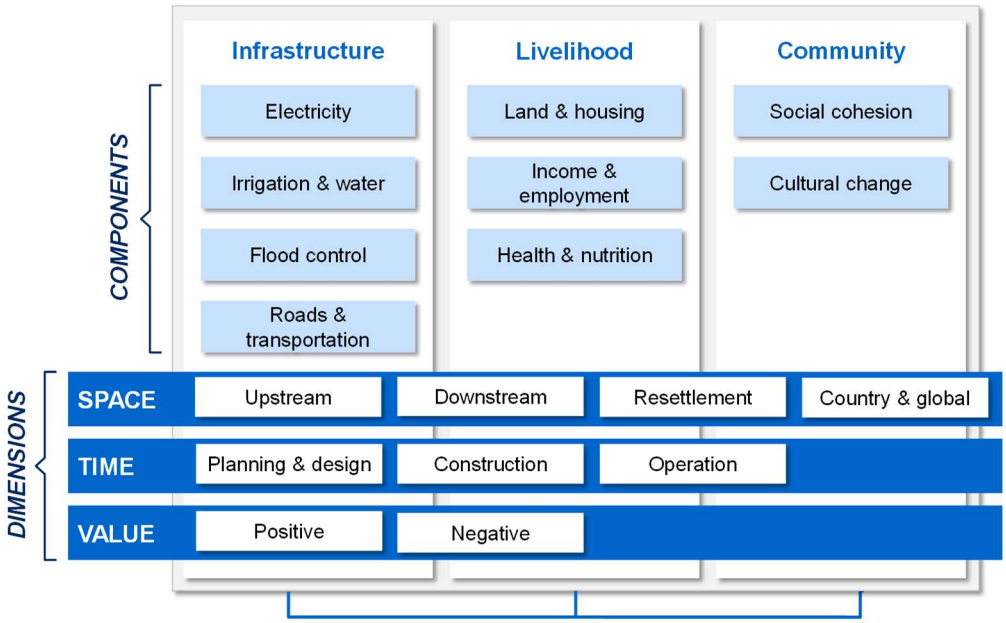
The framework by Kirchherr & Charles (2016) attempts to highlight the inherent complexity of conceptualizing a dam's impact. This complexity is caused not only by the myriad 'component' impacts of dams discussed so far (both direct and indirect), but also because of the multidimensional issues involved, with impacts occurring over the following dimensions of time, space and scope.

- *Time:* Dams can be among the most long-lived of infrastructure projects, with many running frequently for over 100 years if sedimentation is controlled via functioning monitoring/governance regimes (on sedimentation/dams see Palmieri et al. [2001] and Wang & Kondolf [2014]). The oldest dam still operational is the Lake Homs Dam in

Syria, constructed from 1319 to 1304 BCE (Water Technology, 2013). In comparison, a coal-fired power plant may last only 30 years (Cleetus et al., 2012), and manufacturers usually guarantee a lifetime of up to 25 years for solar panels (Fraunhofer-Gesellschaft, 2013). Hence, the decision to construct a dam is a policy choice with major repercussions for future generations, and policy-makers may choose dams for longevity.

- *Space:* Dams also have a spatial impact far beyond the construction activities and associated displacement that occur with most infrastructure projects. Dams' social impacts reach populations upstream (e.g., via restrictions on water use in order to fill the reservoir, Duflo & Pande, 2007); downstream (e.g., via benefits from irrigation water and flood protection); and nationally (e.g., via electricity generation).
- *Scope:* The examples regarding dams' upstream and downstream impacts illustrate how their social impacts can be both negative and positive. The scholarly literature on dams largely emphasizes their negative impacts. Of articles on the social impact of dams, 45% are largely negative and 5% are largely positive, with the remainder being balanced (Kirchherr, Pohlner & Charles, 2016, p. 6 ff.). It is provisionally assumed that both types of impacts prepare the ground for dams to be a contested issue (see the next section for further discussion).

FIGURE 3: MATRIX FRAMEWORK ON THE SOCIAL IMPACT OF DAMS



SOURCE: Kirchherr & Charles (2016)

1.4 A BRIEF HISTORY OF ANTI-DAM MOVEMENTS

The previous section primarily discussed dams' benefits, which provide the construction rationale. "Until the 1970s, it was generally assumed that large dams overwhelmingly contributed more benefits to the society [than] costs", claims Biswas (2012, p. 5). With the emergence of the international environmental movement in the late 1970s, this perception shifted, and the anti-dam movement developed as a part of it. Environmental movements began to appear in the United States in the late 1960s as a response to ecological disruptions (e.g., smog-choked cities, dying lakes and oil spills), and the costs of industrialization were more visible from then onwards (Johnson & Frickel, 2011, p. 305). In 1972, the United Nations convened its first megaconference (the United Nations Conference on the Human Environment) to develop responses to these disruptions (Hueting, 1990). The agenda of the international environmental movement thereby received a major "international boost" (Biswas, 2012b, p. 5),

when both the media and the public began to take an increasing interest in environmental challenges.

The 1972 conference's most notable follow-up was the Brundtland Commission, which provided further momentum for the international environmental movement. It was established in 1983 to address the increasing global concern over environmental problems and the continuing failure to ameliorate them (Redclift, 1989, p. 365 ff.). Called 'Our Common Future', the Commission's 1987 report is said to have coined the phrase 'sustainable development', which summarized the movement's vision and was thus a crucial document (Palmer, 1992, p. 1011 ff.). The notion emerged as the foundation of and was popularized by the Rio Declaration on Environment and Development, the main result of the 1992 UN mega-conference on the topic (Fulton, 2012; Martella & Smaczniak, 2013).

Biswas (2012b, p. 6 ff.) argues that a foundational belief within 'sustainable development' (and thus also for the international environment movement) is that 'small is beautiful', a belief most notably outlined by Schumacher (1973). As a consequence of this belief, large dams became targets of the movement, as they were the most massive infrastructures on the planet. Khagram (2000, p. 83) even argues that the "most dramatic conflicts over how to pursue sustainable development" have occurred when contesting their construction.

Conflicts over large dams heated up whenever the international environmental movement gained additional momentum. A first notable wave of anti-dam activism occurred during the timespan of the Brundtland Commission, with various transnational society networks emerging as advocates against them (Fulton, 2012; Martella & Smaczniak, 2013). Examples include entities such as the European Rivers Network (ERN) in France, the Association for International Water and Forest Studies (fivas) in Norway, Friends of the Earth in Japan, Urgewald in Germany and Oxfam International in the United Kingdom (Khagram, 2000). A milestone in the history of anti-dam movements was the formation of International Rivers in 1985 (International Rivers, 2015). Originally a bi-monthly newsletter, it is now the foremost non-governmental organization (NGO) fighting dams worldwide (Khagram, 2000).

Protests further intensified in the 1990s with the international environmental movement having gained further momentum due to the 1992 UN mega-conference on Environment and Development. By then, virtually any large dam proposed or built was a target for anti-dam activists (Khagram, 2000). Indeed, Wolfgang Pircher, former president of the International Commission on Large Dams (ICOLD), warned in 1992, that the industry faced 'a serious general counter-movement that […] is starting to make work difficult for our profession' (cited in McCully 2001, p. 36).

Asia was a hotspot of the global anti-dam movement from the early days onwards, with various significant campaigns taking place in Asia during the 1990s. Most notably, anti-dam activists forced the World Bank, allegedly "the central international organization promoting big dam building" (Khagram, 2000), to abandon India's Sardar Sarovar Dam in 1993 (Bosshard, 2010b, p. 60). Biswas (2012, p. 7) claimed that "this debacle was 'the World Bank's Vietnam." It fundamentally transformed the bank's approach to large dam projects, according to Park (2010, p. 240 ff.), with the donor beginning to internalize a variety of novel norms after this abandonment. Many of these norms would be codified in the WCD report (discussed further below and in chapter 6). The Sardar Sarovar Dam is only partially completed today (NDTV, 2014). In 1995, the World Bank also withdrew funding from Nepal's Arum 3 Dam, again largely as a result of a major campaign against it (Dixit & Gyawali, 2010, p. 111 ff.). No large dam project has been completed in Nepal since then, although the Nepalese government is now apparently looking for investors for several of them, including the Arun 3 (International Rivers, 2015).

Even dams whose construction could not be stopped by major campaigns remained targets for activists. For instance, Sneddon & Fox deem the struggle against the Pak Mun dam to be "a prominent symbol of the global anti-dam movement" (2008, p. 632). Although the project was completed in 1994, 5,000 villagers occupied the site in 1999, demanding that the dam be decommissioned, and their requests have been echoed by International Rivers up to the present (International Rivers, 2015). Likely due to these ongoing protests, no more large dams have been completed in Thailand (Hirsch, 2010).

In 1998, anti-dam protests culminated in the launch of the WCD, a panel of experts who were asked to review the development effectiveness of large dams and to establish internationally accepted criteria for their planning, design, construction and operation. According to Biswas (2012, p. 8), the publication of the WCD's report in 2000 coincided with the peak of the anti-dam movement, and it was almost universally condemned by the global dam industry (Sneddon & Fox, 2008). The World Bank did not endorse it either, stating that its safeguards on dams were already sufficient. In contrast, Park (2010, p. 19 ff.) argued that a variety of voices in the World Bank were sympathetic to it, reflecting changing norm preferences in the World Bank induced by anti-dam movements. The governments of many developing countries also rejected the report, most notably India and China (Moore et al., 2010, p. 6). Biswas (2012, p. 4) views it as a catalyst for developing countries, uniting them to voice the opinion that "infrastructure construction is important for their socio-economic development".

Only by anti-dam activists was the WCD report unequivocally lauded. For instance, Patrick McCully (executive director of International Rivers at the time) praised it as "a major contribution to the debate on dams and to the management of water and energy resources in general" (McCully, 2001a). Notably, McCully was highly involved in the WCD process, even taking part in decisions regarding its composition (McCully, 2001d). Biswas (2012, p. 8) thus claims that McCully and International Rivers "hijacked very successfully the WCD process."

A key response to the WCD by the global dam industry was the Hydropower Sustainability Assessment Protocol (HSAP), finalized in 2010 (Locher et al., 2010, p. 44 ff.). The HSAP aimed to "establish a broadly endorsed assessment tool to measure and guide sustainability performance in the hydropower sector […] rather than establish a new standard" (HSAF, 2011, p. 1). Hence, it intended not to replace the WCD report, but to complement it with a practical device. Impracticality due to complexity has been a key criticism regarding the WCD report. This complexity is well-illustrated by Beck et al. (2012, p. 74), who noted that it "promotes the use of three global norms, five core values, five key decision points, seven strategic priorities, 33 associated policy principles, and 26 guidelines in implementation and

advocacy of dam-related activities" — quite possibly too many to adhere to for any dam developer or international donor.

Notably, various international NGOs (the Nature Conservancy, the World Wide Fund for Nature [WWF], Oxfam International and Transparency International) took part in the development of the HSAP via the Hydropower Sustainability Assessment Forum (HSAP, 2015) — signaling a lessening of the divide between the anti-dam movement and the global dam industry. International Rivers (2015c) abstained from the process, condemning the tool upon publication as a document with the potential to greenwash large dam projects.

The anti-dam movement not only sparked the creation of the WCD, its subsequent rejection by most key stakeholders and the development of the HSAP, but arguably it also raised China's profile as a global dam developer. When international donors such as the World Bank stopped funding large dam projects in the 1990s because they were allegedly afraid of anti-dam NGOs and their media power (Biswas, 2012b), "Chinese banks […] stepped in to fill the gap" (International Rivers 2012, p. 3). Chinese state-owned enterprises (SOEs) are now the largest dam builders worldwide; Sinohydro, a Chinese SOE, claims to construct every second dam globally (Verhoeven, 2015).

Although data on the overall engagements of Chinese dam developers are sketchy, Yeophantong (2013) reports China to be linked to more than 300 dam projects in 74 countries worldwide; however, this figure would only equate to 8 percent of the projects identified by Zarfl et al. (2015). International Rivers (2014) lists a mere 209 dam projects with Chinese engagements worldwide.[2] Most Chinese engagement seems to be focused on Southeast Asia, where International Rivers (2014) finds 28 projects under construction — more than in any other part of the world.

[2] This estimate draws on the China Overseas Dams List by International Rivers (2014). The list includes projects developed or funded by Chinese players, in whole or part. All projects marked as 'proposed', 'under construction' or 'suspended' were counted in order to obtain a comparison to Yeophantong (2013).

Both the WCD report as well as the HSAP can be seen as efforts to reconcile the key players within the global dam industry. However, this reconciliation between dam developers and anti-dam activists remains "elusive", as McCulloch argues (2008, p. 1). Corroborating this claim, Plummer (2013, p. 4) finds that extensive resettlement issues, a proxy for anti-dam protests, are now the second greatest concern of dam developers regarding cost and schedule overruns. Fifty years ago, those constructing large dams would struggle most with the technical challenges, whereas the greatest hurdles faced by such projects today are almost always political. Indeed, public protests delay large infrastructure projects around the world, with hydropower perhaps being the first sector impacted by the trend (Kirchherr, Charles & Walton, 2016; McAdam et al., 2010).

1.5 OUTLOOK

This chapter has sketched the practical context and relevance of this research. First, it was demonstrated that a major dam boom is under way, particularly in Asia. It was argued that many policy-makers in Asia view dams as an engine for development, which in particular may help them satisfy their countries' escalating energy demands. Dams' social impacts beyond electricity generation were also discussed, via the matrix framework by Kirchherr & Charles (2016). A brief history of anti-dam movements (with a focus on Asia) was also outlined. The root causes, strategies and impacts of these movements are the focus of this dissertation, the remainder of which is organized as follows.

Chapter 2 outlines the scholarly context of this dissertation. First, the anti-dam protest cycle is presented as a framework connecting the main empirical chapters (4, 5 and 6). This framework is grounded in a systematic review of the literature on anti-dam movements, which is then outlined. The chapter concludes by presenting the primary contributing fields to the literature on anti-dam movements, many of which overlap. These fields are social movement studies, environmental politics and political ecology.

Chapter 3 focuses on ontology, epistemology, methodologies and methods. The ontological and epistemological positions adopted throughout this dissertation are described first, as well as views on methodology and methods. In addition, a rationale for the case studies chosen is presented, as well as an overview of the overall data collected for and utilized in this research. The chapter closes with a critical discussion of snowball sampling (paper 1), the key method adopted in this dissertation. It is acknowledged that snowball sampling faces issues regarding sample diversity, and a quantitative analysis of evidence is presented to address pathways of addressing these sample diversity issues.

Chapter 4 (paper 2) explores the root causes of public opposition in dam projects. Scholars overwhelmingly adopt the case study method when analyzing causal conditions inducing anti-dam protests. The presence of political opportunity structures is usually identified as the key causal condition in this regard, and the research findings from this chapter complement this notion. For this purpose, the first medium-N study on this topic was carried out to analyze public opposition to 12 dam projects in Asia. A fuzzy-set qualitative comparative analysis (QCA) was employed based on a review of scholarly writings and press reports on the dam projects in question, as well as on an online survey and semi-structured interviews. Two causal recipes were identified as sufficient for the emergence of significant anti-dam protests. First, a lack of social safeguards in combination with higher levels of development and the presence of political opportunity structures are sufficient for significant anti-dam protests to emerge. Second, a lack of social safeguards in combination with rampant corruption and environmental risk induce significant anti-dam protests. This causal recipe thus highlights the importance of project-specific conditions regarding the emergence of anti-dam protests, while suggesting that they may be the result of dam project mismanagement.

Chapter 5 (paper 3) explores the strategies of successful anti-dam campaigns. For this purpose, two of Southeast Asia's most successful anti-dam campaigns in its recent history are compared. The first is Myanmar's Myitsone Dam. Possibly the most prominent suspended dam project in Asia, it was widely considered as the visible starting point of Myanmar's democratic transition process. The second is the campaign against Thailand's Kaeng Suea Ten Dam, which

has been ongoing for at least 35 years (and which had been undocumented by social scientists so far). Based on this comparison (grounded in two stints of field research carried out in Myanmar and Thailand), the reasons why these campaigns were successful are examined by leveraging thinking from both the constructionist and structural schools within social movement studies. It is found that the campaign against the Myitsone Dam was successful because its emotional framing appealed to a broad popular base. Due to the damming of the Irrawaddy River (the alleged 'lifeline' of the country), the Dam was presented as a project threatening the people's identity — corroborating the constructionist approach. Decisive for the anti-Kaeng Suea Ten movement's efficacy was a set of sophisticated tactics responding at least partly to competing framing regarding the dam (including *inter alia* demonstrations, *Thai Baan* research, 24/7 monitoring of the dam site, and spiritual activities).

Chapter 6 (paper 4) illustrates the impact pathways of anti-dam campaigns on social safeguards adopted by Chinese dam developers. It is found that developers' social safeguard norms have significantly changed in the past 15 years. Chinese dam developers complied with the limited standards of the host countries only upon the launch of China's Going Out Policy in 2001, and these standards were sometimes complemented by more ambitious Chinese ones. In recent years, however, international norms have been employed more frequently. The root cause for this change is social mobilization, with the resulting 2011 Myitsone Dam suspension being a game changer. Social mobilization directly impacts dam developers' policies via the intra-organizational pathways outlined in this chapter. Additional pathways are enhanced social safeguard legislation in the host countries and China, stricter rules on the part of Chinese funders and the cooperation of Chinese dam developers with international players.

Chapter 7 summarizes the contributions of this dissertation to the field of anti-dam movement studies and to the methodological discourse within the social sciences and beyond. The anti-dam protest cycle outlined in chapter 2 is revisited and modified. Overall, it is argued that this dissertation helps integrate the field of anti-dam movement studies via this framework; complements common scholarly perceptions of anti-dam activists (contributions to the field of anti-dam movement studies); and provides practical advice to scholars on snowball sampling (a

contribution to the methodological discourse in the social sciences and beyond). Furthermore, three areas for future research are specified (via the work done for this dissertation). These areas relate to design principles for social safeguards specific to dam construction, to research on entry points into the policy-making processes for dams, and to adherence to safeguards in various smaller dam projects in Asia.

2 LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 evidenced the practical context and relevance of this dissertation. This chapter presents a framework, the anti-dam protest cycle, that connects the central empirical chapters of this dissertation (chapters 4, 5 and 6). This framework is grounded in a systematic review of the specific literature on anti-dam movements. The chapter concludes by outlining the primary contributing fields to this literature, which overlap at times. These fields are social movement studies, environmental politics and political ecology.

2.2 THE ANTI-DAM PROTEST CYCLE

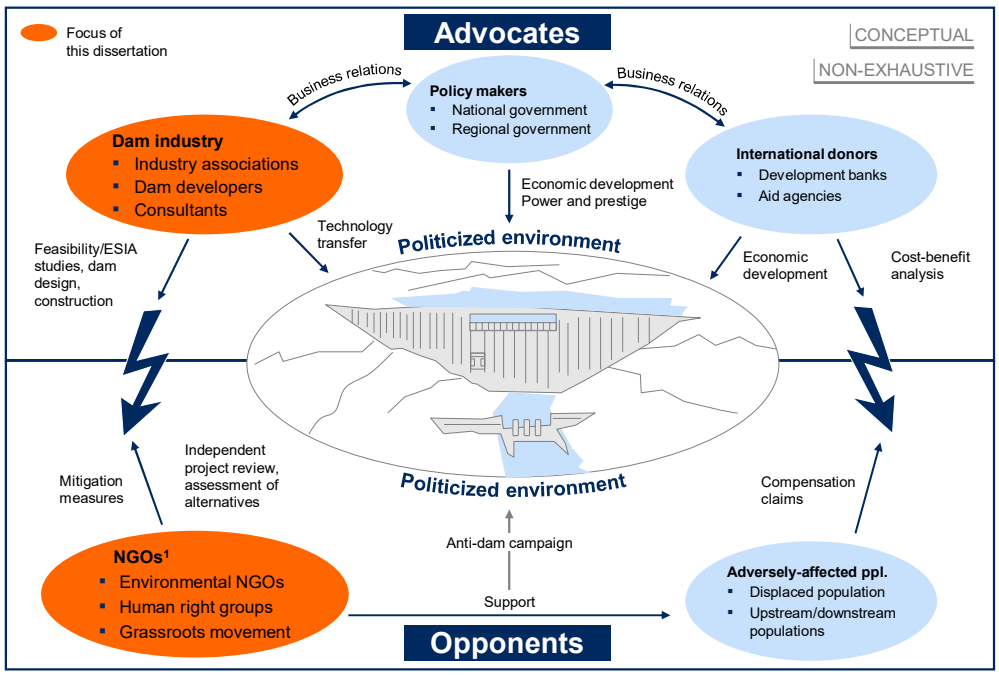
This dissertation investigates the root causes, strategies and impacts of anti-dam movements, which are integrated via the anti-dam protest cycle (this dissertation's main framework) to describe their continuous struggle with the advocates of large dams. Typical constituents of anti-dam movements are NGOs (both international and local) and adversely affected communities, while typical advocates come from the dam industry, governments and international donor organizations (see Figure 4, adapted from Nüsser 2003, p. 12).

The anti-dam protest cycle presented in Figure 5 was developed for this dissertation. Its framework is outlined in this section; it is nuanced and tested in chapters 4, 5 and 6 (the main empirical chapters); and the results of this testing are discussed in the final chapter. This framework is not meant to offer definitive answers, but rather provide initial guidance in integrating the content of the subsequent empirical chapters. Conclusively verifying this cycle is not the aim of this dissertation, but it may be developed further in a research endeavor beyond this work.

In a nutshell, the anti-dam protest cycle conceptualizes why massive anti-dam protests occur repeatedly. Two decision points form the core of this framework. The first concerns

whether significant anti-dam protests occur (further examined in chapter 4). The second explores whether they lead to project delay, suspension or cancellation (chapter 5). If significant anti-dam protests occur and lead to project delay, suspension or cancellations, a massive backlash within the relevant dam developer and beyond is anticipated (chapter 6). However, this backlash prepares the ground for the continuing construction of large dams, which leads to further protests (chapter 7).

FIGURE 4: STAKEHOLDERS OF THE ANTI-DAM PROTEST CYCLE



1 May be idential with adversely-affected people

SOURCE: Adapted from Nüsser (2003, p.22)

This description of what the anti-dam protest cycle is and what it is supposed to show rests on five assumptions. First, that large dam projects usually induce opposition by an anti-dam movement, which initiates the anti-dam protest cycle. Second, that only a few dam projects induce significant public opposition. Third, that very few of the dam projects with significant public opposition are delayed, suspended or cancelled because of this opposition. Fourth, that any dam project delayed, suspended or cancelled has far-reaching consequences for the social safeguard norms in large dam projects. Fifth, that these consequences prepare the ground for the future construction of large dams, which is likely to induce further protests and thus re-initiate the anti-dam protest cycle. These assumptions are discussed further below.

The first assumption holds that large dam projects usually induce opposition by an anti-dam movement, which initiates the anti-dam protest cycle. Khagram (2000) has stated that virtually any large dam proposed or built from the 1990s onwards faced opposition by an anti-dam movement. Because large dams are "one of the most significant human interventions" (McCartney et al., 2001, p. 9), they alter the flow of a river for hundreds of kilometers both upstream and downstream and result in adverse impacts, oftentimes on millions of people. For instance, *Conservation International* estimates that dam construction on the Mekong threatens the food security of more than 60 million people (Farrell, 2012). These adversely affected communities are frequently an anti-dam movement's starting point and may amplify their 'environmentalism of the poor' (Martínez-Alier, 2002; further discussion also in chapter 5 of this dissertation) via various NGOs.

The second assumption holds that few dam projects induce significant public opposition and is specific to the regional focus of this dissertation. McCully (2001, p. 33) described large dam construction as "a government's way of accumulating authority (deciding who will get how much water and who will grow what where)". Similarly, Moore (1998, p. 290) writes that "giant dams that supposedly control wild and wasted rivers […] are usually devices for expropriating common resources from some users and turning them over to [the government]". The countries examined in this dissertation (e.g., Myanmar, Laos, Cambodia, and Thailand) have governments that repress social movements, and it is thus hypothesized that it will be difficult for significant public opposition to emerge. (The root causes of significant public opposition to dam projects are examined in chapter 4.)

The third assumption holds that few of the dam projects facing significant public opposition are delayed, suspended or cancelled because of it. This assumption also reflects the regional focus of this dissertation, with authoritarian governments in the various countries studied considered to be unlikely to give in to the demands of any antagonists. In addition, this assumption reflects the reality that "in any anti-dam movement it is a small number of people who have to fight against a large number" (Vora, 2009, p. 174); after all, those benefiting from a dam project always outnumber those adversely affected by it (Vora, 2009, p. 174 ff.). Strategies

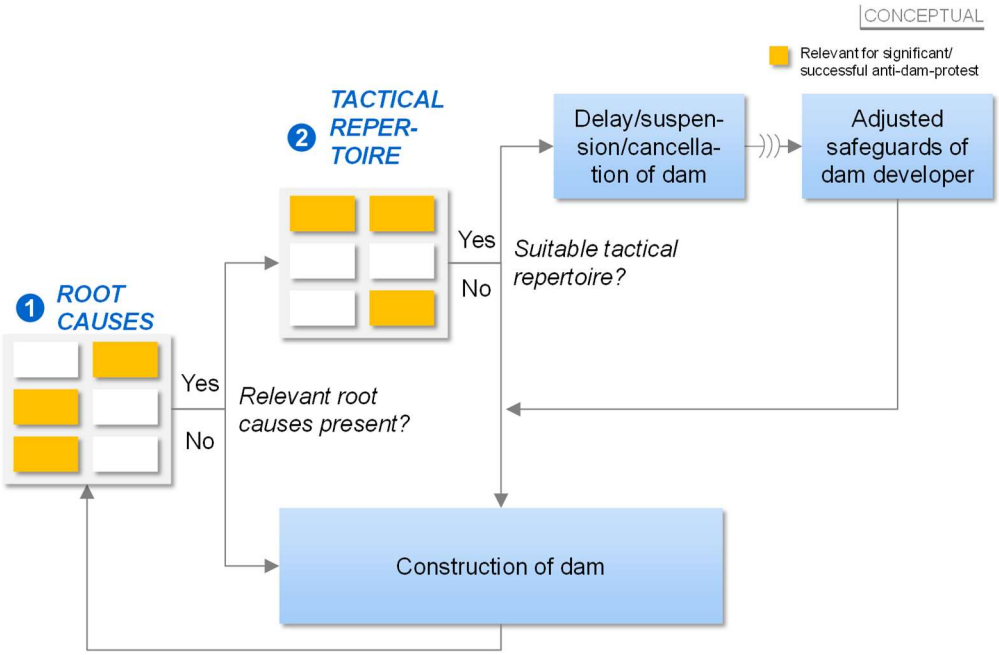
of successful anti-dam movements in countries with largely authoritarian governments (i.e., those that accomplished project suspension) are examined in chapter 5.

The fourth assumption holds that any dam project delayed, suspended or cancelled has far-reaching consequences for social safeguards in large dam projects. Park (2010, p. 240 ff.) argued that the movement against India's Sardar Sarovar Dam, which eventually forced the World Bank to abandon the project, resulted in the World Bank internalizing a variety of novel norms — a rational choice, since it is in the interest of the World Bank to continue carrying out large dam projects. These novel norms pertain particularly to social safeguard norms, with the key interface between the dam developer and project-affected communities being the frequent starting point of an anti-dam movement. The impacts of public opposition against dam projects are examined in chapter 6, with a focus on Myanmar's Myitsone Dam, suspended in 2011, as well as on Chinese dam developers.

The fifth assumption holds that the far-reaching consequences induced by dam project delays, suspensions or cancellations prepare the ground for the future construction of large dams. The brief history of anti-dam movements in the previous chapter can be read as a confirmation of this hypothesis. Numerous dam protests led to a global stagnation of dam construction in the early 2000s. The industry adjusted, however (e.g., via the development and launch of the HSAP), and a new dam boom began only a few years later. Projects that had been stalled for decades (e.g., Nepal's Arum 3 Dam) have suddenly been discussed again and may resume soon. However, the completion of a dam project (or numerous ones) also showcases their various negative impacts, which relaunches the anti-dam protest cycle.

This cycle can also be relaunched if either the relevant root causes for significant anti-dam protests or the relevant strategies of a successful anti-dam movement are absent. Therefore, dam construction is likely to continue, the dams' negative impacts will be showcased and the anti-dam protest cycle will be initiated again.

FIGURE 5: THE ANTI-DAM PROTEST CYCLE



2.3 A META-SYNTHESIS OF THE RESEARCH ON ANTI-DAM MOVEMENTS

2.3.1 Sample Analysis

2.3.1.1 Sample Overview

The anti-dam protest cycle covered in the previous section is informed by the scholarly literature on anti-dam movements. Comparatively little work has been done on them specifically. Indeed, using the method outlined in the appendix for this chapter, a mere 60 articles on them were identified, compared to 217 articles found when performing a literature review on the social impacts of dams (published as Kirchherr, Pohlner & Charles, 2016). Yet a specific literature on anti-dam movements is of interest since their root causes, tactical repertoires and impacts are likely to be at least partly specific, due to the various peculiarities of dams as infrastructures (further discussed in Kirchherr & Charles 2016, p. 100 ff.).

Of the 60 articles in the sample of scholarly articles on anti-dam movements, 14 (23%) are 'grey literature' (i.e., Master's theses, doctoral theses or working papers). Nineteen (32%) of them are either published books or book chapters — much more than in the sample of the literature on the social impacts of dams (with only 9% published books or book chapters). The papers published in peer-reviewed journals are spread across various journals. The most common journal within the sample on anti-dam movements is *Water Alternatives*, with three articles. *Social Movement Studies* and *Organization & Environment* feature two articles each.

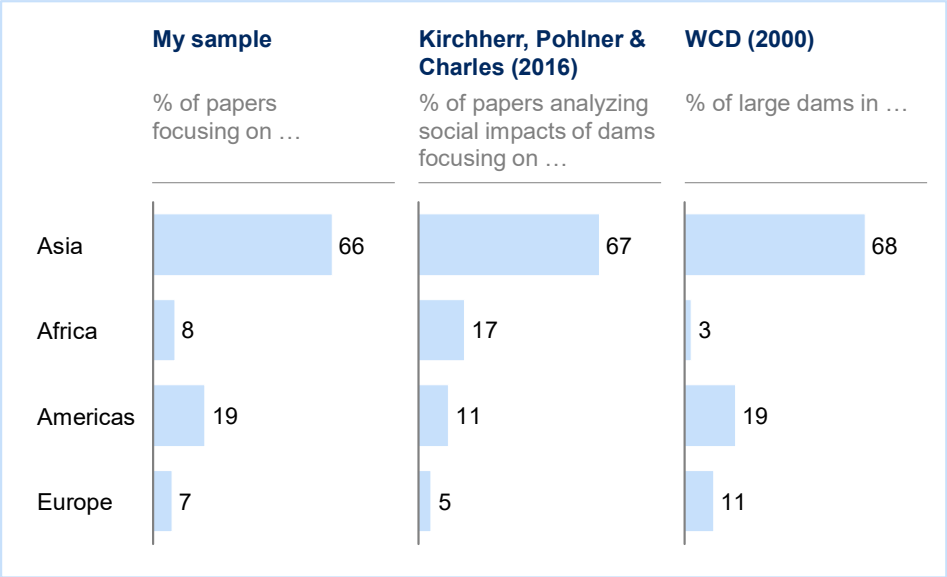
The literature on the topic has grown in recent decades. Only 11 of the articles in the sample were released between 1988 and 2000; 34 were published between 2006 and 2015. The overall compound annual growth rate from 1988 (the date of the first article in the sample) to 2015 equates to 10%. This growth largely matches that of the overall social sciences literature, estimated at 9% per year for the period of 1997–2006 (Larsen & von Ins, 2010, p. 589). However, the small number of articles identified as published during the 1990s and before may also reflect data collection challenges; many of them from the 1990s may not be digitized yet. While the attempt was made to identify non-digital articles (e.g., via various library searches), it is likely that not every relevant article from this period was located.

Of the articles in the sample, 43% draw on a theoretical framework in their analyses — many more than in the sample on the social impacts of dams (26%). However, no consensus and common ground has been established yet regarding a framework for anti-dam activism, a finding similar to the analysis of the literature on the social impact of dams. A key reason may be that anti-dam movement scholars have so many frameworks to draw from. The theoretically diverse fields of social movement studies, environmental politics and political ecology all relate to these movements, as discussed in the next sections of this dissertation. According to my coding, only two specific frameworks in the sample on anti-dam movements are used more than once. First, three articles discuss them from the perspective of political opportunity structures (reflecting the structural approach within social movement studies). Second, three articles — McCormick (2006), McCormick (2007) and McCormick (2009) — adopt a lens of knowledge shaping on movements via science (reflecting mostly the constructionist approach within social

movement studies). Examples of miscellaneous frameworks are Tilt (2014), drawing on the concept of the moral economy (possibly most close to political ecology) developed by Thompson (1971), or Dwivedi (1999) employing the impoverishment risks and reconstruction (IRR) model developed by Cernea (1990). Overall, it is also notable that much of the scholarly literature does not integrate previous writings on anti-dam movements. The most extreme example is Chowdhury (2013), who only lists two pieces of literature in his bibliography, neither of which relates directly to them.

The overall regional distribution within the sample largely reflects the actual distribution of large dams at the end of the last century (Figure 6). The data depicted in this figure regarding geographical distributions of large dams was collated by the WCD (2000, p. 8) and is based on allegedly representative data from the 1998 ICOLD. Only Africa is significantly overrepresented in the scholarly literature on anti-dam movements (with 8% of articles on the continent, but only 3% of large dams in Africa). Europe (4%) is slightly underrepresented. Furthermore, the regional distribution also largely matches the scholarly literature analyzing dams' social impacts (Kirchherr et al., 2016; Figure 6). With 16 papers, India is the most commonly studied country within the sample, followed by China with eight and Brazil with seven. Sabnis's claim (2001, p. 99) regarding the Sardar Sarovar Dam ('by far the most studied water project in the developing world, especially in social and environmental terms') is corroborated via the sample at hand: 13 papers were found on the campaigns by Narmada Bachao Andolan (NBA) against it, more than for any other dam project.

FIGURE 6: GEOGRAPHICAL DISTRIBUTION OF LITERATURE ON DAMS



Note: Papers adopting a global perspective excluded from this analysis

Of scholarly papers, 69% focus on a single campaign only — an even stronger preference for single case study analyses than within the scholarly literature on the social impact of dams (with 44% of authors conducting a single case-study analysis, according to Kirchherr et al. (2016). Of the authors in the sample at hand, 27% percent conduct a comparative case-study analysis of two anti-dam campaigns, while 4% of papers compare three of them. Not a single paper was identified analyzing more than three cases. Of those comparative analyses, 57% of the authors compare different anti-dam campaigns within a country and 43% compare campaigns in different countries.

2.3.1.2 On Root Causes, Components and Impacts of Anti-Dam Campaigns

This dissertation focuses on the root causes, strategies and impacts of anti-dam campaigns. Of these three possible foci, the tactical repertoire is most studied within the current literature according to my coding, with 51% of articles discussing it and 36% of articles analyzing root causes. Impacts are least studied, with 14% of articles focusing on this aspect of an anti-dam movement (impacts may not constitute effects on the dam developer, but governmental policy,

the public discourse and consciousness etc. In fact, not a single article in the sample at hand discusses effects on the dam developer).

The concrete contents of the literature on root causes, tactical repertoire and impacts are not discussed in depth here. For reasons of readability, this will be the focus in chapters 4, 5 and 6. Gaps in the literature evident from the overview are nonetheless pointed out below, since these have motivated the set-up of chapters 4, 5 and 6.

- *On root causes:* Compared to the current scholarly literature on the roots of anti-dam movements, the approach in chapter 4 is novel in two ways. First, the research examines public opposition to 12 dam projects, the largest sample ever studied, which promises insights with greater external validity. Second, it adopts a fuzzy set Qualitative Comparative Analysis (fsQCA), an approach not yet used in the study of anti-dam movements (assuming the sample at hand is comprehensive). The choice regarding fsQCA corresponds to the growing methodological pluralism in the field of social movement studies (Rossi & Bülow, 2015). Wagemann (2014) particularly recommends it for the study of social movements when conducting medium-N studies.
- *On components:* The approach chosen in chapter 5 contributes to the current scholarly literature on the strategies of anti-dam movements by presenting one of the few scholarly analyses of successful anti-dam campaigns (with 'success' defined from the perspective of the anti-dam movement as either significant project delay, suspension or cancellation). Of the 33 articles on the tactical repertoire of anti-dam movements identified, only two analyzed successful anti-dam campaigns in developing countries: Chandra (2013) and Sneddon & Fox (2008). Three discuss successful ones in developed countries, but 'civil society is […] different […] in the South than in the North' (Allan & Allan, 2002; discussed further in chapter 5).
- *On impacts:* The research in chapter 6 is novel in at least four ways. First, the analysis of the impacts of anti-dam movements on dam developers is apparently the first scholarly analysis to focus on the latter. Scholars usually focus on the impacts of an anti-dam movement on public discourse or national policy (discussed further in chapter 6). Second,

the analyses are one earliest scholarly analyses based on direct interaction with Chinese dam developers, who allegedly dominate today (Verhoeven, 2015, p. 178 ff.). Third, compliance with various social safeguards so far has usually been analyzed from a single case study perspective only, whereas the regional case study approach adopted for this chapter again promises greater validity of findings. Fourth, the analyses in chapter 6 also comprise pathways to norm compliance, while most of the current scholarly literature has analyzed not why but which safeguards were complied with.

2.4 CONTRIBUTING FIELDS FOR THE STUDY OF ANTI-DAM MOVEMENTS

The meta-synthesis presented revealed that a variety of fields have contributed to the study of anti-dam movements. Three of them are outlined in this section: social movement studies, political ecology and environmental politics. They were chosen as being most relevant for the theoretical framing of the main empirical chapters of this dissertation (4, 5 and 6). The outlined fields are significantly interlinked and feature various overlaps, but substantiating them is not the aim of the remaining sections of this chapter or of the dissertation. Rather, it is aimed to outline these three fields as background for the aforementioned chapters.

2.4.1 Social Movement Studies

This dissertation is about anti-dam movements, which are social in nature. The field of social movement studies covers ‘an enormous terrain’ (Smith & Fetner, 2010, p. 15), so this section does not claim to provide a comprehensive overview. Rather, key terms of this dissertation (social movement organization and social movements) are defined by drawing on the field. Since they are of relevance in chapters 4 and 5 of this work, briefly discussed below are the concept of political opportunity structures (POS; possibly the most notable concept within social movement studies) and the two broad schools within contemporary social movement studies: the structural and the constructionist approaches.

Two terms may be most central in social movement studies — social movement organization (SMO) and social movement. An SMO can be defined as a "complex, or formal, organization which identifies its goals with the preferences of a social movement […] and attempts to implement those goals" (McCarthy & Zald, 1977). Meanwhile, a social movement is "a set of opinions and beliefs in a population which represents preferences for changing some elements of the social structure and/or reward distribution of a society" (McCarthy & Zald, 1977). Indeed, "the concept of social movement is strongly connected to the idea that some part of that world should be changed, that another world is possible" (van der Heijden, 2014, p. 1111), with various scholarly authors, most notably Laclau & Mouffe (2014), arguing for them to pursue neo-Marxist change. A desire for change is also reflected in the key mission of the journal *Social Movement Studies*, with its editors seeing the journal's prime purpose as "writing as an intervention" (Jordan et al., 2011).

The vision for another world is also reflected by environmental NGOs that work on dams, as they frequently envisage a world in which no more dams are built. For instance, the environmental group International Rivers (perhaps the world's foremost anti-dam NGO) states in its self-description that "we envision a world where water and energy needs are met without degrading nature or increasing poverty" (International Rivers, 2015). They argue elsewhere that "dams impact both water quality and the very functionality of rivers" (International Rivers, 2016c).[3] Similarly, the Thai environmental NGO Living River Siam Association states as its vision to ensure that "local communities have a vital role in maintaining the riverine-ecological balance [which means to] oppose threats to rivers […] such as large-scale dams" (LRSA, 2016).

Although the two definitions provided particularly highlight SMOs as a subset of social movements, the sum of all relevant SMOs does not add up to a social movement (van der Heijden, 2014). Rather, they constitute the "dawning of [a collective] consciousness" (Small, 1897, p. 340) that may feature various participants not associated with any SMO contributing to

3 Eichert (2014, p. 180) points out that International Rivers is severely understudied by scholars.

the overall social movement. Although the two definitions outlined in the previous paragraph were stated almost 40 years ago, they are still employed frequently in contemporary writings on social movements. Examples include Treber (2011, p. 62), van der Heijden (2014, p. 1112 ff.) and McCarthy & Zald (2015, p. 162). Thus, they are also adopted for this dissertation. Several alternative definitions of social movements can be found, since the field of study is extremely diverse.[4] This diversity likely impedes the development of any grand or unified theoretical underpinning. Nevertheless, Goodwin & Jasper (2004, p. 7 ff.) as well as Smith & Fetner (2010, p. 13 ff.) argue that two broad schools can be identified within contemporary social movement studies, namely the structural and the constructionist approaches.

The likely common denominator of both schools may be the concept of political opportunity structures (POS), also called 'political opportunity', 'opportunity structure' and merely 'opportunities' in the scholarly literature (Koopmans, 1999). The POS concept was originally introduced by the structural school (Goodwin et al., 1999, p. 27 ff.) and has been said to "suffocate social movement research" (Koopmans, 1999, p. 93) via its "hegemonic paradigm" (Goodwin et al., 1999, p. 13). Yet Gamson & Meyer (1996, p. 276) write that "the essential problem [of the concept] is that everyone who writes about POS refers to [something] different", a criticism previously stated by Klandermans et al. (1988). Nevertheless, the next paragraph attempts to summarize the concept.

Political opportunity structures have been defined as the "dimensions of the political environment which either encourage or discourage people from using collective action" (Tarrow, 1994, p. 19), with Koopmans (1999, p. 64) arguing that the core idea within both the constructionist and the structural schools is that they determine the level and form of protest behavior. Relatively restrictive POS are generally viewed to result in lower levels of protest

[4] For instance, Wiktorowicz (2003) explores Islamic activism as a social movement, Kolb (2005) researches anti-globalization movements and Ayoub & Paternotte (2014) research the LGBT movement. Examples for environment-related social movement research are Rootes (2005), investigating the British environmental movements, or Lindblom & Jacobsson (2013), analyzing animal rights activism in Sweden.

behavior (which is not meant to imply that they feature no protests). These matters are further explored in chapter 4, which examines (*inter alia*) POS as a causal condition inducing significant anti-dam protests. Furthermore, relatively restrictive POS are believed to result in social movements that mask their protest behavior or even turn violent. This aspect is further examined in chapter 5 when describing and analyzing the strategies of the movements against Myanmar's Myitsone Dam and Thailand's Kaeng Suea Ten Dam.

The concept of POS is so prominent within social movement research that the relevant body of literature is immense; thus, the summary of POS in the previous paragraph may be read as only one interpretation of it. To represent thoroughly at least a part of this literature, the scholarly works that discuss POS specifically in combination with anti-dam movements are considered in depth in chapters 5 and 6, the main empirical chapters that take POS into account.

This section now turns to a discussion of what I view as the cornerstones of the structural and constructionist schools within social movement studies.

- *The structural approach*: Goodwin & Jasper (2004, p. 7 ff.) as well as Smith & Fetner (2010, p. 13 ff.) deem the structural approach to be dominant within contemporary social movement studies. Scholars adhering to this approach tend to highlight the role of SMOs (Smith & Fetner, 2010), and their material resources are seen as central for a movement's clout. Indeed, these scholars emphasize much more formal organizations than their constructionist counterparts (van der Heijden, 2014). Overall, the structural approach tends to equate the power to shape decision making to resources and institutions. Due to its emphasis on resources, selected scholars also call it the 'resource mobilization approach' (Opp, 2009a; van der Heijden, 2014). 'Structural approach' is used throughout this dissertation, since this seems to be the more commonly used term (Goodwin & Jasper, 2004a).
- *The constructivist approach:* Scholars adhering to this approach tend to encourage academics to focus particularly on culture (Medeiros, 2009, p. 11 ff.), which is seen as critical for both a movement's emergence and its success (Buechler, 2000, p. 123 ff.). Culture, carried by various individuals constituting a social movement, "consists of […]

shared mental worlds and their perceived embodiments" (Jasper, 2010, p. 60). These embodiments could be practices ranging from mass prayer ceremonies to public demonstrations (Doherty & Doyle, 2006, p. 702 ff.; further discussed in chapter 5 of this dissertation). Shared mental worlds and their resulting embodiments are in turn generated via framing. Particularly popularized by Goffman (1986), the concept of framing is allegedly "the cornerstone of [many] analyses" (Medeiros, 2009) by scholars adhering to the constructionist approach. Framing of issues and events provides a common ground for understanding (Goffman, 1974), which then can create a collective identity. The ability of framing to evoke emotions, a concept entirely "repressed […] under structural models" (Jasper, 2010), can contribute particularly to the emergence and clout of a movement (Jasper, 2010). The constructionist approach can also be called the 'cultural approach' (Goodwin & Jasper, 2004, p. 7). 'Constructionist' is used throughout this dissertation, since this seems to be the more commonly used term.

This dissertation considers both the structural and constructionist approaches, while its eventual findings particularly challenge the former (further discussed in section 7.2.2). Chapter 4 (on root causes of anti-dam protests) can be viewed as an attempt to operationalize thinking from both schools — for example, including variables such as political opportunity structures and level of development (classical structural variables) as well as such micro-variables as cultural heritage impacts and safeguards, which scholars adhering the constructionist approach may be more likely to study. The setup of chapter 5 (on the strategies of anti-dam movements) also connects with both approaches. Chapter 6 (on the impacts of anti-dam campaigns on Chinese dam developers) adopts mostly the constructionist approach with its focus on norms (defined as shared ideas, expectations and beliefs about appropriate behaviour; Finnemore & Sikkink, 1998), while also discussing the importance of governmental regulations. The concept of norms stems mostly from the field of environmental politics.

2.4.2 Environmental Politics

The field of environmental politics is comparatively young, with much of the foundational literature published in the mid-1990s (Dauvergne, 2005, p. 3). While the field's name suggests it would be located within the discipline of political science, Dauvergne (2005, p. 3) argues that it is highly interdisciplinary and that geography should be viewed as a key contributing discipline. The proximity of the field to geography is evidenced, for instance, by McCulloch (2003), whose review of the first edition of an introductory book on environmental politics was published in the journal *Political Geography.*

The primary concern of environmental politics scholars is the relationship between human society and nature (Carter, 2007, p. 3), while Dauvergne (2005, p. 3) also argues that they hold a "shared concern for the health of the planet". According to Carter (2007, p. 3), the field of environmental politics constitutes three key components: analysis of (1) political theories and ideas relating to the environment, (2) policy-making and implementation at international, national and local levels that relates to the environment, and (3) political parties and their environmental stances as well as environmental movements.

These three components are significantly interrelated. An analysis of an environmental movement (component 3) may focus on the theories and ideas suggested by the movements (component 1). For instance, Schlosberg (2004, p. 517 ff.) explores ideas of environmental justice called for by various environmental movements. Scholars within environmental politics may also study how environmental movements (component 3) impact policy-making and implementation (component 2), which is addressed in chapter 6 of this dissertation.

The most common perspective adopted in the field of environmental politics is that of the nation state. In contrast to their various components and the resulting topical diversity mentioned previously, Bailey & Bryant (1997, p. 190) pointed out that analyses in environmental politics generally tend to center around and adopt the perspective of the nation state as the key unit of analysis. This observation was ratified by Lipschutz (2004, p. 27), Hensengerth (2015, p. 507 ff.) and Stevenson (2016, p. 44).

A central concept from environmental politics that chapter 6 of this dissertation borrows is the concept of norms, briefly sketched in this paragraph. Finnemore & Sikkink (1998) define norms as shared ideas, expectations and beliefs about appropriate behaviours. Hence, they help define what is considered an appropriate or necessary issue to be addressed (Moore, 2012). Norms evolve into a codified standard (such as the HSAP) if consensus is sufficient among the stakeholders at question. However, norms should never be viewed as "immutable structures" (Park & Vetterlein, 2010, p. 301); they remain fluid even if consensus is reached. Codification is only an intermediate step in a continuous evolutionary process. Norms are shaped by international organizations, states and various non-state actors (Keck & Sikkink, 1998). The latter most notably include activists (comprising local activists and those organized in transnational advocacy networks [TANs]; Hanegraaff, 2015) and transnational corporations [TNCs]; Risse & Sikkink 2013, p. 276 ff., Meckling 2015), which are reported to impact state norms via the logic of the 'spiral model' (further discussed by Risse & Sikkink [1999]). Chapter 6 explores how social safeguard norms evolved in Chinese-led dam projects in Myanmar, Laos and Cambodia since 2011.

2.4.3 Political Ecology

Meanwhile, political ecology is explicitly discussed in chapter 4. Political ecology is noted for its diversity, and offering a concise definition is difficult (Robbins, 2012, p. 13) because it "has accreted various layers of meaning" (McCulloch, 2008, p. 15) over the past decades. The attempt to define it is further complicated because, as Robbins notes (2012, p. 21), "much of the [political ecology] work is carried out by people who might never refer to themselves as political ecologists".

The term was allegedly first used by Wolf (1972), an American anthropologist with Marxian views (Robbins, 2012, p. 14). Marx's work repeatedly alluded to the various significant impacts people had on nature (Linton & Budds, 2014, p. 173 ff.) and acknowledged the inseparability of human and non-human natures, a foundational belief within political ecology (Pellow & Nyseth Brehm, 2013, p. 244). Conceptualizing it as encompassing studies on

the interactions of nature and society opens a wide array of topics that can be investigated by scholars adopting this analytical lens. For example, a recent book titled *Global Political Ecology* (Peet et al., 2011) features the political ecology of sustainability (including analyses on excess food consumption and modern industrial fisheries), of the slum world (including analyses on global garbage and narratives on a 'slum-free' Delhi), of environmental governance (with a particular focus on the politics of certification), of security (discussing mutant radioactive ecologies in New Mexico), of energy scarcity and abundance (analyzing the political economy of energy crises), of bio-politics (focusing on genetically modified maize in Mexico) and of water (further discussed in the final paragraph of this section).

Power is a central theme within political ecology, and it is usually analyzed from the perspective of the marginalized, not from a state-centric perspective. For instance, the notion of 'environmentalism of the poor' emerged from the field of political ecology, which highlights the resistance of communities against projects that threaten the environment that is their livelihood (Martinez-Alier, 2002, p. 10 ff.); hence, this notion posits that environmental destruction by a project is a primary cause of public resistance. This matter is further explored in chapters 4 and 5, with chapter 4 outlining environmental risk as part of a causal recipe inducing significant anti-dam protests and chapter 5 describing how the movements against Myanmar's Myitsone Dam and Thailand's Kaeng Suea Ten Dam emerged as 'environmentalism of the poor'.

2.4.4 Synthesis

The size and diversity of the fields of social movement studies, environmental politics and political ecology result in overlaps that make it impossible to delineate sharply between them and difficult to describe how they build on or complement each other. Their main difference with regard to this dissertation may be the main perspective taken. Whereas social movement studies and political ecology focus mostly on the perspective of the marginalized, scholars identifying with the field of environmental politics frequently adopt a state-centric perspective, as argued *inter alia* by Bailey & Bryant (1997, p. 190 ff.; acknowledging that the prominence

of the concept of POS within social movement studies also reflects at least elements of a state-centric perspective). Both the marginalized and the state-centric perspectives are adopted throughout this dissertation, with each chapter focusing not only on anti-dam movements, but also on the political and regulatory contexts in which these movements operate.

2.5 CONCLUDING REMARKS

This chapter began by presenting the cornerstones of the anti-dam protest cycle. This primary framework of the dissertation is refined via its main empirical chapters (4, 5, and 6), which investigate the root causes, strategies and impacts of anti-dam movements within protest cycle framework outlined. The framework is revisited in the final chapter (chapter 7).

The anti-dam protest cycle is informed specifically by the scholarly literature on anti-dam movements. An overview on scholarly writing about them was provided in section 2.3 of this chapter. This review also motivated the setup of chapters 4, 5 and 6.

The chapter closed by outlining the primary contributing fields for the main empirical chapter, which discusses the fields of social movement studies, environmental politics and political ecology.

The next chapter reflects on ontology, epistemology, methodologies and methods adopted for this dissertation, with a detailed discussion on snowball sampling (paper 1); most data collected for this dissertation was collected via this method.

3 METHODS

3.1 INTRODUCTION

This chapter spells out the main ontological and epistemological assumptions of this dissertation. In addition, resulting methodological views and methods preferences are outlined. Furthermore, criteria guiding the selection of case studies as well as an overview of the overall data collected are presented. The chapter closes with reflections on snowball sampling, the key data collection method of this dissertation (paper 1).

This chapter was particularly suggested by Christine McCulloch, one of the assessors in the transfer-of-status assessment. As Rosenow points out (2013, p. 49), "this part [on ontological and epistemological assumptions] is often missing in doctoral theses and the ontological and epistemological assumptions can [only] be second-guessed". Explicating these assumptions is central because they shape "what we study […], how we study it and what we think we can claim as a result of that study" (Furlong & Marsh, 2010). Thus, ontological and epistemological assumptions fundamentally shape research, "like a skin, not a sweater" (Furlong & Marsh, 2010), and this chapter is key to providing context for the methodological approaches chosen throughout this dissertation.

3.2 ON ONTOLOGY AND EPISTEMOLOGY

The key question of ontology relates to whether there is a 'real' world 'out there', independent of our knowledge of it (Furlong & Marsh, 2010). Meanwhile, the two key questions of epistemology, according to Furlong & Marsh (2010, p. 185) are as follows: 1) Can an observer identify 'real' or 'objective' relations between social phenomena? 2) If so, how? This second question relates to methodology and methods, which are further discussed in the next section. Meanwhile, these two questions indicate that "ontological assumptions cannot be divorced from epistemological […] concerns" (Stanley, 2012, p. 95). Indeed, "no ontologically neutral epistemological claim can be made" (Hay, 2007, p. 117), because any epistemological choice

implies an ontological stance — implying, in turn, that ontology precedes epistemology (Hay, 2007).

Furlong & Marsh (2010, p. 191) point out several ways to classify various epistemological positions. The authors argue that the most common classification would be the distinction between a positivist and an interpretivist position. A positivist believes it is possible for an observer to identify objective relations (and even causal knowledge claims) regarding social phenomena (Stanley, 2012), while an interpretivist would argue that this is impossible because social phenomena cannot be understood independently of the researcher's interpretation of them (Furlong & Marsh, 2010). This latter, interpretivist position implies an anti-foundationalist position regarding ontology. Anti-foundationalists see the world as socially constructed (Furlong & Marsh, 2010). "An anti-foundationalist ontology […] argues that there is not a 'real' world, which exists independently of the meaning which actors attach to their action" (Furlong & Marsh, 2010). Meanwhile, a researcher with a positivist epistemology implies a foundationalist position regarding ontology. Foundationalists would argue that there is a 'real' would 'out there', independent of the researcher's knowledge of it. Evidently, it would be inconsistent for the positivist epistemologist to assert that reality is constituted only through meaning and that it is socially constructed only, because this would imply he or she cannot identify objective relations (Stanley, 2012).

Hay (2007, cited in Furlong & Marsh 2010, p. 186) argues that ontological (and epistemological) positions cannot be proved. Rather, "we should adopt a position which makes sense to us, […] while acknowledging that it is contested". Regarding ontology, a foundationalist position is adopted throughout this dissertation, while acknowledging (regarding epistemology) that the view of the 'real' world is significantly shaped by the (scholarly) observer. Thus, the resulting epistemological position is a middle ground between positivism and interpretivism, a position which, according to Furlong & Marsh (2010, p. 205), has been significantly shaped by the interpretivist critique of positivism. This position is called realism (Furlong & Marsh, 2010). The overall position regarding ontology, epistemology, methodology

and methods adopted for this dissertation is called 'pragmatic realism', for reasons discussed in the next section.

3.3 ON METHODOLOGY AND METHODS

Methodology is "the combination of an epistemic stance and [the research method(s)] of investigation" (Tennis, 2008, p. 5). Thus, methodology can be viewed as a general theory on research methods constituting what is to be viewed as scientific and it is grounded in the scholar's epistemological and ontological position (this definition is further expanded in the next paragraph). Meanwhile, a research method is a research tool (e.g., a survey or a semi-structured interview) that concerns how to collect data (Bhattacherjee, 2012, p. 23) (As Wagemann [2014] points out, there are several competing definitions of 'methods' within the social sciences. The definitions outlined above are the working ones found suitable for this dissertation). This dissertation asserts throughout that the methodological underpinning for both qualitative and quantitative methods ought to be identical, a position echoing King et al. (1994, p. 4) who contend that "differences between qualitative and quantitative traditions are only stylistic [i.e., different regarding the research methods employed] and are methodologically […] unimportant".

King et al. (1994, p. 7 ff.) suggest a four-fold definition regarding methodology. Research, both qualitative and quantitative, would be scientific given the following criteria:

- The research attempts to infer beyond the immediate data collected. It is a quest for context-independent knowledge and rules — a stance possibly at odds with various contemporary human geographers and anthropological researchers, usually interpretivists, who seek specific knowledge only, with no external validity (King et al., 1994);
- All procedures are public in that the methods of data collection must be explicated and detailed;
- The researcher acknowledges that the research's conclusion will always be uncertain because the data on which the conclusions are based will always be incomplete;

- The scientific method is adhered to.

This final criterion may be the most fundamental one in this four-fold definition. According to Popper (2002), the researcher who adheres to the scientific method "constructs hypotheses, or systems of theories, and tests them against experiences by observation and experiment" (Popper, 2002). This approach is important to the realist, for the *ex-ante* formulation of hypotheses oftentimes forces the researcher to explicate implicit assumptions regarding a view of the world at hand (which, in many cases, may be the current consensus view within the scholarly literature and may be drawn from it). This deductionist approach then allows for falsification of one's (assumingly subjective) views.

Meanwhile, the inductionist approach (with the researcher developing hypotheses and theories from the data collected; frequently adopted by interpretivists) bears the risk that hypotheses and theory will follow the data only; the researcher (particularly the qualitative one where data is particularly ambiguous) may be inclined to see only the data that reconfirms his or her (subjective) view of the world. Indeed, this dissertation adopts throughout the stance of Popper (2002, p. 17 ff.), who argues that falsifiability is the fundamental demarcation criterion distinguishing the scientific from the unscientific. Due to this stance, the field research carried out for it was preceded by the formulation of hypotheses, which were then tested against the empirical data collected. Many of the initial hypotheses were falsified during field research, and new research questions emerged. When they emerged based on the data collected, novel sets of hypotheses were developed to test them during further data collection.

Furlong & Marsh (2010, p. 186) point out that those with a positivist epistemology tend to prefer quantitative methods (including experiments), while those with a interpetivist epistemology would prefer qualitative ones. After all, quantitative methods tend to imply a larger sample size and promise greater external validity of findings (i.e., more certainty regarding the 'real' world 'out there' than the researcher with a positivist or realist epistemology is particularly interested in). For several reasons, however, a preference for quantative methods does not imply that a researcher with either of these epistemologies will always employ them.

First, a researcher with a positivist epistemology may choose to adopt qualitative research methods to generate hypotheses on a topic, since the inductive logic of many qualitative research methods (such as open-ended expert interviews) can help a researcher to generate a range of hypotheses on a little-known topic in a relatively uncomplicated manner. Existing hypotheses on a topic about which much is known can also be further nuanced via various qualitative research methods, as outlined by authors such as Collier (1993), Hackett (2016), Lijphart (1971) and Shadish et al. (2002). These hypotheses generated via qualitative research could then be utilized for large-N research in a second step.

Second, a researcher with a positivist epistemology may adopt qualitative research methods due to their sometimes greater feasibility compared to quantitative methods. Indeed, a researcher may generally prefer experimental methods over semi-structured interviews. Yet for most topics relevant in the realms of social sciences, "it is impossible to generate appropriate experimental data" (Collier, 1993). This drawback also holds true for the topic of this dissertation. Echoing the terminology of Shadish et al. (2002), the 'treatment' explored here is the announcement and subsequent construction of a large dam, which cannot be credibly announced in various countries as an experiment to generate data for this research. Even if no experiments on it are feasible, this topic remains worth studying, and alternative research methods to explore it must be chosen. Scholars often face practical constraints when carrying out their work: "[researchers] usually reflect some accommodations to the realities of social life; their activity cannot be accounted for or explained fully by referring to philosophical positions" (Jessor et al., 1996; cited in Plummer 2013, p. 54). In agreement with these stances, the overall position on ontology, epistemology, methodology and methods adopted throughout this dissertation is called not just 'realism' but 'pragmatic realism'.

This type of realism is also reflected by Lijphart (1971, p. 685; cited in Collier 1993, p. 106), who advises that "if at all possible one should generally use the statistical (or perhaps even the experimental) method […]. But often, given the inevitable scarcity of time, energy and financial resources, the intensive comparative analysis of a few cases may be more promising". He argues that such analysis must then prepare the ground for analyses with a greater sample

size, and that researchers must always aim for the greatest sample size feasible. This advice has motivated the overall setup of chapters 4, 5 and 6 of this dissertation, with all analyses being at least comparative.

3.4 SELECTION OF CASE STUDIES

The research on anti-dam movements in this dissertation is based on case studies (with a dam project such Myanmar's Myitsone Dam constituting a single case study). Their selection was driven by four criteria, with the first two guided theoretically and the third and fourth practically.

First, all case studies had to feature at least some degree of public protest. This requirement may be viewed as a key case selection principle according to Lijphart (1971, p. 687 ff.), who suggested focusing comparative analyses on comparable cases (contested dams in this dissertation) as a means to address the 'many variables, small N' problem. Indeed, very different causal conditions may be at play in non-contested dam projects than in contested ones. This hypothesis cannot be confirmed, however, since scholarly analysis on non-contested dam projects is largely lacking (Kirchherr et al., 2016, p. 36).

Second, case studies in the eventual sample had to differ significantly overall. This criterion was needed to detect multiple causal pathways to the outcome of interest in the various papers (Goertz, 2008).

Third, only Asian case studies were considered. The decision to restrict the analyses in this manner reflects the fact that case study research relies significantly on the contextual knowledge of those conducting it (Basurto & Speer, 2012). As outlined in chapter 1, I am most familiar with the Asian context.

Fourth, only case studies for which significant amounts of information could be gathered were included. Following Schneider & Wagemann (2012, p. 32 ff.), this information could be from various sources, including peer-reviewed papers, press research or interview and survey data.

Additional information regarding case study selection can be found in the methods sections of chapters 4, 5 and 6.

3.5 COLLECTED DATA

Launched in April 2015, the data collection for this dissertation on Asia's dam industry included international and local NGOs, people affected adversely, international donors, academia, the government and the private sector (e.g., dam developers, industry associations and consultants). At first, interviews were carried out via phone only. Field research was then undertaken in Singapore, Myanmar and Thailand from June to August 2015. Data collection was terminated in September 2015. A second round of field research in Myanmar and Thailand was accomplished from February to April 2016. Overall, this dissertation is based on 131 semi-structured interviews (table 1), 30% of which were with NGOs (25 local and 14 international), 33% with people affected adversely and 21% with private sector players. Thus, 84% of them were carried out with the key stakeholders of interest for this dissertation. The remaining 22 interviews (16% of all interviews) were carried out with international donors, government officials and academics.

The semi-structured interviews include numerous high-caliber meetings with leadership and staff of leading institutions in Asia's dam industry. Examples include the following:

- *NGOs (local):* Mekong Energy and Ecology Network, ECODEV, Karen Environmental and Social Action Network (KESAN), Kayan New Generation Youth and Kuki Women's Human Rights Organisation;
- *NGOs (international):* International Rivers, WWF, Oxfam International, EarthRights International, Transparency International or the Nature Conservancy;
- *International donors:* The World Bank, the International Finance Corporation (IFC), the Asian Development Bank, the Delegation of The European Union — Myanmar and the Gesellschaft für Internationale Zusammenarbeit (GIZ);

- *Academia:* Scholars from the University of Oxford, the School of Oriental and African Studies (SOAS) at the University of London, Northumbria University, Tsinghua University and Chulalongkorn University;
- *Private sector:* China Three Gorges Corporation (CTGC), China Power Investment Corporation (CPI), Statkraft, GE Hydro, the International Hydropower Association (IHA) and ICOLD (my interview with its president was a particular highlight);
- *Government:* A member of the National Reform Council on Water Resources Management Thailand, a former employee of the Office of the President of the Union of Myanmar (Burma), and policy-makers from Myanmar's Ministry of Transport, Myanmar's Ministry of Environmental Conservation and Forestry and the Southeast Asian Fisheries Development Center (SEAFDEC);
- *Adversely affected communities:* Villagers fearing relocation because of the planned Kaeng Suea Ten Dam in Thailand and villagers displaced because of Myanmar's Myitsone Dam (now living in the Aung Myin Thair relocation camp).

TABLE 1: TABLE OF INTERVIEWEES

#	Interviewee	Association	Code
1	Academia	Scholar	Asian university
2	Academia	Scholar	Asian university
3	Academia	Scholar	European university
4	Academia	Scholar	European university
5	Academia	Scholar	Asian university
6	Academia	Scholar	Asian university
7	Adversely affected communities	Pastor	Myitsone Dam relocation camp
8	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
9	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
10	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
11	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
12	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
13	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
14	Adversely affected communities	Villagers	Don Chai/Don Chai Sak Thong
15	Adversely affected communities	Villagers	Don Chai/Don Chai Sak Thong
16	Adversely affected communities	Villagers	Don Chai/Don Chai Sak Thong
17	Adversely affected communities	Villagers	Don Chai/Don Chai Sak Thong
18	Adversely affected communities	Resettlee	Myitsone Dam relocation camp
19	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
20	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
21	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong

22	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
23	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
24	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
25	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
26	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
27	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
28	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
29	Adversely-affected communities	Resettlee	Myitsone Dam relocation camp
30	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
31	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
32	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
33	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
34	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
35	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
36	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
37	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
38	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
39	Adversely-affected communities	Villager	Don Chai/Don Chai Sak Thong
40	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
41	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong

42	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
43	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
44	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
45	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
46	Adversely affected communities	Resettlee	Myitsone Dam relocation camp
47	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
48	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
49	Adversely affected communities	Villager	Don Chai/Don Chai Sak Thong
50	Government	Decision-maker	Thailand
51	Government	Senior official	Kachin Independence Organization
52	Government	Staff	Ministry in Myanmar
53	Government	Staff	Government in Southeast Asia
54	Government	Former employee	Office of the President of the Union of Myanmar (Burma)
55	Government	Government official	Thai ministry
56	International donors	Senior official	International donor
57	International donors	Staff	Major donor
58	International donors	Staff	European donor
59	International donors	Staff	European donor
60	International donors	Staff	International donor
61	International donors	Civil servant	International donor
62	International donors	Staff	International donor
63	International donors	SIA consultant	Freelancer mostly working for Asian Development Bank (ADB)
64	International donors	Senior official	World Bank
65	International donors	Senior official	World Bank
66	NGOs (international)	Burmese staff	European foundation in Myanmar

67	NGOs (international)	Burmese staff	European foundation in Myanmar
68	NGOs (international)	Staff	European foundation
69	NGOs (international)	Staff	International NGO
70	NGOs (international)	Senior staff	International NGO
71	NGOs (international)	Activist	Major international NGO
72	NGOs (international)	Staff	Major international NGO
73	NGOs (international)	Staff	International NGO
74	NGOs (international)	Senior staff	International NGO
75	NGOs (international)	Senior staff	International NGO
76	NGOs (international)	Consultant	Involved in various Chinese-led dam projects, mostly in Southeast Asia
77	NGOs (international)	Senior leader	International NGO
78	NGOs (international)	Senior staff	International NGO
79	NGOs (international)	Activist	International NGO
80	NGOs (local)	Managing director	International NGO operating in Myanmar
81	NGOs (local)	Staff	NGO in Myanmar
82	NGOs (local)	Leading activist	NGO in Myanmar
83	NGOs (local)	Staff	NGO in Myanmar
84	NGOs (local)	Director	NGO in Myanmar
85	NGOs (local)	Staff	NGO in Southeast Asia
86	NGOs (local)	Staff	Thai NGO
87	NGOs (local)	Managing director	Major environmental NGO in Myanmar
88	NGOs (local)	Activist	Kachin NGO
89	NGOs (local)	Activist	Kachin NGO

90	NGOs (local)	Activist	Burmese NGO
91	NGOs (local)	Activist	Involved in various anti-dam movements in Myanmar, especially the Myitsone Dam
92	NGOs (local)	Activist	Involved in protests against the Myitsone Dam
93	NGOs (local)	Activist	Asian NGO
94	NGOs (local)	Activist	NGO in Southeast Asia
95	NGOs (local)	Staff	NGO in Myanmar
96	NGOs (local)	Environmental activist	Southeast Asian NGO
97	NGOs (local)	Managing director	Thai NGO
98	NGOs (local)	Staff	Burmese NGO
99	NGOs (local)	Staff	NGO in Southeast Asia
100	NGOs (local)	Leading activist	Kachin NGO
101	NGOs (local)	Staff	NGO in Thailand
102	NGOs (local)	Staff	NGO in Myanmar
103	NGOs (local)	Staff	Thai NGO
104	NGOs (local)	Activist	Burmese NGO
105	Private sector	Lawyer	Major global law firm
106	Private sector	Managing director	Firm in Myanmar
107	Private sector	Environmental lawyer	Freelancer
108	Private sector	Manager	Consulting firm in Myanmar
109	Private sector	Staff	Firm in Myanmar
110	Private sector	Managing director	Large consultancy carrying out ESIAs
111	Private sector	Senior staff	Major Chinese dam developer
112	Private sector	Staff	ESIA consultancy
113	Private sector	Environmental specialist	Canadian dam developer
114	Private sector	Former employee	Chinese dam developer
115	Private sector	Independent consultant	Served Sinohydro as a SIA consultant
116	Private sector	Managing partner	Consulting firm

117	Private sector	Managing partner	Consultancy specialized in hydropower and water resources projects
118	Private sector	Managing partner	Major global strategy consulting firm
119	Private sector	Consultant	Engineering firm
120	Private sector	Staff	Global dam association
121	Private sector	Senior engineer	European dam developer<comma> involved in various dam projects in Southeast Asia
122	Private sector	Spokesperson	Chinese dam developer
123	Private sector	Former employee	Chinese dam developer
124	Private sector	Managing director	Investment firm in Myanmar
125	Private sector	Managing director	Major Burmese dam developer
126	Private sector	President	Dam industry association
127	Private sector	Consultant	Global dam association
128	Private sector	Senior staff	European dam developer
129	Private sector	Representative	Global dam association
130	Private sector	Senior staff	European dam developer
131	Private sector	Former employee	Major hydro player

The interviews carried out with international donors, government officials and academia largely served the purpose of triangulation, which refers to the use of more than one approach to the investigation of a research question (Bryman, 2003). The interviews in question exemplify data triangulation, which is undertaken if data is collected (*inter alia*) from a variety of people (Denzin, 1970, cited in Bryman (2003, p. 1142). Such data triangulation may help to "map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint" (Cohen & Manion, 2000). Data triangulation was chosen due to the realist view adopted throughout this dissertation. Because it is acknowledged that there is a social construction of 'reality', numerous social constructions of this 'reality' were gathered in order to identify a common denominator that may hint at the external 'reality' beneath the different social constructions (Furlong & Marsh, 2010). Data triangulation is also suggested by Berry (2002, p. 680), who acknowledges that it is "much easier to preach than to practice" since semi-structured interviews are extremely time consuming.

Questionnaires were developed prior to carrying out field research to guide interviews. These were iterated with the supervisors of this dissertation. Nevertheless, it must be noted that questionnaires were frequently not executed systematically. Rather, drawing on the recommendations by Berry (2002, p. 682) regarding elite interviews (more of a "casual, comfortable conversation"), many semi-structured interviews were loosely structured, with many open-ended questions. It is believed that this conversational approach to interviewing helped to develop trust and thus yielded additional insights. With the help of three research assistants, approximately 500 pages of transcripts based on these interviews were produced in 2015 and 2016. Interviews were audio-recorded whenever possible, and transcripts have been shared with the supervisors of this dissertation.

In addition to data triangulation, methodological triangulation (more than one method used to gather data) was undertaken for this dissertation (as outlined in chapters 4, 5 and 6). Specifically, 36 online surveys for the fsQCA described in chapter 5 were filled out. Furthermore, press analyses were undertaken for the research presented in chapters 4, 5 and 6, and a comprehensive review of the scholarly literature was performed (as outlined in chapter 2).

This chapter continues with a contribution regarding snowball sampling, the main research method chosen for this dissertation.

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3.6 PAPER 1: THE SECRETS OF SNOWBALL SAMPLING: EVIDENCE FROM A RESEARCH PROJECT ON SOUTHEAST ASIA'S DAM INDUSTRY

Snowball sampling is the most popular sampling method in qualitative research. Yet the diversity of samples generated via this method has been repeatedly questioned. Several pieces of advice have been posited by scholars on how to enhance the diversity of samples, but this advice has not been based on a quantitative analysis of evidence. Our paper addresses this gap. For this purpose, we quantitatively analyze 81 interviews conducted via snowball sampling that were carried out from April to August 2015 for a research project on Southeast Asia's dam industry. Based upon this analysis, we nuance and complement the previous advice provided, e. g. showcasing novel evidence on the value of multiple seeds or face-to-face interviews. This paper may thus be of particular interest to scholars employing or intending to employ snowball sampling.

Keywords: Snowball sampling; sample diversity; access; qualitative methods; large dams; Southeast Asia

3.6.1 Introduction

Snowball sampling may be the most popular sampling method in qualitative research and it is thus widely employed in disciplines such as medical science and various social sciences such as sociology, political science, anthropology or human geography (Penrod et al., 2003, p. 102 ff.; Browne, 2005, p. 48 ff.; Noy, 2009, p. 330 ff.). Yet snowball sampling as a term is used inconsistently – typical for terms used by a variety of fields, as noted by Handcock & Gile

(2011, p. 367 ff.). The most frequently employed definition, suggested (inter alia) by Patton (1990, p. 176), Atkinson & Flint (2001, p. 1), Cohen & Arieli (2011, p. 424) or Bhattacherjee (2012, p. 70), may be to conceptualize it as a sampling method where one interviewee gives the researcher the name of at least one more potential interviewee, who, in turn, provides the name of at least one more potential interviewee, and so on, with the sample then growing like a rolling snowball if more than one referral per interviewee is provided.

This definition seems largely self-explanatory at first sight which may explain why snowball sampling as a method is barely discussed in most peer-reviewed papers employing it as well as qualitative research textbooks. Examples of scholars employing snowball sampling in their empirical work, while only providing limited information on the method are Roskin & Aveyard (2009), Mohsen et al. (2014), Gibson et al. (2015), Charbonneau-Dahlen et al. (2016) and Lewis & Ericksen (2016). Examples of qualitative research textbooks lacking a substantive discussion of snowball sampling are Bailey (1994), Miles & Huberman (1994), Boeije (2009), Atkinson & Delamont (2010), Bhattacherjee (2012), Daniel (2012b) and Emmel (2013) with Bailey (1994), for instance, devoting only half a page of his 595-page book to snowball sampling acknowledging that "snowball sampling procedures have been rather loosely codified" (K. Bailey, 1994), an observation also echoed by Penrod et al. (2003, p. 102 ff.), for instance.

This paper focuses on snowball sampling procedures which are defined as those actions undertaken to initiate, progress and terminate the snowball sample (Biernacki & Waldorf, 1981, p. 141 ff.; Noy, 2009, p. 327 ff.). Despite the overall lack of substantive writing on snowball sampling as a method, several authors were identified such as Penrod et al. (2003), Browne (2005) and Morgan (2008d) that have provided advice regarding snowball sampling procedures (further discussed in section 4). However, this advice is not able to be based on a quantitative analysis of evidence, but only on anecdotal evidence. We address this gap via this paper. For this purpose, we quantitatively analyze 81 interviews conducted via snowball sampling that were carried out from April to August 2015 for a research project on Southeast Asia's dam industry. This analysis is the very first quantitative analysis on various snowball sampling procedures as far as we are aware. It helps to nuance and complement the previous advice

provided. It is important to note that we conceptualize snowball sampling as a method that is different to respondent-driven sampling (RDS), a differentiation also suggested by Goodman (2011) and Heckathorn (2011); an introduction to RDS which can include quantitative analysis of RDS procedures is provided by Heckathorn (1997).

The remainder of this paper is organized as follows. In section 2, snowball sampling as a method is further discussed. In section 3, the research project on Southeast Asia's dam industry is presented which served as the basis for our quantitative analysis on snowball sampling procedures. We present and discuss insights on snowball sampling procedures based upon this analysis as well as resulting recommendations in section 4. The argument is summarized in section 5.

Throughout this paper, we employ social science methodology terminology. We define key terms for this paper such as 'snowball sampling' or 'sampling' since these terms are frequently not consistently codified in the scholarly literature, as already discussed for the term 'snowball sampling' in the first paragraph of this paper, while we refrain (for reasons of space) from defining terms deemed to be only adjacent for this study such as 'RDS'; we instead only refer to the relevant literature for such terms. Various references to introductions to social science methodology terminology and/or key social science methodology discussions are provided in the second paragraph of this section.

3.6.2 On Snowball Sampling

Sampling contains two elements, according to Morgan (2008b, 2008c): First, a full set of data sources is defined which results in a sampling frame that is a list of the members of the population to be studied. Second, a specific sample of data is collected from this sampling frame. Snowball sampling defies both of these elements (which raises the question if a different term for snowball sampling would be more accurate) does not rest upon a sampling frame and it is thus frequently employed when no sampling frame of the population of interest can be constructed and thus no sample can be drawn from this sampling frame (Sedgwick, 2013).

Researchers frequently cannot construct a sampling frame if a difficult-to-reach population[5] is to be studied. This is a population that does not wish to be found or contacted, e. g. illegal drug users, illegal migrants, prostitutes or homeless people (Atkinson & Flint, 2001; Shaghaghi et al., 2011). While snowball sampling's original purpose was seen as studying the structure of social networks (Heckathorn, 2011) (with the earliest empirical account of snowball sampling identified being Whyte (1955) and snowball sampling first described as a method by Coleman (1958) and Goodman (1961)) and while it is used to study the structure of social networks until today (recent example: Logan et al. (2016)), the method's key purpose has largely transformed in the last decades "into […] an expedient for locating members of a [difficult-to-reach] population" (Spreen, 1992, p. 141).

Researchers grounded in quantitative thinking such as Lijphart (1971) and King et al. (1994) usually view the drawing of a random sample from a sampling frame as the gold standard of data collection. Yet even these researchers may recommend non-probability sampling methods such as snowball sampling as a "necessary and irreplaceable sampling [method]" (Waters, 2015) when confronted with difficult-to-reach populations if a dismissal of snowball sampling would imply that no research can be carried out on the topic at hand. After all, an important topic is worth studying even if very little [access to] information is available" (King et al., 1994, p. 6). However, those grounded in quantitative thinking then call snowball sampling a method "at the margin of research practice" (Atkinson & Flint, 2001, p. 1) since the lack of a sampling frame implies that those in a population of interest do not have the same probability to be included in the final sample (unlike those in a random sample) and thus findings from a snowball sample would not be generalizable (Morgan, 2008a) (on generalizability: Donmoyer (2008)).

[5] 'Difficult-to-reach-populations are also called 'hard-to-reach-populations', 'hidden populations' or 'concealed populations' in the scholarly literature. Although not all scholars would agree that these terms are interchangeable, we deem them as interchangeable for this paper. For for further discussion on this terminology: Magnani et al. (2005), Shaghaghi et al. (2011).

Qualitative scholars rebut such criticism. While Creswell (2005, p. 203) points out, for instance, that "the intent [of qualitative research] is not to generalize to a population, but to develop an in-depth [and contextualized] exploration of a central phenomenon", Noy (2009) and Waters (2015) specifically oppose quantitative scholars' negative framing of snowball sampling with Noy (2009, p. 327) arguing, for instance, that this method would "generate a unique type of social knowledge" which would be particularly valuable for the in-depth and contextualized exploration of a central phenomenon due to the diversity of perspectives gathered, i. e. the different viewpoints on a central phenomenon. We further discuss the diversity of perspectives gathered in the final paragraph of this section and recognize that the diversity of a sample (also called 'sample diversity' throughout this paper) has been achieved if the various viewpoints on a central phenomenon have been gathered.

Those critical towards snowball sampling respond to this defence by arguing that the method would not be able to ensure sample diversity which, in turn, is considered as a necessary condition for valid research findings. Indeed, scholars such as Heckathorn et al. (2002), Penrod et al. (2003), Shaghaghi et al. (2011) and Daniel (2012a) have stated that snowball samples underrepresent and may even exclude those least keen to cooperate as well as those with smaller networks since referrals may not materialize in an interview if a potential interviewee is only somewhat keen/not keen to be interviewed, while those with smaller networks hold a lower probability of being referred to. Those with smaller networks may also be those in a specific network whose different perspectives may be of interest, but excluded in the final sample. Hence, these critics believe that snowball sampling may not yield valid results. Validity from a qualitative perspective can be defined as "the correctness or credibility of a description, conclusion, explanation, interpretation or other sort of account" (Maxwell, 1996, p. 87), while quantitative researchers frequently use the terms 'generalizability' and '(external) validity' interchangeably (Ferguson, 2004, p. 17 ff.; Shadish et al., 2002) .

The term 'validity' is contested among qualitative researchers and some qualitative researchers entirely reject the concept for qualitative work, as pointed out by Morse et al. (2002)

and Golafshani (2003), for instance. We do not aim to resolve this debate via this paper. Hence, we chose to focus on the (seemingly less contested) term 'sample diversity' instead of 'validity'. While we acknowledge that this term is not codified in qualitative textbooks screened such as the *SAGE Encyclopedia of Qualitative Research Methods*, sample diversity is considered to be desirable by the various specific qualitative scholars we screened with Boulton & Fitzpatrick (1997, p. 84) demanding, for instance, that qualitative researchers "ensure that the full diversity of individuals […] is included [in their sample]", a demand echoed by Olsen (2004, p. 3 ff.), Sarikakis et al. (2008, p. 514 ff.), Boeije (2009, p. 48 ff.) or O'Reilly & Parker (2012, p. 192 ff.). We discuss in the next paragraph our operationalization of sample diversity for our research project.

3.6.3 A Snowball Sample on Southeast Asia's Dam Industry

We aimed to gather perspectives mostly from six main interviewee categories for our research project on Southeast Asia's dam industry in order to ensure sample diversity hypothesizing that gathering perspectives from one sub-category within one of these six categories would be particularly challenging. The six main interviewee categories were: (1) local non-governmental organizations (NGOs), (2) international NGOs, (3) international donors, (4) academia, (5) the private sector and (6) the government. 'Dam developers', a sub-category of the interviewee category 'private sector', was deemed to be the most significant challenge to ensuring the diversity of our sample. Many of the scholars we discussed our research project with in the very beginning argued it would be entirely impossible to ever interview a Chinese dam developer, while researchers from a comparable research project that approximately ended when our project started reported to not have been able to been able to interview any European dam developers. We also failed to collect data from dam developers initially. For instance, a survey initiated by us and sent out to more than 1,500 dam developers (including Chinese and European dam developers) by Aqua~Media (the host of a major global dam developer conference) yielded only 5 answers, one of which was complete. This low response was considered to be, at least in part, due to the dam industry's negative view of academicians since

the publication of Ansar et al. (2014) which Nombre (2014, p. 1), the president of the International Commission on Large Dams (ICOLD), called "[highly] misleading".

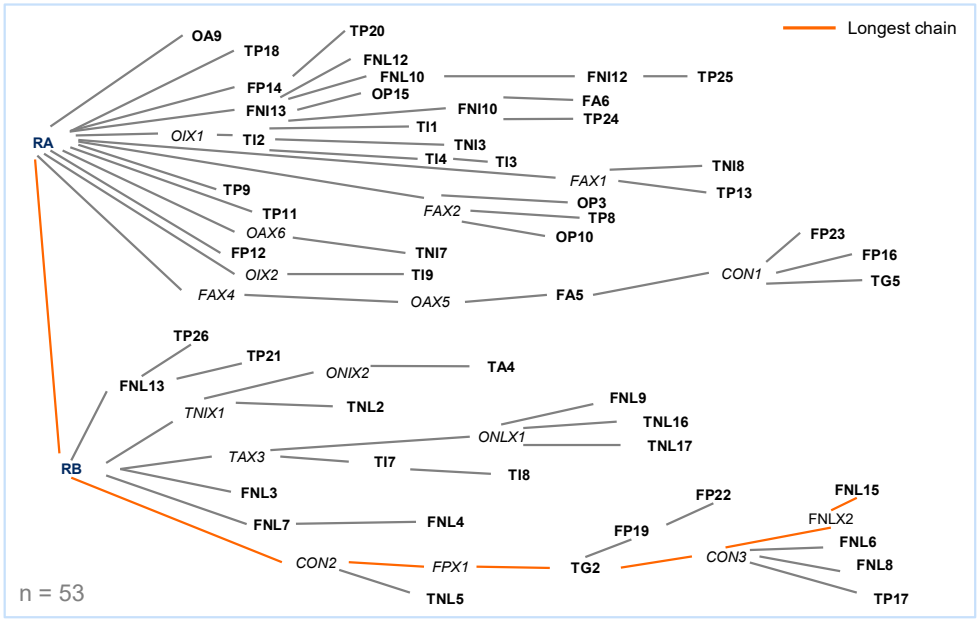
We intended to gather perspectives on two topics via the envisaged interviews. First, we were interested in the views of the various players on multiple (mostly large) dams' socio-economic impacts on different spatial and time dimensions. Second, we were interested in the views of these players on the root causes, tactical repertoire and impacts of selected anti-dam movements.

None of our researchers had significant direct links to the industry upon the start of the project. However, a variety of indirect links were maintained. Our researchers had previous links to a management consultancy that serves various dam industry players; (more limited links to) an international donor; and to activists in Myanmar advocating against dam projects.

After a favorable ethics review, semi-structured interviews commenced in April 2015, mostly via cold calls (we also call 'cold e-mails' cold calls throughout this paper). First, we only conducted research via phone. We then undertook field research in Singapore, Myanmar and Thailand from June to August 2015 and terminated our interviews in late August 2015.

81 semi-structured interviews were carried out during this time period. Of those 81 interviews, 48 (59%) were conducted via phone, 26 (32%) face-to-face and 7 (9%) online, either via e-mail or via an online survey. The majority of our interviews (57%) were carried out in July in Myanmar. Of our 81 interviewees, only 24 (30%) were female. Researchers that employ snowball sampling frequently employ personal/professional contact seeds and cold call seeds to build their sample, e. g. Corbett (1999), Zapata & Shippee-Rice (1999), Browne (2005), with a seed defined as the starting point of a sample (Heckathorn, 1997). Of the 81 interviews analyzed, 53 (65%) were rooted in a personal/professional contact (Figure 7), i.e. the seed of the interview pathway was a personal/professional contact we had already maintained prior to the research project; 28 (35%) of interviews were rooted in cold calls.

FIGURE 7: RECRUITMENT NETWORK OF SNOWBALL SAMPLE, STARTING WITH A SINGLE SEED



Note: Given the sensitive nature of the topic, all interviewees were assured anonymity. Thus, all interviews are coded with the first letter indicating the mode of interviews (T for telephone, F for face-to-face, O for online survey/e-mail), the second letter indicating the type (A for academia, G for government, I for international donor, NI for international NGO, NL for local NGO, P for private sector) and the sequence of numbers indicating the overall interview number within a type. RA is Researcher A, RB is Researcher B; CON a conference event. **Bold** means that an interview was carried out, while X means that an interview was not carried out. The remaining 28 interviews were initiated via cold calls

The results and discussions presented in the next section are based on a quantitative analysis of the 81 interviews carried out. This analysis was run as a retrospective analysis; while every attempt has been made to include all interview attempts, some initial cold calls may have been missed. Hence, particularly our analysis in section 4.4 on persistence may be too optimistic at times. Overall, we were able to reconstruct 211 reach-out attempts.

3.6.4 Results and Discussion

Our quantitative analyses yielded five key insights regarding snowball sampling procedures which aim to enhance sample diversity: (1) sample diversity can be reached even if the sample cannot be seeded in a prior personal/professional contact; (2) seed variation can help to significantly enhance sample diversity; (3) face-to-face interviews further enhance sample diversity; (4) persistence is also a notable enhancement; (5) sample diversity is not necessarily enhanced if a seed is advanced over numerous (> 3) waves. These insights are not claimed to be comprehensive, but rather meant as a starting point on quantitative analysis regarding snowball

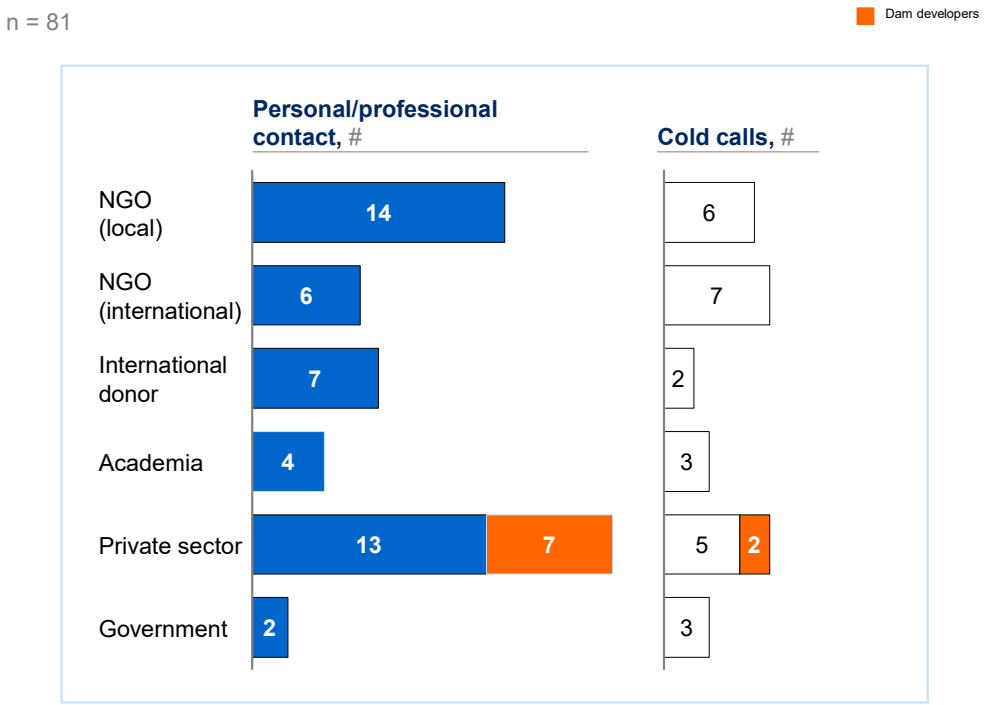
sampling procedures which may be complemented by future scholars also interested in snowball sampling as a method.

3.6.4.1 On Prior Personal/Professional Contacts

Patton (1990, p. 176) notes that snowball sampling "begins by asking well-situated people: 'Who knows a lot about ____ ? Who should I talk to?'". Yet in the absence of a sampling frame covering the population of interest, the researcher must maintain at least some prior personal or professional contacts to the population of interest which can serve as the seed of the snowball sample, according to Berg (1988) as well as (inter alia) Browne (2005). Waters (2015, p. 372) even contends that building a diverse snowball sample would "depend almost exclusively on the researcher's [prior personal/professional] contacts".

However, our sample evidences that sample diversity can be reached (at least for our topic of interest) even if no prior personal or professional contacts have been maintained to the population of interest. The seeds of the interviews carried out are depicted in Figure 8. Two observations stand out when examining this figure. First, both types of seeds comprise interviews in every envisaged interview category. Second, the interview sub-category 'dam developer' which was deemed to be most difficult to include in the sample is also covered by both types of seeds. Thus, a diverse sample could have been built if we had solely relied on cold calls.

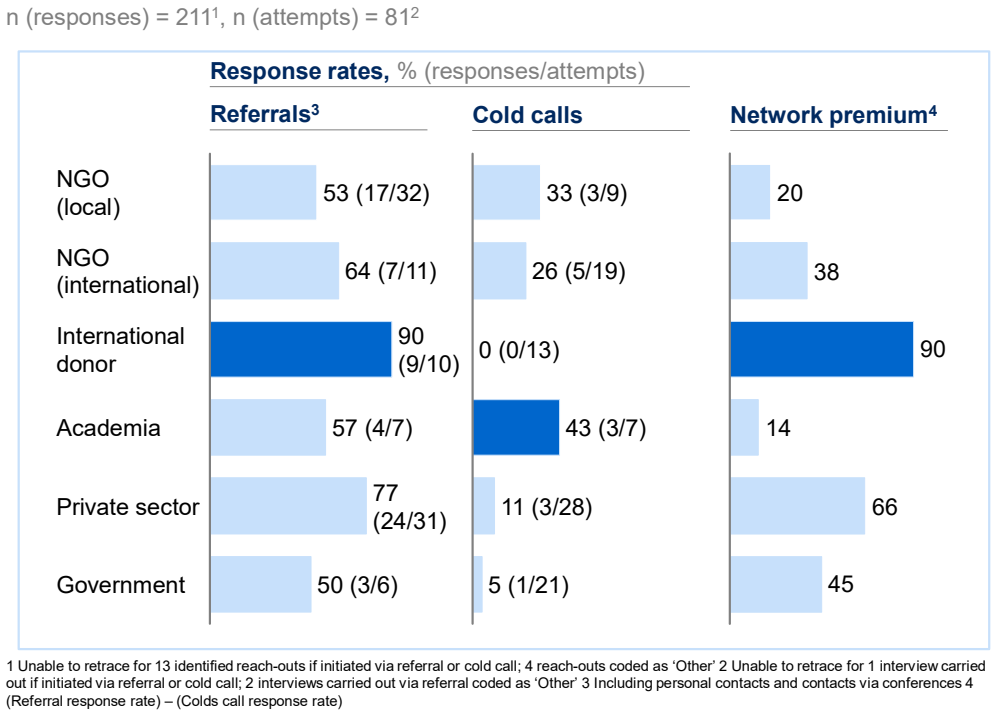
FIGURE 8: SEEDS OF SEMI-STRUCTURED INTERVIEWS CARRIED OUT



It is acknowledged, though, that building a snowball sample from cold calls is particularly labour-intensive, as already argued by Waters (2015, p. 372 ff.): Only 15% of the cold calls undertaken led to an interview, compared to 66% of the referrals. Significant differences in the value of referrals persist from interviewee group to interviewee group (Figure 9). We measure the value of referrals via a concept we call 'network premium'. To gauge the network premium, we are subtracting the cold call response rate (which is: interviews initiated via cold calls divided by overall cold calls) from the referral response rate (which is: interviews initiated via referrals divided by overall referrals). Referrals were most valuable when reaching out to international donors.[6] Significant network premiums also prevail among private sector players (67%) and government officials (55%) indicating that these groups are particularly difficult-to-reach-populations.

[6] We list two interviews with international donors as interviews seeded by cold calls in Figure 2 since the starting point for these interviews was a cold call (not with an international donor, though) who then further referred us.

FIGURE 9: QUANTIFYING THE VALUE OF REFERRALS



1 Unable to retrace for 13 identified reach-outs if initiated via referral or cold call; 4 reach-outs coded as 'Other' 2 Unable to retrace for 1 interview carried out if initiated via referral or cold call; 2 interviews carried out via referral coded as 'Other' 3 Including personal contacts and contacts via conferences 4 (Referral response rate) – (Colds call response rate)

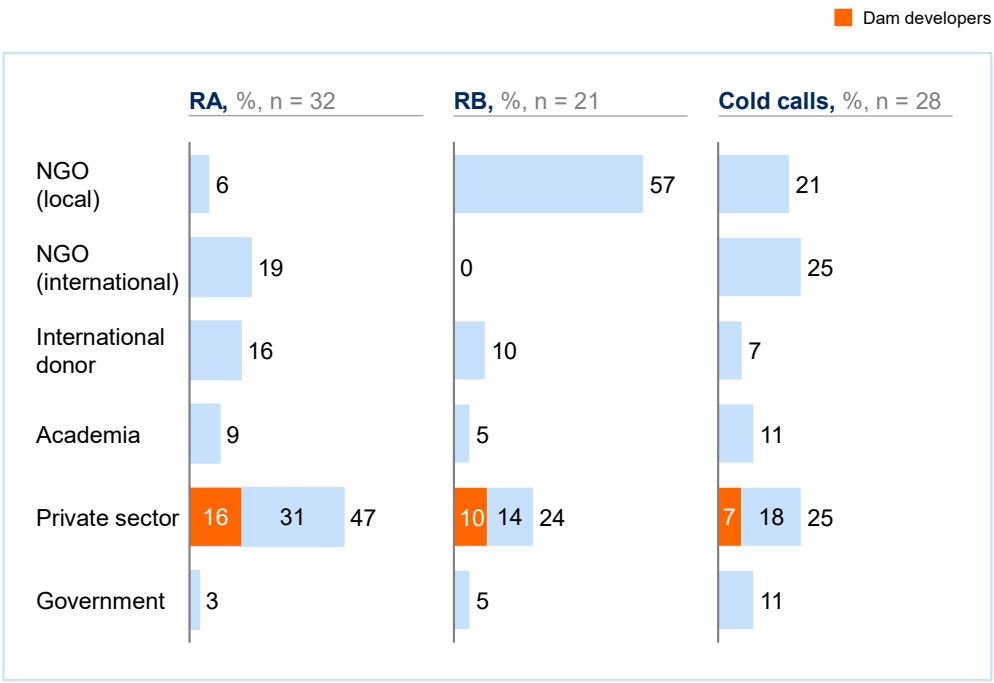
Overall, the results from these analyses are encouraging for scholars interested in researching a population to which no personal or professional contacts are maintained to prior to the research project. While personal or professional contacts maintained to the research population of interest can accelerate the research endeavour, the results also showcase that (at least for our topic of interest) a diverse sample can be built from cold calls if a researcher is willing to invest some time in reach-outs.

3.6.4.2 On Seed Variation

Morgan (2008d) has claimed that the "best defence" against lacking sample diversity would be to start the sample with seeds that are as diverse as possible. Penrod et al. (2003), Waters (2015) and Etikan et al. (2016) echo this advice with Etikan et al. (2016, p. 55) arguing that it would be "compulsory for the researcher to ensure that the initial set of respondents is sufficiently varied", while Penrod et al. (2003, p. 102 ff.) introduce the term 'chain referral sampling' for snowball samples that are strategically built via multiple varying seeds.

Our research confirms this advice. Figure 10, a variation of Figure 8, depicts the interviews carried out from a seed perspective with researcher A (RA), researcher B (RB) and cold calls as the three main seeds of the sample. While the sample built via RA who has a background in the private sector is largely biased towards this sector with 47% of all interviews seeded via RA being private sector interviews, 57% of interviews of RB with a background most close to local NGOs were interviews with local NGOs. Meanwhile, the sample built via cold calls has no significant biases towards any interviewee category.

FIGURE 10: SEMI-STRUCTURED INTERVIEWS CARRIED OUT FROM A SEED PERSPECTIVE



It is noteworthy with regard to Figure 10 that the three different seeds comprise interviews in all interviewee categories including the sub-category 'dam developer' (the only exception is the interviewee category 'NGO (international)' which contains zero interviews for RB). This implies that a fairly diverse sample can be generated even if the researcher is unable to vary her or his seed at least for our topic of interest (with 'fairly' indicating that interviews could not be conducted for one of RB's interview categories), although the overall data suggests that seed variation can significantly enhance sample diversity. Figure 10 may thus also be viewed as a case for collaboration among researchers. If researchers with different background

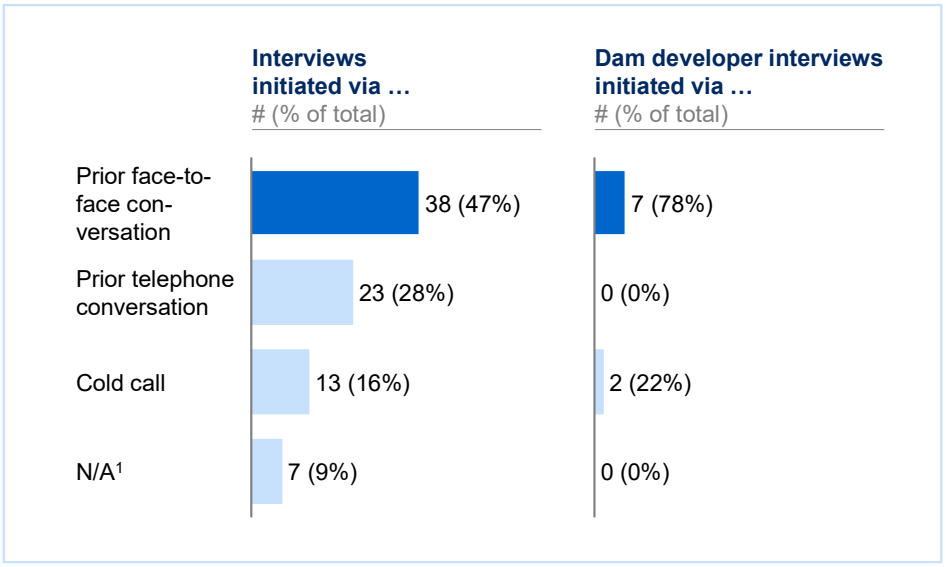
and thus different personal or professional contacts to the population of interest start collaborating, such collaborations contribute to sample diversity.

3.6.4.3 On Face-to-Face Interviews

Researchers such as Noy (2009), Sadler et al. (2010), Shaghaghi et al. (2011) and Waters (2015) have posited that trust is needed for any referrals with Noy (2009, p. 334) arguing, for instance, that "the quality of the referring process is naturally related to the quality of the interaction: […] if the researcher did not win the informant's trust […], the chances the latter will supply the former referrals decrease".

Our quantitative analysis suggests to further nuance this argument with our data indicating that face-to-face interviews can lead to more sought referrals than telephone interviews since trust can possibly be rather built via face-to-face conversations than telephone ones. Overall, 38 (47%) of our interviews were initiated via prior face-to-face conversations, while only 23 (28%) were initiated via prior telephone conversations (Figure 11). An examination of the interviews carried out with dam developers showcases that of the nine interviews conducted with dam developers, the interviewee sub-category deemed most difficult to access, seven (78%) were initiated via prior face-to-face interviews, while not a single telephone interview led to a referral to a dam developer.

FIGURE 11: QUANTIFYING THE VALUE OF FACE-TO-FACE INTERVIEWS



1 Comprises interviews with those already a personal/professional contact prior to the research project

Some researchers have argued that face-to-face interviews would be obsolete. For instance, Reich & Earls (1990, p. 211) reported over 25 years ago that there were "no remarkable differences" regarding information collected via telephone compared to information collected via face-to-face interviews. In recent years the increasing use of telecommunications is likely to have further reduced barriers to remote interviewing and scholars continue to claim that "evidence is lacking that [telephone interviews] produce lower quality data" (Novick 2008, p. 391), a claim also confirmed by Hanna (2012) and Vogl (2013) (with the former particularly pointed out the benefits of using Skype for semi-structured interviews). While our research did not investigate if face-to-face interviews leads to lower quality data than telephone interviews, our data suggests that face-to-face interviews are not obsolete at least for those employing or intending to employ snowball sampling since these interviews can lead to more sought referrals and thus enhanced sample diversity.

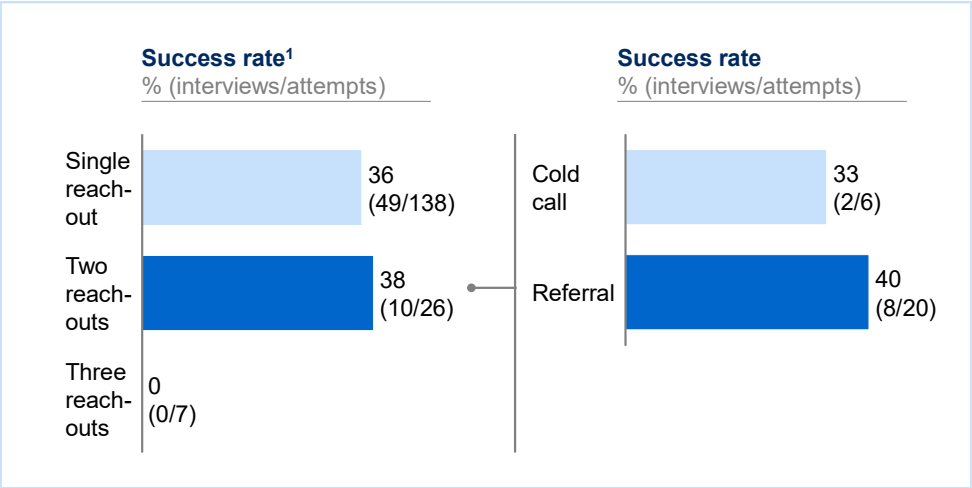
3.6.4.4 On Persistence

Although the value of persistence may be considered as self-evident by some scholars, persistence has been discussed by multiple academicians such as Kawulich (2005), Harrison & Leitch (2014, p. 194 ff.) and Young et al. (2015) as a central virtue of qualitative researchers and particularly many young career scholars embracing snowball sampling have likely heard advice such as "If you cannot interview your envisaged interviewees initially, don't give up!".

Our data suggests that such persistence can indeed enhance sample diversity, but we also find that excessive persistence does not pay off. We did not send out many interview reminders during the course of our study, but only reached out to the majority 80%) of our envisaged interview subjects once. Nevertheless, the scarce data we collected regarding persistence indicates its value. We sent one interview reminder to 26 of our envisaged interviewees (Figure 12). This led to 10 additional interviews, a success rate of 38% equaling 12% of the total interviews analyzed for this paper. Reminders are only somewhat more helpful when reaching out to those the researcher was previously referred to when compared to those contacted via cold calls – a single reminder led to an interview in 40% of our cases for the former group and 33% for the latter.

However, excessive persistence apparently does not pay off. We also sent out two or more reminders to 7 of our envisaged interviewees – this did not lead to a single additional interview. While our data does not suggest that excessive persistence pays off, it may also not be recommended for ethical reasons. After all, a potential interviewee not responding to an interview request upon two reach-outs may indicate via this non-response that she or he is not interested in participating in the research. If a single request remains unanswered, the researcher may hypothesize that the e-mail just slipped through, for instance, a hypothesis particularly likely when conducting interviews with time-pressed leaders of organizations. Indeed, all 10 interviews only carried out upon the second reach-out were interviews with interviewees in management positions.

FIGURE 12: QUANTIFYING THE VALUE OF PERSISTENCE



1 Number of reach outs unknown for 32 reach-outs; 8 potential interviewees responded, but refused interview

Our overall data on persistence suggests that those employing or intending to employ snowball sampling can enhance sample diversity if every reach-out is carefully tracked and followed up upon with a reminder. We would usually send out a reminder after one week if no response was obtained upon the first reach-out. This persistence may particularly help to include those least keen to be interviewed for a research endeavor.

3.6.4.5 On Waves

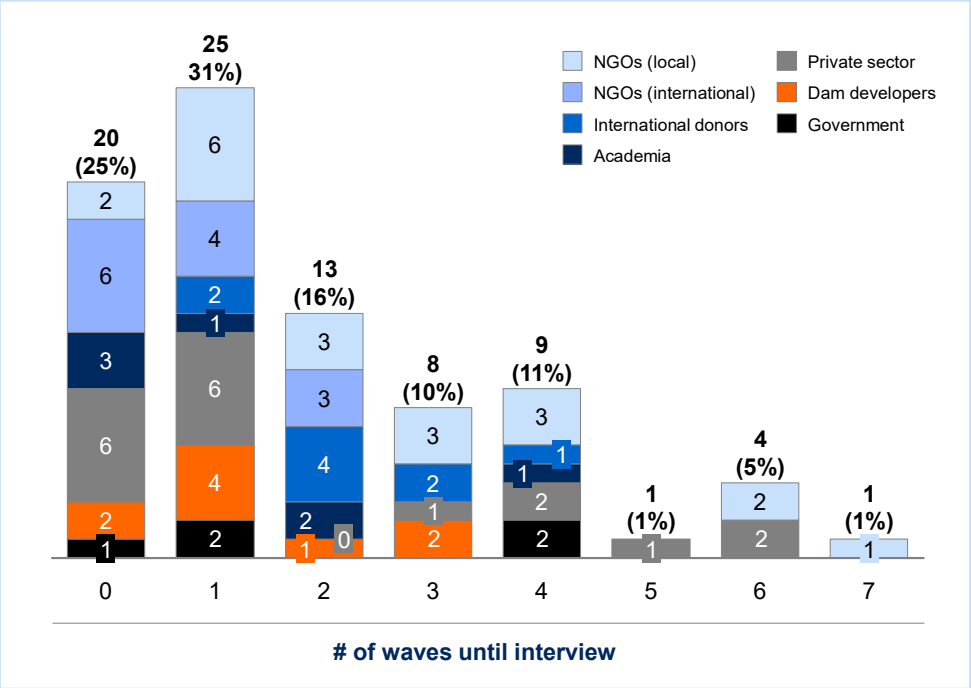
Pursuing a snowball sample for multiple waves (with a new sampling wave reached once an interviewee introduces the interviewer to one or more potential interviewee(s)) has been suggested by multiple scholars such as Heckathorn (1997), Heckathorn & Magnani (2004), Shafie (2010) or Robins (2015) as a remedy regarding snowball sampling's previously discussed bias to exclude those least keen to be interviewed.

Those suggesting this remedy assume that pursuing more waves increases the likelihood to be referred to an interviewee from a particularly difficult-to-reach-population who is at least

somewhat keen to be interviewed. Our longest chain was pursued over seven waves, as depicted in Figure 7; Heckathorn (1997, p. 178) showcases a chain that was pursued over ten waves.

Our data suggests that, for our topic of study, pursuing interviews for only a few waves provided perspectives of particularly difficult-to-reach populations and thus achieved sample diversity. Overall, more than 50% of our interviews were conducted with the zeroth or first wave (Figure 13). These include 6 out of the 9 interviews conducted with dam developers, the sub-category deemed to be most challenging to interview. One more interview with a dam developer was conducted with the second wave, two more with the third. However, not a single interview with a dam developer was carried out with the fourth wave and beyond, although almost a fifth of our total interviews were carried out with the fourth or later waves. It is acknowledged that pursuing interviews for multiple waves still yielded novel insights. For instance, interview FNL15 which was conducted with the seventh wave yielded novel insights on small dam construction in Myanmar – a topic of (some) interest to the research endeavor, but not covered in detail in previous interviews.

FIGURE 13: INTERVIEWS CONDUCTED FROM A WAVE PERSPECTIVE



While additional waves can lead to novel insights, our overall data on waves suggests that the number of waves pursued is not a definitive indicator for sample diversity. Very few waves pursued can already yield access to particularly difficult-to-access populations.

3.6.5 Conclusion

Snowball sampling is the most popular sampling method among qualitative researchers and it is also employed by quantitative researchers. However, particularly the diversity of snowball samples has been repeatedly questioned due to the method's tendency to underrepresent those least keen to be interviewed as well as those with smaller networks. Meanwhile, little advice has been posited by scholars on snowball sampling procedures that would enhance sample diversity (snowball sampling procedures are those action undertaken to initiate, progress and terminate the snowball sample). If advice on these procedures is provided, it is based on anecdotal evidence at best, but not a quantitative analysis of evidence.

Our paper addresses this gap. For this purpose, we have quantitatively analyzed 81 interviews conducted via snowball sampling that were carried out from April to August 2015

for a research project on Southeast Asia's dam industry. Our research project explored dams' socio-economic impacts and the root causes, tactical repertoire and impacts of anti-dam movements. We aimed to gather perspectives mostly from six main interviewee categories (local NGOs, international NGOs, international donors, academia, the private sector, the government) for our research project on Southeast Asia's dam industry in order to ensure sample diversity.

Our quantitative analyses nuance and complement the previous advice provided regarding snowball sampling procedures that aim to enhance sample diversity. Our data suggests that those intending to employ snowball sampling can reach sample diversity even if no prior personal/professional contact to the population of interest is maintained, a finding which relativizes some previous writings on the importance of prior personal/professional contacts. Furthermore, we showcase that seeking research partners that can serve as sample seeds can significantly enhance sample diversity, a finding echoing previous writing. In addition, face-to-face interviews can enhance sample diversity since trust is rather built via such interviews than via telephone ones and thus the former lead to more sought referrals, an argument suggested by our data, but not the literature consulted on this topic. Furthermore, our data indicates, as also highlighted by previous scholars, that persistence can lead to additional sought interviews and thus enhance sample diversity, whereas we find that excessive persistence (defined as more than one follow-up upon an initial interview request) does not translate into additional interviews. Lastly, our data does not provide definitive evidence on the value of multiple (> 3) waves to enhance sample diversity and thus relativizes some previous scholars advocating multiple (> 3) waves.

While snowball sampling procedures may qualify "as the least 'sexy' facet of qualitative research" (Noy, 2009), these procedures are "not self-evident or obvious" (Biernacki & Waldorf, 1981) (and we thus refer to 'secrets' in the title of this paper) since the snowball sample does not "somehow magically" (Biernacki & Waldorf, 1981) start, proceed and

terminate. Rather, continuous deliberate effort by the researcher(s) involved is required. Our paper has attempted to provide some insights on this effort.

We only developed the idea to write this paper only during the course of our research project and thus some of the data presented may be skewed. For instance, we may not have been able to trace all original reach-out attempts and our data on persistence may thus be biased. Particularly those grounded in quantitative thinking may also claim that our insights outlined in section 4 lack external validity since our research project was very specific and thus possibly not comparable to research projects carried out on different difficult-to-reach populations. Hence, we encourage scholars to replicate our findings via their respective research projects that have employed or employ snowball sampling. With many scholars reporting to be more pressed than ever to deliver research results with maximum efficiency, we nevertheless hope that these initial quantitative analyses on snowball sampling procedures already provide valuable insights to those employing or intending to employ this method and aiming to improve their conduct of it.

3.7 CONCLUSION

This chapter has commenced by outlining the ontological and epistemological positions adopted throughout this dissertation. A foundationalist ontology was adopted, i. e. it is believed that there is a 'real' world 'out there', as well as realist epistemology, i. e. it is believed that it is possible to identify objective relations regarding social phenomena, but these objective relations may be distorted by the scholarly observer's perceptions. The chapter continued with reflections regarding research methodology and methods. A commitment to the deductionist approach (with the upfront formulation of hypotheses which are then tested against empirical evidence) was outlined which is believed to be key to disentangle reality from perceptions. A general preference for quantitative methods (associated with a larger sample size) over qualitative methods was stated, particularly because of their greater external validity, i. e. insights regarding the 'real' world 'out there'. Adopting quantitative methods and a large sample size was not feasible for this dissertation, though. Hence, this dissertation mostly resorts to qualitative methods hoping that these findings prepare the ground for future (more) quantitative and large-N-analyses. The rationale for the selection of case studies as well as an overview of the key data collected for this dissertation was also provided in this chapter. Lastly, reflections on snowball sampling – the key research method used for this dissertation – were outlined (paper 1).

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4 PAPER 2: MULTI-CAUSAL PATHWAYS OF PUBLIC OPPOSITION TO DAM PROJECTS IN ASIA: A FUZZY SET QUALITATIVE COMPARATIVE ANALYSIS (FSQCA)[7]

Scholars overwhelmingly adopt the case study method when analyzing causal conditions inducing anti-dam protests. We have carried out the first medium-N study on this topic analyzing public opposition to 12 dam projects in Asia. For this purpose, we employ a fuzzy-set Qualitative Comparative Analysis (QCA) which is based on a thorough review of scholarly writings and press reports on the dam projects at question as well as an online survey and semi-structured interviews. We identify two causal recipes sufficient for the emergence of significant anti-dam protests. First, lacking social safeguards in combination with the presence of political opportunity structures and higher levels of development are sufficient for significant anti-dam protests to emerge. Second, lacking social safeguards in combination with rampant corruption and environmental risk induce these protests. Current scholarly literature particularly emphasizes political opportunity structures and development as causal conditions inducing significant protests. Our findings build on this literature to highlight the importance of project-specific conditions.

Keywords: dams; hydropower; social movements; public protests; fsQCA

[7] Clarifications for this chapter, developed based upon the feedback on this chapter from the assessors during the viva, are provided in the appendix of this dissertation.

4.1 INTRODUCTION

Fifty years ago, those constructing large-scale infrastructure struggled the most with the technical challenges of these mega-projects. However, the greatest obstacles faced by such projects today are almost always sociopolitical. Indeed, public protests delay large infrastructure projects all around the world. This seems to hold true particularly for large dams, perhaps the first infrastructure impacted by the trend (McAdam et al., 2010, p. 401 ff.). Examples of current contested large dam projects are Myanmar's Myitsone Dam (Harvey, 2011), Brazil's Belo Monte Dam (Watts, 2014) and Mozambique's Mphanda Nkuwa Dam (International Rivers, 2016a; Sneddon & Fox, 2008). Approximately 3,700 hydropower dams with a capacity of at least 1 MW are either planned or already under construction (Zarfl et al., 2014, p. 161). It is yet to be seen if these projects will be completed. After all, hydropower's "narrowed public acceptance [has already] reduced significantly its role in the energy matrix in numerous states" (Sternberg, 2008, p. 1588), raising the question of whether large dams have a productive place in sustainable development policies.

There are many root causes of public opposition to dam projects explored in the literature. The majority of scholars argue that political opportunity structures are the key causal condition for the emergence of significant anti-dam protests (Evren, 2015; Foran, 2006; Khatun, 2013; Rothman & Oliver, 1999; Swain & Chee, 2004; Xie & Van Der Heijden, 2010). However, scholars and practitioners also highlighted the importance of a country's overall development (Jain, 2000), the skills among activists (Lopes, 2014; Shaffer, 2013), corruption (Harring, 2013; Radin, 2013; Rothstein, 2011), a project's environmental risk (Hirsch & Warren, 1998; Jain, 2000) or a lack of social safeguards (Biswas, 2012b; Dwivedi, 1997; Hirsch, 1998; Jain, 2000; Scudder, 2005b) as causal conditions contributing to significant protests. Additional explanations suggested are the history of conflict in a country, a project's cultural impact or major resettlement induced by a dam (Kiik, 2016).

These causal relationships are discussed in more detail in section 2, however, what is common among this literature on anti-dam movements is that it relies on a case study method with n = 1 or 2. We did not identify a single article with a sample size greater than 3. The only

example found with this sample size of 3 is McCormick (2006) who does not focus on causal conditions inducing dam protests, but the tactical repertoire of anti-dam movements. Case study research has contributed many impactful studies to the social sciences (Gibbert & Ruigrok, 2010, p. 711 ff.) and this approach is particularly praised for theory development (George & Bennett, 2004, p. 3 ff.). However, the external validity of case studies has been repeatedly criticized; larger samples would be needed for the testing of theories. A particularly famous example featuring this claim may be King et al. (1994, p. 208 ff.). The current paper aims to test the various alleged causal conditions of significant anti-dam protests via the analysis of public opposition to 12 recent dam projects in Asia. This analysis constitutes the first medium-N study on anti-dam movements in the scholarly literature.

We employ a fuzzy set Qualitative Comparative Analysis (fsQCA) for this analysis. fsQCA is particularly suitable "if the phenomenon of interest is best understood in terms of set relations" (Schneider & Wagemann, 2012, p. 12) which implies that causal conditions of interest may be conceptualized in sets. The most basic set relation would be the subset. Although this is barely mentioned by qualitative scholars, most qualitative analyses are fundamentally about set relations (Ragin, 2008, p. 2 ff.). To illustrate with an example relevant for this paper: The current scholarly consensus on the root causes of anti-dam movements suggests, from a set relations perspective, that dam projects facing significant anti-dam opposition are a subset of countries with ample political rights and civil liberties.

fsQCA has been criticized for oversimplifying the 'real world', for instance by reducing cases to only a few causal conditions (Rihoux & Lobe, 2009, p. 10 ff.). This reduction is needed in order to be able to manage the medium-N dataset in the formal, computer-run part of fsQCA (also see section 3). The interpretive analysis of selected cases is introduced upon the conduct of this part, though, and ensures the 'thickness' characteristic and needed for case-oriented analysis such as fsQCA (Schneider & Rohlfing, 2013). We thus believe that fsQCA is a comprehensive approach to study anti-dam movements via a medium-N dataset, while acknowledging that the increase of the sample size implies that various nuances of particular cases are lost.

The remainder of this paper is organized as follows. In section 2, we develop the theoretical framing of this paper. In section 3, we present our research design, in section 4 our results. These are critically discussed in section 5. We summarize our argument in section 6.

Throughout this paper we employ fsQCA terminology. We acknowledge that this terminology is only briefly introduced in section 3 of this paper. Ragin (2008), Schneider & Wagemann (2012) or Legewie (2013) provide additional information and explanations regarding this terminology.

4.2 THEORETICAL FRAMING

The outcome condition of interest in this paper is public opposition (PROT). Public opposition, according to McAdam et al. (2010, p. 414 ff.), may be legal (institutionalized) conflict which occurs within the structures provided by the host country, project developer or lender for voicing concerns regarding a project such as court cases against a project, or political (contentious) conflict, which occurs outside of these structures such as demonstrations. Our analysis concentrates on political (contentious) conflict occurring within the host country which indicates, according to our reading, particularly severe public opposition – the main focus of this paper. Whenever possible, we also collected information regarding legal (institutionalized) conflict in order to complement our judgement of a case. We note that this legal (institutionalized) conflict can also take place outside of the country the dam is built in. For instance, the project developer could be sued in its country of origin because of a dam project pursued abroad. This could also indicate significant contestation.

We have briefly introduced eight alleged causal conditions in the previous section of this paper, namely political opportunity structures (POS), development (DEV), corruption (CORRUPT), environmental risk (ENVR), social safeguards (SAFEG), conflict history (CONFL), cultural impact (CULT) and resettlement (RESETTL).

All causal conditions in this paper have been identified and operationalized in an iterative process based on theoretical knowledge as well as empirical insights, as suggested by

Wagemann & Schneider (2010, p. 7). We concentrate our theoretical framing in this section and the discussion on POS, DEV, CORRUPT, ENVR and SAFEG, our five focus conditions. These conditions were chosen as focus conditions since these are central in the (broader) current scholarly literature and/or the practitioner's discourse on anti-infrastructure-protests, as we point out below, and since these also emerged as key results of the fsQCA conducted. Choosing focus conditions also reflects the need to keep the number of conditions used within fsQCA at a moderate level (Wagemann & Schneider, 2010). A common practice in a medium-N analysis, from 10 to 40 cases, would be to select from 4 to 7 focus conditions (Berg-Schlosser & Meur, 2009, p. 14). We frame CONFL, CULT and RESETTL as additional possible causal conditions and also discuss them below as well as in section 4 of this paper. We now turn to an extended discussion of our five causal focus conditions.

Political opportunity structures (POS) is the first focus condition chosen. Examples of authors particularly highlighting this condition are Rothman & Oliver (1999), Swain & Chee (2004), Foran (2006), Xie & van der Heijden (2010), Khatun (2013) and Evren (2015). 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 dam protests emerge. A noted rebuttal of this thinking is Simpson (2013) who argued that an autocratic regime suppressing public opposition domestically induces the rise of transnational activism with activists migrating abroad to voice their views. However, our analysis focuses on domestic protests. POS from a conceptual standpoint are frequently interlinked with the magnitude of civil liberties in the countries analyzed. Examples are Mertha (2008) highlighting both the importance of NGOs and policy entrepreneurs within government and Stratton-Short (2013) particularly emphasizing a minimum level of civil society development as a necessary condition for anti-dam protests to emerge. The importance of POS, particularly a change in POS, is also highlighted in the broader literature on social movements and widely seen as a key explanation regarding the emergence of protests (Farro et al., 2014; McAdam et al., 2010, p. 404 ff.; McAdam et al., 1996).

We chose development (DEV) as a second focus condition, although we only found it mentioned once in the scholarly literature on anti-dam movements, namely by Jain (2000, p. 566). If the country is already quite developed and significant economic benefits of a project are not evident, anti-dam protests may emerge, according to this author. Yet the broader literature on social movements suggests the inclusion of this condition. This literature, grounded in an article by McCarthy & Zald (1977), proposes a resource mobilization perspective, "the oldest genuine sociological approach to social movements […] that is still widely applied" (Opp, 2009b, p. 127); it is generally considered to be a major theory in the study of social movements (Berntzen et al., 2014, p. 17 ff.). This approach mirrors the argument by Jain (2000) and also proposes its reversal. The counter-argument goes: If countries are not yet very developed, protest is limited because there is little to compete for. Including development as a focus condition in the analysis is also of interest, we find, because the prospect of development is frequently employed by practitioners to mitigate public protests. Consider, for instance, that Jawaharlal Nehru, India's first Prime Minister, famously called the country's Bhakra Dam a 'temple of modern India' (Verghese, 2006). Lastly, we note that resources are not only a target or possible attenuator of opposition, but also an enabler, according to this approach. Indeed, resource mobilization scholars point out that resources also include skills and know-how on participating in political action; these would be needed to stage a movement in the first place (Lopes, 2014, p. 6 ff.; Shaffer, 2013, p. 237 ff.) and would frequently not be available in less developed countries.

Corruption (CORRUPT) is the third focus condition. We note that corruption is not discussed by any scholarly writings on anti-dam movements we identified. Indeed, corruption in the dam industry overall has been barely documented (Scudder, 2008, p. 96 ff.) since corrupt activities are deliberately hidden (Transparency International, 2014). Matthews (2012) is a rare example of a scholar researching this issue. We still include this condition as a focus condition since researchers have repeatedly emphasized that perceived corruption undermines trust in governmental decision-making (recent examples: Harring (2013), Radin (2013) and Rothstein

(2011)) and may thus drive protests. The inclusion was also suggested by the results of initial fsQCAs carried out.

Environmental risk (ENVR) is the fourth focus condition we investigate, as suggested by Hirsch & Warren (1998b) in relation to the political ecology of dams and Jain (2000). If a project entails significant perceived environmental risk, public opposition occurs. McAdam et al. (2010, p. 411) suggest this causal condition is less prominent within the sociological literature on infrastructure protests. We particularly included it as a key focus condition due to its practical relevance with environmental risks of large dams frequently highlighted by activists. Examples of NGOs writings emphasizing environmental risks of dams are International Rivers (2015) writing about impacts of fisheries. and WWF (2015) writing about droughts. Many of our NGO interview partners also argued that this would be the key driver causing significant anti-dam protests (examples are TNI2 and FNI10, see *Note* for details regarding interview coding). We note that within environmental risk earthquake risk is particularly noted as a driver of protests (Deetes & Mang, 2015; FNL4). Including environmental risk as a focus condition is also of interest because the prospect of positive environmental impacts is frequently employed by dam advocates to mitigate public protests. For instance, the Hydro Equipment Association (HEA, 2016) writes that "mitigation of climate change is one of the most important areas for sustainable development [;] hydropower is in general one of the lowest GHG emitters within the global energy mix"

Social safeguards (SAFG) is the fifth focus condition chosen. Dwivedi (1997), Hirsch (1998), Jain (2000), Scudder (2005) and Biswas (2012) imply social safeguards as a causal condition. If social safeguards are lacking, e.g. a lack of public consultation as well as insufficient benefit-sharing mechanisms for those adversely impacted by the project, significant anti-dam protests emerge, according to these authors; if those adversely-affected by a project are its first beneficiaries, no significant anti-dam protests emerge. The prominence of this causal condition in the practitioner's discourse also mandates its inclusion as a causal focus condition. Various international organizations and research organizations highlight benefit-sharing with locally affected communities nowadays as an avenue to mitigate public opposition to dam

projects. Examples of relevant reports are Égré (2007) and Haas (2009). We now turn to a brief discussion of our additional possible causal conditions.

Conflict (CONFL) is the first additional causal condition investigated. Indeed, Kiik (2016) suggests that the Myitsone Dam protests escalated due to the history of ethnic conflicts in Myanmar's Kachin State in combination with the role of China in the project. The author argues that anti-Chinese-sentiment is prevalent in Myanmar these days, which created conflict for this Chinese-led project which was proposing to export electricity to China.

Culture (CULT) is the second additional causal condition we investigate. This inclusion is based upon the field research we conducted in Myanmar. Various interview partners suggested that the destruction of historical religious buildings would have fueled opposition (e.g. FNL6, FI8). Furthermore, the river the Myitsone Dam is built on, the Irrawaddy, is widely seen as a cultural heritage and lifeline of Myanmar that may thus remain untouched. This is also pointed out in press articles (Asian Sentinel, 2011; Harvey, 2011).

Resettlement (RESETTL) is the third additional causal condition investigated. We included this condition since we were told that Chinese dam developers would now aim to construct large dams only in sparsely populated areas assuming that major resettlement would be a major causal condition for the emergence of significant anti-dam protests (TNI8).

It can be instrumental for the theoretical framing of the causal conditions of interest to distinguish between structural and proximate conditions. Most social scientific theories base their reasoning, at least implicitly, on causal conditions that can be divided into structural and proximate conditions (Schneider & Wagemann, 2006, p. 759, 2012, p. 253 ff.). Structural conditions are relatively stable over time and cannot be altered by the actors of interest. Meanwhile, proximate conditions vary over time and can be relatively unproblematically altered by the stakeholders of interest. We call proximate conditions project-specific conditions in this paper to highlight that these are largely within the responsibility of the dam project's key decision-makers. This thought is further developed in section 5 of this paper.

We frame POS and DEV as structural conditions since neither political opportunity structures nor a country's overall development (including economic development and the

knowledge base of a movement) are directly influenceable by a dam project's key decision-makers. We label CORRUPT as a structural condition since it is frequently conceptualized as a culture pervasive in an entire country (W. L. Miller, Grødeland, & Koshechkina, 2001; D. J. Smith, 2008), not just a single project. Yet we acknowledge that it may also be conceptualized as a project-specific condition since firms involved in constructing a dam may also influence the prevalence of corruption in a specific project via the enforcement of various anti-corruption-policies, for instance. Indeed, a distinction between structural and project-specific conditions is not always definite. Rather, structural and project-specific conditions are the poles of a continuum (Mannewitz, 2013, p. 4 ff.). We label ENVR as a project-specific condition. This labeling may also be contested. Our discussions with an international donor suggest that environmental risk is rather a project-specific condition because environmental risk varies with the dam site chosen (TI7). However, activists may disagree arguing that every large dam project would entail significant environmental risks. SAFEG is an evident project-specific condition; the dam developer may implement best practice social safeguards even in countries with limited or no safeguards (Nordensvard et al., 2015; Scheumann & Hensengerth, 2014). Finally, CONFL is an evident structural condition. CULT and RESETTL are project-specific conditions – both cultural impacts and resettlement can be nullified by those choosing the dam site.

Kitschelt (2003, p. 54) suggests that there is usually not a single structural or project-specific condition that will explain social science phenomena, "but only the concatenation and configuration of forces". We agree with this view. Hence, we expected prior to conducting the formal, computer-run part of fsQCA that only a combination of structural and/or project-specific conditions would be sufficient for significant anti-dam protests to emerge.

4.3 RESEARCH DESIGN

This section outlines the fundamentals of fsQCA and justifies our case selection and operationalizing of causal focus conditions as well as the calibration we undertook.

4.3.1 fsQCA in a Nutshell

Comparative researchers have increasingly turned to QCA in recent years (Thiem et al., 2015, p. 2). QCA was first outlined by Ragin (1987) with crisp set Qualitative Comparative Analysis (csQCA) as its initial variant. It remains the most widely used QCA technique to the present day (Rihoux et al., 2013, p. 175). csQCA operates exclusively with dichotomous conditions. Thus, set values are either 0 or 1 indicating differences in kind, i.e. a dam project may face zero public opposition or violent public opposition. Meanwhile, fsQCA, introduced by Ragin (2000), allows the researcher to also establish differences in degree (Schneider & Rohlfing, 2013, p. 14 ff.), i.e. a dam project may face zero public opposition, limited public opposition, significant, but not violent public opposition or violent opposition. Thus, fsQCA (unlike csQCA) can capture the "different shades of grey" (Schneider & Wagemann, 2012, p. 14) usually encountered by social scientists – a key advantage of this variant. Thus, we chose it as the QCA approach for this paper where there are more nuanced outcomes, albeit still requiring significant simplification from the real world. We note that even fsQCA fundamentally rests upon the arguments of absence and presence (Schneider & Wagemann, 2012, p. 28; Thiem et al., 2015, p. 11) and thus results usually do not vary significantly if a case's membership value is altered slightly, e. g. from 0.67 to 1 (Schneider & Wagemann, 2012a, sec. 1.5.2).

Hypotheses within fsQCA are implication hypotheses grounded in the notions of necessity and sufficiency (Thiem et al., 2015, p. 11 ff.). A condition is deemed necessary, if, whenever the outcome is present, the condition is also present. Thus, a necessary condition is a superset of the outcome (Schneider & Wagemann, 2012b, p. 57 ff.). A condition is deemed sufficient if, whenever it is present across cases, the outcome is also present. Thus, a sufficient condition is a subset of the outcome. Causal conditions within fsQCA are frequently INUS conditions. An INUS condition is "a single condition that is insufficient for producing the outcome on its own, but which is a necessary part of a conjunction, that, in turn, is unnecessary, but sufficient for producing the outcome" (Schneider & Wagemann, 2012a, Glossary).

fsQCA aims at unravelling causal complexity, according to Schneider & Wagemann (2012, p. 78), which is defined by conjunctural causation, equifinality and causal asymmetry.

Conjunctural causation means that different causal conditions do not produce the outcome on their own, but only in combination. Equifinality means that different causal recipes can lead to the same outcome. Lastly, causal asymmetry implies that a combination of certain conditions causing a certain outcome are not necessarily a mirror image of those conditions causing its absence. We discuss the implications of fsQCA's assumption regarding causal asymmetry at the end of this sub-section.

All analyses presented in this paper were conducted with fsQCA 2.0 by Ragin et al. (2009), the most widely used QCA software (compass.org, 2015). Necessary and sufficient conditions ought to be analyzed in separate steps when conducting fsQCA, with the analysis of necessary conditions first (Wagemann & Schneider, 2010). Our results section reflects this practice. A consistency threshold of > 0.9 is usuallly adopted for necessary conditions (Schneider & Wagemann, 2012, p. 143) with consistency indicating the degree the empirical data is in line with a stated subset relation (Schneider & Wagemann, 2012b, Glossary). As a consequence of this demanding threshold, "identifying a necessary condition is quite rare empirically" (Legewie, 2013).

The truth table sorting of the empirical evidence collected by the researcher into the different logically possible combinations with each combination creating a truth table row is the second step of fsQCA and its widely considered to be fsQCA's core (Schneider & Wagemann, 2012b). When applying the logical minimization procedure to the truth table rows, three solution terms are produced: The complex solution, the parsimonious solution and the intermediate solution. Results presented in section 4 exclusively focus on the intermediate solution. This solution is advantageous compared to the parsimonious and complex solution and thus recommended to be used since it balances parsimony and complexity via the injection of additional theoretical knowledge in the analysis, according to Schneider & Wagemann (2012, p. 197 ff.).

The logical minimizations carried out for this paper only include truth table rows backed by empirical cases, a common practice in fsQCA. A raw consistency threeshold of rounded ≥ 0.9 was adopted since Ragin (2009, p. 38) recommends using a consistency

threshold as close to 1.0 as possible. Directional expectations spelled out in section 2 are used. If prime implicants had to be chosen manually in order to produce the solution formulas (on prime implicants: Legewie (2013, sec. 4.3)), ~SAFEG was selected first due to the fsQCA results on necessary conditions, outlined in section 4. Then, POS was selected, given its emphasis in the scholarly literature, then DEV.

It is a standard of good practice to perform separate analyses regarding the occurrence and non-occurrence of the outcome due to fsQCA's causal asymmetry assumption outlined previously (Schneider & Wagemann, 2012b, p. 114; Berg-Schlosser et al., 2009, p. 9). Yet we do not report any results on the non-occurrence of public protests in this paper due to the chosen focus of our study. After all, every project in our sample faced at least some protests, as outlined in the next section, and the non-occurrence of protests can thus not be analyzed with this sample.

We now turn to a discussion of our cases.

4.3.2 Case Selection

Our selection of cases was driven by four criteria. The first two criteria are theoretically-guided, while the third and fourth criteria are practically-guided.

First, we required that all cases feature public protest regarding dam construction, with differing degrees of public protest in the sample overall. This may be viewed as a key case selection principle. Indeed, Lijphart (1971, p. 687 ff.) has suggested to focus comparative analyses on comparable cases, which are contested dams in our study, as a means to reduce the number of causal conditions possibly influencing the outcome which, in turn, would address the 'many variables, small N'-problem. Indeed, very different causal conditions may be at play in non-contested dam projects than in contested ones, we hypothesize. We cannot confirm this hypothesis, though, since we find that scholarly analysis on causal conditions of 'silent' dams is largely lacking.

Second, cases in the eventual sample overall had to differ significantly regarding the alleged causal conditions, e. g. both cases with limited political opportunity structures and

significant political opportunity structures must be included in the overall sample. This is needed in order to be able to detect multiple causal pathways to the outcome.

Third, only Asian cases were considered for inclusion in our sample. The decision to restrict our analysis to cases in Asia reflects the fsQCA convention to select based upon a common context (Rihoux & Lobe, 2009), in this case Asia. This convention emerged as fsQCA relies significantly on the context knowledge of those conducting it (Basurto & Speer, 2012, p. 170); the authors of this paper are most familiar with the Asian context.

Fourth, only cases for which significant amounts of information could be gathered were included. This information could be, following Schneider & Wagemann (2012, p. 32 ff.), from various sources. These sources comprised peer-reviewed papers, press research or interview and survey data collected by the authors. For instance, an online survey was undertaken for this paper targeting experts involved in the various projects such as activists, environmental and social impact assessment (ESIA) consultants or scholars; inputs by 36 experts were recorded. Selected cases were also discussed with experts via semi-structured interviews (both on the phone and face-to-face, see *Note* for details). In addition, the authors of this study have carried out field research on two of the cases investigated in this paper, namely the Myitsone Dam project and the Kaeng Suea Ten Dam project. We would always aim to gather data on each case from several sources. This data triangulation is supposed to enhance the validity of our reading regarding the various cases at hand (Denzin, 1970, cited in: Bryman (2003, p. 1142)).

Applying these criteria eventually yielded 12 cases in 11 countries. These are depicted in Table 2. fsQCA requires a minimum of 10 cases (Legewie, 2013).

TABLE 2: LIST OF CASES

#	Dam project	Country	Start of construction	Height (meters)	Project status
1	Myitsone Dam	Myanmar	2009	150	Suspended
2	Upper Karnali Dam	Nepal	N/A	64	Planning and design stage
3	Three Gorges Dam	China	1993	181	Operational
4	Nam Theun 2	Laos	2006	39	Operational

5	Sardar Sarovar Dam	India	1987	139	Under construction/ operational
6	Son La Dam	Vietnam	2005	138	Operational
7	Kamchay Dam	Cambodia	2008	110	Operational
8	Bakun Dam	Malaysia	1996	205	Operational
9	Upper Kotmale Dam	Sri Lanka	2006	35.5	Operational/under construction
10	Xayaburi Dam	Laos	2012	32.6	Under construction
11	San Roque Dam	Philippines	1998	200	Operational
12	Kaeng Suea Ten Dam	Thailand	N/A	72	Planning and design stage

Our reading of the different cases (including the literature consulted) is presented in the appendix. We now turn to a discussion of our operationalization and calibration decisions. Calibration refers to the assigning of fuzzy set values to conditions of individual cases (Wagemann & Schneider, 2010).

4.4 OPERATIONALIZATION AND CALIBRATION OF CAUSAL CONDITIONS

We now discuss the operationalization of our conditions (frequently featuring various sub-dimensions) as well as the assigning of fuzzy-set values to conditions for the different cases. Our structural conditions are mostly based on quantitative data, while our project-specific conditions are based on qualitative data. All original data was calibrated qualitatively with a four-value-scheme usually adopted for the sub-dimensions at question with 0, 0.33, 0.67, and 1.0 to indicate “fully out,” “more out than in,” “more in than out,” and “fully in,” respectively (Ragin, 2009, p. 7). A four-value-scheme for sub-dimensions is particularly advisable when researchers have a substantial amount of information about cases, but the nature of evidence is frequently not identical across cases which holds true for many of our sub-dimensions. We were not able to not collect satisfactory non-ambiguous in-depth information on our sub-dimensions earthquake risk and cultural destruction to justify a four-value-scheme. Thus, a two-value-scheme with 0 and 1 was adopted for these sub-dimension. The causal conditions/sub-

dimensions funding source/lead developer, electricity export and indigenous people are considered to be naturally dichotomous.

The different operationalizations were developed in an iterative process which particularly relied on semi-structured interviews with experts such as dam developers, international donors and activists. These were repeatedly consulted to discuss causal conditions of significant anti-dam protests and possible operationalizations. In a second step, these experts were then also asked to voice their views regarding identified qualitative sub-dimensions via an online survey. Multiple sub-dimensions were originally seen as causal conditions. Following further review of the literature and discussion with experts, these were grouped in the five focus causal conditions and additional possible causal focus conditions, outlined in section 2 of this paper. This ongoing refinement and the reduction of the number of conditions via the development of higher-order constructs is central to fsQCA (Ragin, 2000, p. 322; Schneider & Wagemann, 2012, p. 277).

We now turn to a discussion of our operationalization and calibration of scores with a particular focus on the qualitative anchor which qualifies cases as members of a set (Schneider & Wagemann, 2012, p. 277 ff.).

We operationalized PROT via a review of press reports, scholarly literature and inputs via the online survey we conducted. An in-depth justification for the calibrations of this sub-dimension for each case is provided in the case descriptions in the appendix. Verbal explanations regarding our four-value-scheme are in Table 3.

TABLE 3: OPERATIONALIZING PUBLIC PROTEST

Outcome	**Operationalization**	
Public protest (PROT)	0	No evidence of protests
	0.33	Few peaceful demonstrations, and/or limited legal opposition (e. g. petitions)
	0.67	Many peaceful demonstrations with significant attendance and/or significant number of arrests, injuries, and damage to the dam project, and/or significant legal opposition (e. g. significant number of court cases against the project)

1	Violent demonstrations with a significant number of arrests, injuries, or deaths and damage to the dam project, and/or construction permit denied, lender pulling out of investment

We conceptualize POS as a composite of political rights and civil liberties (with civil liberties also including freedom of the press), based upon the dual emphasis in the scholarly literature, outlined in section 2 of this paper. For both of these composites, we draw on the index compiled by Freedom House (2015) which is commonly employed by scholars (Giebeler, 2015, p. 13; Møller, 2009, p. 28). The index ranks countries on a scale from 1 to 7 with 1 representing the most free and 7 representing the least free. Drawing on the in-depth-explanation of this scale by Freedom House (2015b) and a review of the relevant data, calibration was undertaken (see table 4 and appendix for details).

We conceptualize DEV as the country's overall development, operationalized by the Human Development Index (HDI) which is widely used by scholars and practitioners alike to measure development (Kovacevic, 2011). It measures life expectancy, education and income and is thus an indicator that corresponds closely with resource mobilization theory which also considers both educational and income resources, as outlined in section 2. We note that McAdam et al. (2010, p. 413 ff.) also employed HDI to operationalize resource mobilization in their fsQCA. HDI cut-off points have been established by HDI (2015). These were reviewed, deemed reasonable for our cases and thus adopted.

We conceptualize ENVR as a composite of the environmental impact of the dam at question, earthquake risks associated with it as well as its height. We undertook press research and a review of the scholarly literature to identify a project's environmental impact. We also included a question on environmental impact in our online survey. A justification for the calibration of this sub-dimension for each case is provided in the case descriptions in the appendix. We undertook press research and a review of the scholarly literature to identify earthquake risks. We chose height as third composite assuming that particularly large dams pose particularly grave environmental risks. This notion was suggested and confirmed in expert interviews we conducted (TNI2; FNI10). Any dam with a height above 15 meters is defined as a

large dam (ICOLD, 2015a). Since all dams in the sample feature a height above 15 meters, this definition was not usable for calibration. A mega-dam is a dam with a height of at least 150 meters (International Rivers, 2017). Thus, these dams were coded 1 in the sample and served as a starting point for calibration.

Furthermore, we conceptualize SAFEG as a composite of public consultation and benefit-sharing. We undertook press research and a review of the scholarly literature to calibrate these composites. We also included two question on these sub-dimensions in our online survey. An in-depth justification for the calibrations of this sub-dimensions for each case is provided in the case descriptions in the appendix.

Lastly, we conceptualize CORRUPT as perceived corruption in a country, operationalized by the Corruptions Perceptions Index by Transparency International (2015), the most widely used indicator for corruption worldwide (Transparency International, 2014). The index is based on a scale from 1 to 10 with 1 indicating that a country is most corrupt. Cut-offs have been established by Transparency International (2015). These were reviewed, deemed reasonable for our cases and thus adopted.

Information on the sub-dimensions, operationalizations and sources of the three additional likely causal conditions is to be found in Table 4 and the appendix. The five causal focus conditions are also summarized in Table 4. Our raw data matrix including all raw data used in this paper is also included in the appendix.

We have averaged the calibrated values for the different sub-dimensions outlined in order to obtain values for our eventual analysis. We note that Schneider & Wagemann (2012, p. 7) warn against “averaging information across different dimensions of a concept”; this could introduce misfits between the verbal meaning of a concept and its operationalization. We acknowledge this risk. Thus, we thoroughly reviewed all averaged calibrations of our four causal conditions. We changed or recalibrated sub-dimensions if we found that our overall impression regarding causal focus condition did not correspond to its averaged operationalization. We believe this approach is superior to a qualitative calibration of our causal focus conditions via a four-value-scheme since it allows us to maintain the nuances in the data

captured by our sub-dimensions. Our approach chosen mirrors the approach by Pahl-Wostl & Knieper (2014). We also evidence its robustness via a sensitivity analysis in the next section.

TABLE 4: POSSIBLE CAUSAL CONDITIONS OF ANTI-DAM PROTESTS

Causal condition	Sub-dimension	Operationalization		Source
Political opportunity structures (POS)	Political rights	0	Countries with few or no political rights (with a ranking of 7)	Freedom House
		0.33	Countries with significantly restricted political rights (with a ranking of 5 or 6)	
		0.67	Countries mostly protecting political rights (with a ranking of 3 or 4)	
		1	Countries with (largely) a wide range of political rights (with a ranking of 1 or 2)	
	Civil liberties	0	Countries with few or no civil liberties (with a ranking of 7)	Freedom House
		0.33	Countries with significantly restricted civil liberties (with a ranking of 5 or 6)	
		0.67	Countries mostly protecting civil liberties (with a ranking of 3 or 4)	
		1	Countries with (largely) a wide range of civil liberties (with a ranking of 1 or 2)	
Development (DEV)	Overall development	0	Undeveloped countries in Asia (with a score < 0.40)	Human Development Index (HDI) by UNDP
		0.33	Developing countries in Asia (with a score ≥ 0.4 and < 0.6)	
		0.67	Significantly developed countries in Asia (with a score ≥ 0.6 and < 0.8)	
		1	Very highly developed countries in Asia (with a score ≥ 0.8)	
Environmental risk (ENVR)	Environmental impact	0	No environmental impacts in the construction and reservoir area as well as downstream	Press research, peer-reviewed

		0.33	Limited environmental impacts in the construction and reservoir area as well as downstream	papers, online survey
		0.67	Considerable environmental impacts in the construction and reservoir area as well as downstream	
		1	Significant environmental impacts (e. g. destruction of biodiversity hotsort, severe impacts on fisheries) in the construction and reservoir area as well as downstream	
	Earthquake risk	0	No evidence project is close to fault line	Press research, peer-reviewed papers
		1	Evidence that project is close to a fault line	
	Great project size	0	Dams with a height < 50 meters	Press research
		0.33	Dams with a height ≥ 50 meters and < 100 meters	
		0.67	Dams with a height ≥ 100 meters and < 150 meters	
		1	Dams with a height ≥ 150 meters	
Social safeguards (SAFEG)	Consultation	0	No public participation took place	Press research, peer-reviewed papers, online survey
		0.33	Basic project information was provided to impacted communities, no feedback collected	
		0.67	Project information was provided to impacted communities, feedback was collected and (at least partially) incorporated	

		1	Project information was provided to impacted communities, feedback was collected and incorporated to the maximum extent in a collaborative process	
	Compensation	0	No compensation was given to affected communities	Press research, peer-reviewed papers, online survey
		0.33	Insufficient compensation was given to affected communities, compared to international standards	
		0.67	Largely sufficient compensation was given to affected communities, compared to international standards	
		1	Compensation was given to affected communities according to international standards	
Corruption (CORRUPT)		0	No corruption perceived in the country (score of ≥ 4)	Corruptions Perceptions Index (CPI) by Transparency International
		0.33	Limited corruption perceived in the country (score of ≥ 3 and < 4)	
		0.67	Corruption perceived to be a significant challenge in the country (score of ≥ 2 and < 3)	
		1	Corruption perceived to be pervasive in the country (score of < 2)	
Conflict (CONFL)	Conflict history	0	Countries with no history of conflict	Conflict Barometer by Heidelberg Institute for International Conflict Research
		0.33	Countries with a limited history of conflict	
		0.67	Countries with a considerable history of conflict	
		1	Conflict-ridden countries	

	Funding source/lead developer	0	Funding source or lead developer is not Chinese	Press research
		1	Funding source or lead developer is Chinese	
	Electricity export	0	Majority of the dam's electricity is not exported abroad	Press research
		1	Majority of the dam's electricity is exported abroad	
Cultural impact (CULT)	Cultural destruction	0	Limited cultural destruction due to the project	Press research, peer-reviewed papers, online survey
		1	Significant cultural destruction due to the project	
	Indigenous people	0	Indigenous people not displaced because of the project	Press research
		1	Indigenous people displaced because of the project	
Resettlement (RESETTL)		0	< 1,000 people displaced because of the project	Press research
		0.33	≥ 1,000 - < 50,000 people displaced because of the project	
		0.67	≥ 50,000 - 1 million people displaced because of the project	
		1	> 1 million people displaced because of the project	

Note: Sources for press research are provided in the case descriptions in the appendix.

4.5 RESULTS

The absence of social safeguards is the only causal condition identified meeting the threshold for a necessary condition with a consistency value of 0.92 and a coverage of 0.83. Of the other causal conditions, the presence of environmental risk reaches a consistency value of 0.82. None of the additional conditions introduced in this section for the sensitivity analyses pass the 0.8 threeshold. The presence of political opportunity structures, highlighted by the scholarly literature as a necessary condition for the emergence of anti-dam protests, only reaches a consistency value of 0.74.

When applying the logical minimzation procedure to the truth table rows featuring the five causal focus conditions outlined previously, two causal pathways are identified (Table 5). First, lacking social safeguards in combination with higher levels of development and the presence of political opportunity structures are sufficient for significant anti-dam protests to emerge. Second, lacking social safeguards in combination with rampant corruption and environmental risk also induce these protests. All six cases with significant anti-dam protests can be explained via these two causal pathways with a few cases over-determined (details in the truth table in the appendix).

TABLE 5: INTERMEDIATE SOLUTION FOR THE EMERGENCE OF SIGNIFICANT ANTI-DAM PROTESTS

Causal pathway	**~SAFEG*POS*DEV**	**~SAFEG*CORRUPT*ENVR**
Consistency	1.00	0.95
Raw coverage	0.63	0.60
Unique coverage	0.30	0.26
Cases covered	Bakun Dam, San Roque Dam, Kaeng Suea Ten Dam	Myitsone Dam, Xayaburi Dam, Sardar Sarovar Dam
Solution formula	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	
Solution consistency	0.96	
Solution coverage	0.90	

Note: * = and; + = or; ~ = absence of; → sufficient for.

Before these various results are discussed in the next section, their robustness is tested. Consistency and coverage in Table 6 indicate solution consistency and solution coverage.

Exhaustive enumeration is the most common approach to fsQCA sensitivity analyses (Thiem et al., 2015, p. 2). The main analysis is deemed robust "if they involve similar necessary and sufficient conditions and if consistency and coverage are roughly the same across different model specifications" (Schneider & Wagemann, 2012a, sec. 11.2.1). In order to test the robustness of findings, (a) cases may be dropped from the sample (Goldthorpe, 1997, p. 5; Schneider & Wagemann, 2012a, sec. 11.2), (b) additional possible causal conditions may be introduced (Schneider & Wagemann, 2012b, p. 284 ff.) and (c) alternative measures for a concept can be employed (Basurto & Speer, 2012).

First, we excluded the Kaeng Suea Ten Dam from our analysis. Since the Kaeng Suea Ten Dam is the only dam in our sample whose key purpose is not electricity generation, but flood control, as outlined in the appendix, it could be argued that this dam is different in kind and thus unsuitable for this sample. The exclusion of this dam slightly changes the solution formula which now suggests that the absence of social safeguards and the presence of environmental risk either in combination with corruption or the presence of political opportunity structures and development induces significant public protest (Table 6, row 2). Thus, the importance of environmental risk is emphasized.

Second, we excluded the San Roque Dam from our analysis. Our case description showcases that information collected for this dam was more ambiguous and limited than for the other dams in our sample. For instance, our value assigned for environmental impact of this dam only rests upon one data point. Thus, our calibration of this case may feature various measurement errors, a key criticism of Hug (2013) regarding fsQCA. The exclusion of the San Roque Dam does not change the solution formula, though. Solution consistency and coverage values also remain virtually unchanged (Table 6, row 3).

Third, we excluded the Xayaburi Dam from our analysis. Our case description showcases that information collected on this project – particularly regarding the outcome

condition – was ambiguous. Furthermore, one of the anonymous reviewers of this paper challenged our claim that the project is a contested one. The exclusion of this project does not challenge the results of the main analysis, though (Table 6, row 4).

Fourth, we included CONFL as an additional causal condition to our analysis for reasons discussed in section 2. Our solution formula remains unchanged, though, compared to the main analysis (Table 6, row 5).

Fifth, we reran the previous sensitivity analysis only including data from the Heidelberg Conflict Barometer (2015). Indeed, it could be argued that the two composites beyond the Heidelberg Conflict Barometer only introduce noise to the operationalization. First, not every country in the sample may face significant anti-Chinese sentiment and thus Chinese involvement may not always contribute to conflict. Second, electricity exported abroad may yield significant governmental returns (for instance, the sale of hydroelectricity to India contributes to 40% of Bhutan's fiscal revenues (Singh, 2013, p. 460)) which may then be used for developmental purposes such as the construction of schools or hospitals and thus also not contribute to conflict. Our solution formula remains unchanged, though, compared to the main analysis when this adjusted operationalization is introduced (Table 6, row 6).

Sixth, we introduced CULT as an additional causal condition. We find that CULT is now also part of the solution formula from the main analysis (Table 6, row 7). However, the coverage is now only at 0.63. Values below 0.75 indicate a badly specified model which may be caused by the inclusion of irrelevant conditions (Legewie, 2013). Cultural destruction may be a case in point with 5 out of 6 cases with significant anti-dam protests also featuring significant cultural destruction, while 3 out of 6 cases with limited anti-dam protests also feature significant cultural destruction. We further discuss this condition in the next section.

Seventh, we introduced RESETTL as an additional causal condition. No significant changes compared to the main analysis are observed (Table 6, row 8).

Eight, we calibrated our four focus causal conditions qualitatively on a four-value-scheme instead of averaging their sub-dimension scores. This is an attempt to address the

concern by Schneider & Wagemann (2012, p. 7), outlined in the previous section. The raw data for this analysis is included in the appendix. Again, the solution formula from the main analysis remains unchanged, while the consistency score is slightly lowered (from 0.96 to 0.94) (table 6, row 9).

Ninth, we replaced ENVR with its sub-dimension earthquake risk (EARTHQR) due to the emphasis of EARTHQ by NGOs and practitioners interviewed, outlined in section 2. The solution formula from the main analysis remains unchanged with an increase in consistency (from 0.96 to 1.00) and a slight reduce in coverage (from 0.90 to 0.89) (Table 6, row 10).

Tenth, we replaced POS with its sub-dimension political rights (POLR). This variation of the main analysis was chosen since the current literature largely focuses particularly on the presence of political rights as the key necessary condition for the emergence of public protests. The solution formula from the main analysis remains unchanged (Table 6, row 11). Indeed, the sub-dimension indicators chosen for POS are highly interrelated, with Freedom House (2015b) noting that "the gap between a country's or territory's political rights and civil liberties ratings is rarely more than two points".

TABLE 6: SOLUTION FORMULA AND RESULTS OF THE SENSITIVITY ANALYSES

Row	**Analysis**	**Solution formula**	**Cons.**	**Cov.**
1	Main analysis	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.90
2	Kaeng Suea Ten Dam dropped	~SAFEG*ENVR*(POS*DEV + CORRUPT) → PROT	0.95	0.83
3	San Roque Dam dropped	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.88
4	Xayaburi Dam dropped	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.88
5	*CONFL* added	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.90
6	*HEID* added	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.90

7	*CULT* added	~SAFEG*CULT*(POS*DEV + CORRUPT*ENVR) → PROT	1.00	0.63
8	*RESETTL* added	~SAFEG*(POS*DEV + CORRUPT*ENVR) → PROT	0.96	0.90
9	Qualitative cal. of causal cond.	~SAFEG*(CORRUPT*ENVR + DEV*POS) → PROT	0.94	0.90
10	*EARTHQR* rather than *ENVR*	~SAFEG*(POS*DEV + CORRUPT*EARTHQR) → PROT	1.00	0.90
11	*POLR* rather than PSO	~SAFEG*(POLR*DEV + CORRUPT*ENVR) → PROT	0.96	0.90

Note: A consistency threshold of (rounded) 0.89 was adopted in row 8; too few cases would have been included in logical minimization procedure with a 0.9 threshold

4.6 DISCUSSION

The results presented in the previous section are of relevance to the ongoing sustainable development discourse. Indeed, infrastructure development is an integral component of sustainable development. The first target within the Sustainable Development Goals' goal 9 is to "develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic and human well-being" (United Nations, 2016). Dams provide multiple benefits at scale (Kirchherr & Charles, 2016) that are needed to support economic and human well-being. For instance, the five largest power plants in the world are all hydro-electric ones (Platts, 2015). Biswas (2012, p. 6) claims that no country "has ever managed to make significant economic progress without harnessing adequately its water resources".

Yet dams' negative impacts can be "locally disruptive, and often irreversible" (WCD, 2000) and thus potentially undermine the sustainability of the hydropower sector (Tilt & Gerkey, 2016, p. 153 ff.). Various negative impacts of dams have been conceptualized as causal conditions possibly inducing significant anti-dam protests. Examples are dams' environmental or cultural impacts. The scholarly literature on anti-dam protest particularly highlights dams' resettlement impacts (Kirchherr et al., 2016, p. 5) with Scudder (2012) finding that displacement

mostly results in communities' impoverishment. We have conceptualized this impoverishment as lacking social safeguards throughout this paper and found that such a lack of social safeguards – implying the side-lining of communities during the planning and construction of a large dam – is linked to significant anti-dam protests.

We now turn to a discussion of the significant anti-dam protests against Thailand's Kaeng Suea Ten Dam and Myanmar's Myitsone Dam to illustrate how lacking social safeguards may interact with the additional causal conditions identified in the two fsQCA causal recipes found. These discussions showcase how the two sub-composites of lacking social safeguards – consultation and compensation –interact.

For Thailand's Kaeng Suea Ten Dam, our field research supports the fsQCA result that lacking social safeguards in combination with political opportunity structures and development results in significant anti-dam protests. We found that a lack of social safeguards initiated the protests against the dam, and are why the protests are continuing until today. We find that both sub-dimensions of social safeguards induce protests; yet perceptions regarding insufficient compensation may be driven by a lack of consultation.

Villagers interviewed stated they would oppose the project primarily because they fear losing their livelihoods (FAA13; FAA18; FAA19; FAA28; FAA29). "We will lose everything. Agriculture, homes, culture", a villager said (FAA28). The government outlined compensation to the villagers, but these compensation promises were not viewed to be credible and/or sufficient (FAA18; FAA24; FAA28; FAA29). The root cause of the villagers' distrust towards the government was the fact that consultation was not carried out, according to our field research. Indeed, the government did not even inform the villagers about the project initially, the minimum consultation standard (IAP2, 2007); rather, villagers were asked to mark the forest to be flooded without decision-makers telling them why these measures were undertaken (FAA29). Once the villagers learnt why the forests were marked, trust was shattered.

Thailand's political opportunity structures then provided the space to voice opposition because of lacking social safeguards. For instance, villagers undertook demonstrations in

Bangkok and Chiang Mai jointly with villagers from all across Thailand that also fear displacement because of dam construction (FAA8; FAA13; FAA22) prior to the 2014 coup d'état (BBC, 2014b; FAA42). Ad-hoc demonstration were also staged if government officials approach the envisaged dam site (FAA10). Yet such demonstrations were not undertaken in the early days of the protest. As one villager acknowledged, "in the beginning, we had no system. We were just crazy protesters" (FAA24).

However, NGOs started collaborating with the villagers and helped them to develop their "great system of protest" (FAA16). The involvement of NGOs illustrates the interrelatedness of the causal conditions political opportunity structures and development. The NGOs – a player within Thailand due to the country's political opportunity structures – boosted the capabilities of the villagers protesting, which, in turn, further amplified the protests. In particular, Assembly of the Poor (AoP) (on AoP: (Missingham, 2002)) was credited with teaching the villagers how to campaign (FAA40)and Living River Siam Association introduced *Thai Baan* research (on *Thai Baan* research: Käkönen & Hirsch (2009, p. 346)), which helped the villagers to detail the anticipated negative impacts of the project (FNL18).

These enhanced human resources are an explanation suggested by scholars adhering to the resource mobilization approach, as outlined in section 2 of this paper. Overall, this identified recipe largely endorses the current scholarly literature on the topic which particularly emphasizes political opportunity structures and development as causal conditions inducing significant anti-dam protests. Yet our case study conceptualizes development (and within development, capable human resources) as a consequence of political opportunity structures and complements both conditions with social safeguards as a necessary (initiating) condition for significant anti-dam protests.

The case of Myanmar's Myitsone Dam illustrates the second causal recipe found via the fsQCA. According to this recipe, the significant anti-dam protests are the result of lacking social safeguards in combination with corruption and environmental risk. We believe this causal recipe may particularly complement insights from the current scholarly literature.

Lacking social safeguards may also be seen as the root cause of the protest against the Myitsone Dam. Indeed, the person who claimed to have initiated the protests feared that the village's livelihoods may be lost upon displacement (FAA1). KDNG (2007, p. 1) also emphasized that people would lose their livelihoods because of the project. Meanwhile, displaced communities interviewed voiced that the compensation provided was insufficient (FAA1; FAA2; FAA5). Distrust regarding the project and its compensation policy was likely fostered because of the lacking community involvement during the early stages from the project – a mechanism comparable to the Kaeng Suea Ten Dam case study. Communities only learnt about the project by chance – with the leader finding plans of the project in a restaurant in Myitkyina; these had been forgotten by an engineer (FAA1; FNL21). This shattered trust towards decision-makers. The village leader was informed by the government regarding the displacement and compensation policy only months prior to the resettlement (FAA5). A Chinese dam developer also confirmed that no consultation beyond informing took place (TP24).

The early protests were largely restricted to Kachin State (FNL21) and comprised activities such as open letters, anti-dam graffiti and prayer services against the dam with up to 300 villagers participating (KDNG, 2009, p. 14 ff.). The Kachin National Organization (KNO) also organized various protests in front of Burmese embassies in the United Kingdom, Japan, Australia and the United States (Kachin News, 2010) – this transnational activism was induced by the limited political opportunity structures in Myanmar prior to the regime change (Simpson, 2013).

The project's environmental risk, particularly earthquake risk, helped to spread protests across Kachin State and further intensified them, according to our reading. "We are going to be killed if this dam is built", an activist said (FNL4). The dam is less than 100 kilometers from a major fault line and located in a region recognized as one of the world's top biodiversity hotspots and (Deetes & Mang, 2015). Environmental impacts of the project were also

highlighted by KDNG (2009), e. g. the project's impacts on biodiversity due to the reservoir created.

The protests reached Yangon, Myanmar's commercial center, and intensified once the November 2010 elections had taken place (TNL17; FNL21), the country's first election in 20 years (BBC, 2014a). The project was suspended in September 2011, six months after Thein Sein took office as President. We thus acknowledge that political opportunity structures is also part of the Myitsone Dam protest narrative. Opposition spread in Yangon since "this was one of the few not-so-political issues out there. Protesting against the Myitsone Dam was certainly less dangerous than protesting for the release of political prisoners" (FI8). The campaign overall was called "disjointed" (Kirchherr et al., 2016, p. 4) potentially resulting from a lack of development.

Protests in Yangon were not primarily driven by livelihood or environmental concerns, but by corruption as well as cultural impact, according to our field research. Revenues generated via the electricity exports were expected to only benefit the country's elites, not the people of Myanmar and their development (FNI11). A former civil servant who had worked in the Office of the President of the Union of Myanmar argued that "this project creates [illegitimate] generational wealth for many public sector individuals" (TG3). The project's intransparency likely fostered these corruption allegations; at the time of publication, none of the contractual details of the Myitsone Dam project are published (Kirchherr et al., 2016, p. 3 ff.).

Beyond corruption, many of those interviewed framed the Myitsone Dam as an emotional issue which would threaten the cultural heritage of Myanmar (FNL3; FNL6; TNL13; FNL20; FI8). "This dam impacts our holy river [the Irrawaddy], the heart of this country", an activist said, for instance (FNL3). "Damming the Irrawaddy – this really touched the psyche of the entire nation" (FI8). We note that these field research findings do not contradict the results of the fsQCA since cultural impact was also found as part the causal recipe inducing significant anti-dam protests, as showcased previously. The limited coverage found with this model may

suggest, though, that cultural impact does not hold across numerous cases, but may only be a causal condition in specific anti-dam protests such as the Myitsone Dam case.

The Myitsone Dam case study overall suggests that lacking social safeguards in combination with environmental risk can drive protests even in countries with lacking political opportunity structures and lacking development. Yet changes in Myanmar's political opportunity structure intensified these protests. Corruption and cultural impact widened the movement's base upon Myanmar's regime change and thus further intensified the protests once protests had reached Yangon. 85% of people in Myanmar are reported to oppose the project (FNL3).

4.7 CONCLUSION

When developing large infrastructure projects, "the local population should have a special place at the table. […] Environmental impact assessments should not come after the drawing up of a business proposition". These lines are to be found in the most recent encyclical letter of Pope Francis (2015), indicating the degree to which social safeguard principles needed for sustainable infrastructure development have expanded beyond environmental activists and policy-makers. Our fsQCA results particularly highlight the signifiance of social safeguards. Lacking social safeguards in combination either with significant political opportunity structures and higher levels of development or with rampant corruption and environmental risk are sufficient for significant anti-dam protests to emerge.

These findings are relevant for three reasons. First, they complement the current scholarly consensus that political opportunity structures are a necessary condition regarding the emergence of significant anti-dam protests. Political opportunity structures can be part of a causal recipe which induces massive protests. However, we identified an additional causal path inducing such protests. This path emphasizes lacking social safeguards, significant rampant corruption and environmental risk as causal conditions; Myanmar's Myitsone Dam, Laos' Xayaburi Dam and India's Sardar Sarovar Dam represent examples of this path.

Second, our findings challenge the universality of the resource mobilization approach that is also widely used in contemporary social movement theory. We note that the second pathway identified also does not feature higher levels of development. Rather, corruption – indicating inequitable development – is highlighted by this path as a causal condition contributing to significant anti-dam protests.

Third, we believe these findings are not only of scholarly interest, but potentially also of great practical relevance. Understanding the causal recipes inciting public opposition may be the first step of mitigating them in order to avoid looming infrastructure deadlock in many emerging economies (Dobbs et al., 2013). Our analyses particularly highlight project-specific conditions such as CORRUPT, ENVR and ~SAFEG as potential triggers of massive anti-dam protests. fsQCA's assumption of causal asymmetry forbids to infer that the inversion of the causal recipes identified would lead to the non-occurrence of anti-dam protests. Yet it is particularly notable that the causal conditions identified in the second recipe are the reverse of good governance principals considered to be an essential component of sustainable development (de Graaf & Paanakker, 2014; Doeveren, 2014).

More research will be needed to reveal whether the application of good governance principles can circumvent the emergence of significant anti-dam protests and thus help facilitate sustainable infrastructure development. We also acknowledge regarding our findings that our sample size of 12 is still limited which mandates caution regarding external validity. Furthermore, the various values assigned during this fsQCA can be contested. We have attempted to validate our data via triangulation, basing our analysis on peer-reviewed papers, press research, an online survey we ran for this analysis, semi-structured interviews, and feedback from reviewers. We have provided all relevant data of our analysis in the appendix of this paper and encourage scholars also studying anti-dam movements to replicate our findings and possibly expand our sample with additional dam projects. We hope that this paper contributes to the cumulative development of a knowledge base on this timely topic. Medium-N analysis regarding the root causes of anti-dam protests in Africa or Latin America may be

particularly interesting as a next step to test whether the causal recipes identified in this paper hold across multiple regions.

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5 PAPER 3: STRATEGIES OF SUCCESSFUL ANTI-DAM MOVEMENTS: EVIDENCE FROM MYANMAR AND THAILAND

Scholars rarely examine anti-dam movements that result in project suspensions or cancellations since these cases are extremely rare empirically. Yet these movements are central to understand how anti-dam movements can succeed. This paper analyzes the movements against Myanmar's Myitsone Dam and Thailand's Kaeng Suea Ten Dam, likely the most successful anti-dam movements in Southeast Asia in recent years achieving suspension over five years and 36 years, respectively. The research is based on 60 semi-structured interviews carried out over a period of eight months. Leveraging thinking both from the constructionist and structural school within the field of social movement studies, it is found that the framing of the Myitsone Dam as a project threatening the national cultural heritage of Myanmar (in combination with political change in the country in 2010/2011) largely explains the movement's success. Meanwhile, the set of sophisticated tactics (including inter alia demonstrations, *Thai Baan* research, 24/7-monitoring of the dam site, spiritual activities) was decisive for the anti-Kaeng Suea Ten movement's efficacy.

Keywords: Social movements; anti-dam movements; protests; large dams; Myanmar; Myitsone Dam; Thailand; Kaeng Suea Ten Dam

5.1 INTRODUCTION

The rate of dam construction worldwide slowed from around 1,000 per year in the 1950s to 250 per year in the 1990s (Kirchherr, 2017). However, a surge in dam construction has occurred since the early 2000s that is projected to continue for the foreseeable future (Zarfl et al., 2015, p. 161 ff.). Dams have been built for nearly 5,000 years and are thus a mature technology (Biswas, 2012a, p. 1 ff.). The greatest obstacle these days to their construction is frequently not technological, but of political nature with public protests said to impact dam projects all around the world (Kirchherr, 2016; McAdam et al., 2010, p. 401 ff.). The campaign against India's Narmada dam projects which started in the late 1980s may be the most famous example of an anti-dam campaign (Khagram, 2004, p. 65 ff.). Examples of current contested large dam projects are those in India's state of Sikkim (Huber & Joshi, 2015) or those to be built on the Mekong River in Laos and Cambodia (Molle et al., 2009).

Despite the current boom in dam construction and the prevalence of anti-dam protests, Rodríguez-Labajos & Martínez-Alier (2015, p. 538) find that "water conflicts and water-based activism [have] not been given much [scholarly] attention". I find that particularly anti-dam movements in the developing world that resulted in project suspensions or cancellations (defined as 'successful anti-dam movements' throughout this paper) have been largely neglected by the scientific community. The likely reason is that these cases are extremely rare empirically (further outlined in the next section). Yet these cases can particularly illuminate how anti-dam movements can be successful, while it is acknowledged that the study of non-successful movements can also contribute relevant insights. This paper aims to elicit how anti-dam movements can be successful via a comparative study of the successful campaigns against Myanmar's Myitsone Dam as well as Thailand's Kaeng Suea Ten Dam, likely two of the most successful anti-dam movements in Southeast Asia in recent years, achieving suspension over five years and 36 years, respectively.

The remainder of this paper is organized as follows. Section 2 outlines the methods adopted for this paper. Section 3 frames the analyses within the field of social movement studies. Section 4 outlines environmental activism in Myanmar and Thailand. Meanwhile,

section 5 narrates the struggles against Myanmar's Myitsone Dam and Thailand's Kaeng Suea Ten Dam. A discussion of these cases is presented in section 6, while the argument is summarized in section 7.

5.2 METHODS

The comparative case study method was chosen as a research design to analyze anti-dam movements since such small-N-research is believed to be particularly valuable to develop and nuance theoretical insights (which may eventually be tested via large-N-research) (Lijphart, 1971). Indeed, my review of the relevant literature suggests that more theory development and nuancing may be needed regarding successful anti-dam movements. More than 30 scholarly articles on the strategies of anti-dam movements were identified (see appendix for methods to generate this list of articles), of which only five analysed a project that was suspended or eventually cancelled. Three of these five projects, Hou (2001), Jain (2000) and Moore (1998) are projects in the developed world, though, with the respective movements possibly not identical with those in the developing world due to the entirely different context activists operate in within developing countries (McAdam et al., 2010, p. 403 ff.); Chandra (2013) and Sneddon & Fox (2008) are the only scholarly case studies identified that analyse successful anti-dam movements in the developing world – a miniscule body of literature considering that such movements are likely of most interest to environmental NGOs as well as international donors and dam developers. I hypothesize that only a few cases of successful anti-dam movements have been studied because these are quite rare empirically. Indeed, an activist interviewed acknowledged that most movements are unable to stop a dam project (TNI15) (see next paragraph for details on this code). Why anti-dam movements are likely not successful in most instances is not the topic of this paper, though.

In order to develop a narrative regarding both movements presented in this paper, semi-structured interviews were carried out via telephone/Skype as well as face-to-face in Myanmar and Thailand over a period of eight months in 2015 and 2016. All interviews are part of a larger

research project investigating the politics of dam construction in Southeast Asia. More than 150 semi-structured interviews have been carried out for this research project to date; 60 of these specifically addressed questions relevant for this paper (table of relevant interviewees in the appendix). Information regarding interviewee recruitment, sample termination and interview data processing can be found in Author et al. (2016). All interviews are coded with the first letter indicating the mode of interviews (T for telephone/Skype, F for face-to-face, O for online survey/e-mail), the second letter indicating the type (AA for adversely-affected people, G for government, I for international donor, NI for international NGO, NL for local NGO, P for private sector) and the sequence of numbers indicating the overall interview number within a type.

5.3 THEORETICAL FRAMING

An anti-dam movement is a social movement (SM), defined as "a set of opinions and beliefs in a population which represents preferences for changing some elements of the social structure and/or reward distribution of a society" [i. e. issues] (McCarthy & Zald, 1977, pp. 1217–1218), in this case the belief that a single dam/dams must not be constructed due to various environmental and/or socio-economic impacts. Movement's preferences are implemented via a movement's strategy, defined as "how we turn what we have into what we need" (Ganz, 2000, p. 1010). The strategy, in turn, can be implemented by one (or several) SM organizations (SMOs) which are formal organizations (e. g. environmental NGOs such as International Rivers) that identify with the preferences of a SM (McCarthy & Zald, 1977, p. 1212 ff.).

The role of SMOs regarding a movement's success is contested among scholars. Two rival schools can be identified within contemporary social movement studies, the constructionist and the structural school with the structural school allegedly being the dominant one (Goodwin & Jasper, 2004b, p. 12 ff. J. Smith & Fetner, 2010, p. 44 ff.). These schools are also the analytical lenses adopted throughout this paper. It is acknowledged that both approaches cover "an enormous terrain" (J. Smith & Fetner, 2010, p. 15). Hence, the summaries of these

approaches outlined in this section can only present (what I view as) the approaches' cornerstones that are of particular relevance for the this paper.

I start out by outlining the likely common denominator of both schools: The concept of political opportunity structures (POS) which are "dimensions of the political environment which either encourage or discourage people from using collective action" (Tarrow, 1994, p. 19), commonly operationalized by democracy indicators such as those of the Polity IV project (McAdam et al., 2010, p. 415). The POS concept was originally introduced by the structural school (Goodwin et al. , 1999, p. 27 ff.) and is said to "suffocate social movement research" (Koopmans, 1999, p. 93) despite various criticism against it, e. g. by Gamson & Meyer (1996). Both the contemporary constructionist and the structural school acknowledge POS as the context that significantly influences if a movement emerges and eventually succeeds with (relatively) open POS generally viewed as conducive for SMs (Della Porta & Diani, 2015; Smith & Fetner, 2010, p. 16 ff.).

Scholars adhering to the constructionist approach particularly emphasize within this context the importance of culture to gain popular support for a movement, while downplaying the role of particular SMOs (Buechler, 2000, p. 11 ff.; Smith & Fetner, 2010). Culture "consists of […] shared mental worlds and their perceived embodiments" (Jasper, 2010, p. 60 ff.), e. g. practices such as mass prayer ceremonies. These shared mental worlds are created via framing of the movement's issue(s) with this term particularly popularized by Goffman (1974) and defined by him as "schemata of interpretation" (Goffman, 1974, p. 21). Framing is particularly successful in creating shared mental worlds if it evokes emotions, a concept entirely "repressed […] under structural models" (Jasper, 2010, p. 80) (discussed in the next paragraph). An emotional framing of an issue that appeals to a broad popular base is most decisive regarding a movement's success, many constructionists believe (Della Porta & Diani, 2015; Goodwin & Jasper, 2004b).

Meanwhile, the very name of the structural approach already suggests that scholars adhering to it pay particular attention to SMOs and additional formal organizations in their analysis of a SM and its struggle (J. Smith & Fetner, 2010, p. 13 ff.). Movement leadership,

constituents and organization (including external networks) along with financial resources (for self-administration and outreach; including external financing) are "the most widely appreciated kinds of [SMO] resources" (Edwards & McCarthy, 2003, p. 1) in this school, as also outlined by McCarthy & Zald (1977, p. 1216 ff.) and Opp (2009, p. 128 ff.). Due to the emphasis on resources, selected scholars also call the structural approach the 'resource mobilization approach', whereas 'structural approach' seems to be more common (Opp, 2009a, p. 127 ff.) and is thus used in this paper. Capable movement leadership, constituents and organization paired with ample financial resources are viewed as most decisive regarding a movement's success, many adherents to the structural school believe (Della Porta & Diani, 2015; Smith & Fetner, 2010).

The remainder of this paper reflects the theoretical framing presented in this section. Section 4 thus discusses the POS in Myanmar in Thailand with regard to environmental activism in both countries providing context for the subsequent analyses. These subsequent analyses build upon the work that attempts to bridge the constructionist and structural school within SM studies (on such work: Della Porta (2014)). I commence the two narratives in section 5 with a discussion of the framing of the movement's cause (reflecting thinking from the constructionist school), followed by an analysis of the movement leadership, constituents and organization as well as the financial resources backing the movement (reflecting thinking from the structural school).

5.4 ENVIRONMENTAL ACTIVISM IN MYANMAR AND THAILAND

Environmental activists in Myanmar and Thailand have operated under different POS in the past decades which has impacted environmental activism in these countries. Myanmar was under the rule of an oppressive military junta from 1962 until 2011 and any pro-democracy protests such as the 1988 protests facilitate by the 88 Generation Students Group were brutally suppressed (FNL23; Simpson, 2013, p. 74 ff.). Meanwhile, Thailand switched repeatedly between democratic rule and the rule of an

oppressive military junta (with the latest military coup d'état taking place in 2014; the Royal Armed Forces are still in power in early 2017) (TNL17; Forsyth, 2010, p. 462) and particularly phases of democratic rule proved vital for the development of the country's civil society, while environmental activism even prevailed when the junta was in power (Forsyth & Walker, 2014, p. 412 ff.) since "the strictures faced by Thai activists were generally much less severe than those in Myanmar, although […] repression was not uncommon [in Thailand either]" (Simpson, 2014, p. 90).

Environmental activism in Myanmar and Thailand is interlinked with the repression of environmental activists in Myanmar resulting in the fleeing of activists to (inter alia) Thailand; activists started returning to Myanmar after its opening up from 2011 onwards (Simpson, 2014, p. 55 ff.). It could be argued that many of these returnees now campaign against dam projects in Myanmar that have been induced by environmental activism in Thailand. This activism intensified in the late 1980s (Middleton, 2012, p. 293 ff.) with Thailand's policy-makers even unable to complete any more large dam projects after the completion of the controversial Pak Mun Dam in 1994 due to the sweeping resistance against such projects (Hirsch, 2010, p. 315 ff.; Sneddon & Fox, 2008, p. 632 ff.). As a consequence, Thai policy-makers started to look abroad to satisfy the country's growing energy demand and negotiated (inter alia) the construction of several dams on Myanmar's Salween River such as the controversial Mong Ton Dam that are supposed to power the Thai economy (Middleton, 2012, p. 293 ff.; Simpson, 2007, p. 549 ff.).

Environmental activism both in Thailand and Myanmar resonates with the concept of 'environmentalism of the poor' which highlights the resistance of communities against projects that threaten the environment that is their livelihood (Martinez-Alier, 2002, p. 10 ff.). Indeed, environmental activism in Thailand was and is

frequently carried out by villagers protesting against various infrastructure projects that threaten their livelihoods (Forsyth & Walker, 2014, p. 412 ff.). Yet the middle class as well as international NGOs such as the World Wildlife Fund also play(ed) a large role (Forsyth, 2007), the latter thanks to Thailand's comparatively open POS. Meanwhile, Myanmar's restrictive POS limited the involvement of international NGOs prior to its opening and thus local NGOs continue to stir much of the activism which is reported to be disconnected from project-affected communities at times, though (FI8; Simpson, 2013, p. 113 ff.).

5.5 EVIDENCE ON SUCCESSFUL ANTI-DAM MOVEMENTS FROM MYANMAR AND THAILAND

This section narrates the struggles against Myanmar's Myitsone Dam and Thailand's Kaeng Suea Ten Dam. Key information on both projects is provided in table 1..

Table 7: Key facts regarding the Myitsone Dam and the Kaeng Sue Ten Dam

	Myitsone Dam	**Kaeng Suea Ten Dam**
Key milestones	2009: Start of pre-construction works 2011: Suspension of project	1980: Decision by Thai government to build dam
Main purpose	Electricity exports to China (90% of dam's electricity to be exported in exchange for USD 500 million annually)	Flood control (dam supposed to hold 1,200 m^3 water to prevent flooding particularly in Sukhotai Province)
Capacity (MW)	6,000	49
Construction costs (USD million)	3,600	100
Resettlement	12,000 people	2,960 people
Project sponsor	China Power Investment Cooperation (CPI) in cooperation with Asia World, Burmese developer	No sponsor (World Bank pulled out as a sponsor in the 1990s)

Sources: Kirchherr (2017); Bünte et al. (2012, p. 145 ff.); U. S. Embassy (2011); KDNG (2007); FAA20; FAA41; FNL21

5.5.1 The Struggle against Myanmar's Myitsone Dam

Issue framing: Many interviewees framed the river the Myitsone Dam is supposed to be built on emotionally as an embodiment of the national cultural heritage of Myanmar (e. g. FNL3, FNL6; TNL13). "This dam impacts our holy river [the Irrawaddy], the heart of this country" (FNL3). These interviewees also suggested that this framing would be the main reason why the Myitsone Dam is widely opposed (by up to 85% of people in Myanmar, according to one survey (FNL3)). Yet this specific framing and the resulting opposition apparently only developed over time.

A pastor displaced because of the dam claimed to have heard about it first in 2003 by coincidence (FAA1) (further discussed by Kiik (2016, p. 380 ff.)). It was the pastor reaching out to various civil society organizations (CSOs) and policy-makers in Kachin State for protest support indicating that the movement started as 'environmentalism of the poor'. The pastor framed the dam construction as a "threat to [the culture of] the whole Kachin tribe" (KDNG, 2007, p. 61 ff.), but this framing did not resonate in the ethnically divided state (FG7; Kipgen, 2015, p. 19 ff.).

Kachin Development Networking Group (KDNG), a Kachin environmental NGO reported to be the leading environmental NGO advocating against the dam (FNL21), released a major report on it in 2007 (KDNG, 2007), notably under the rule of the military junta, once the project had been acknowledged by the government. Most arguments in it focus on displacement and environmental impacts (KDNG, 2007, p. 23 ff.). Kiik (2016, p. 6) hypothesizes that Kachin activists chose this framing (instead of the framing by the pastor) for audiences outside of their ethnic group, while truly still seeing the project "as part of an alarming set of existential threats to Kachin [cultural] survival".

Yet despite this framing the project gathered significant attention only once the November 2010 elections had taken place (FNL21; FNL23). The project was viewed as suitable by many to test the novel, allegedly now civilian government: "This was one of the few not-so-political issues out there. Protesting against [it] was certainly less dangerous than protesting for the release of political prisoners" (FI8).

The framing of the project started focusing on the dam's national cultural impacts only once the movement had reached Yangon[8], and this focusing was a conscious choice, according to activists interviewed. Some of these had been abroad during the rule of the military junta gaining valuable campaign experience there (e. g. stated by FNL3, FNL20, FNL21). "We [thus] understood that we needed a sticky message to appeal to a wider audience" (FNL20). These activists (not so much resonating any more with the notion of 'environmentalism of the poor') eventually chose the project's national cultural impacts as the movement's key message over human rights violation (which would have also been a possible framing due to the project's malpractice resettlement (FAA2; FAA3; FAA5)) since "human rights were a too well-known message already" (FNL20).

To implement this wider framing, various tactics were chosen. For instance, prominent performers released songs on the cultural significance of the Irrawaddy River (FNL6). Furthermore, a three-day-art exhibition on the beauty of the Irrawaddy River was launched in a Yangon art gallery in mid-September 2011 featuring pictures of environmental photographer Myint Zaw; the project was suspended only six days after the end of the exhibition (FI8; FNL6). Notably, many activists would not explicitly mention the Myitsone Dam in their framing until project suspension, but only the Irrawaddy River as national cultural heritage to be saved. Early demonstrations against the Mytisone Dam in Kachin State would also be masked as mass prayer ceremonies for the Irrawaddy River (FNL3; KDNG, 2007). This indicates how risky activists generally considered any protest activity to be and that no open discussions regarding the dam took place between the government and activists, as also found by Kiik (2016, p. 376 ff.).

Movement leadership, constituents and organization: These descriptions may be read as if the campaign against the Myitsone Dam was shaped by particular movement leaders. Indeed,

8 Those supporting the movement in Yangon also framed the project as one only benefitting the elites (Kirchherr et al., 2016, p. 44 ff.). This was not the dominant framing, though, according to my field research. Thus, I am not discussing this framing in this paper.

Myint Zaw was awarded the prestigious Goldman Environmental Prize for his "underground 'Save the Irrawaddy' campaign" (FNL21). This was criticized by activists interviewed in Kachin State who pointed out that Myint Zaw only joined the campaign once it had reached Yangon (FNL21; FNL23). Interviewees also mostly conveyed that not a single activist or organization was instrumental in the campaign (e. g. FNL12, TNL17. FNL23). While none of my interviewees stated this explicitly, my impression based on the interviews carried out is that the campaign against the Myitsone Dam overall was rather disjointed, but became less so once it had reached Yangon with additional constituents joining. Yet no overall organizational structure was seemingly maintained within the movement at any point in time.

Financial resources: The movement not only became less disjointed, but funding also likely increased once it reached Yangon. Due to the many organizations participating, a concrete estimate regarding the overall movement's budget could not be created. KDNG's annual budget varies between USD 30,000 and USD 50,000 with all this budget spent on outreach activities thanks to volunteers handling the self-administration (TNL17). As a comparison: CPI has already spent up to 800 million on the project (Lwin, 2015). Upon the campaign reaching Yangon, local elites, e. g. several famous Burmese writers, also contributed to the movement's outreach budget, (FNL6). Funding was also provided by outside sources such as the U. S. embassy in Myanmar (FNL3; U. S. Embassy, 2011). International NGOs only engaged in funding the movement and direct protest activities only upon project suspension (with the most notable example likely being International Rivers (2013)); local NGOs were hesitant to build relations with international NGOs initially since simply contacting them could result in three year prison sentences during the military junta rule (Simpson, 2013, p. 113 ff.).

While none of my interviewees mentioned funding (or lack thereof) as decisive for the movement, funding undoubtedly contributed to the movement's success since it helped to further spread the framing of the issue. The culmination of the movement's protests in the suspension of the project still surprised many interviewees (e. g. FNL3, TI7, FP19). This decision was not only attributed to the campaign, but also viewed as a symbolic gesture by the new government to evidence "that they are now listening to the people" (FNL12) (largely

echoed inter alia by TI7, FI8, TP24). Due to this unique context of political change, an activist hypothesized that this movement may be difficult to replicate (TNL13).

5.5.2 The Struggle against Thailand's Kaeng Suea Ten Dam

Issue framing: Interviewees expressed that they opposed the project primarily because it would require their resettlement (e. g. FAA8, FAA14 or FAA28). "We love it here. This is our home" (FA28). Yet environmental framing was also presented, whereas this framing was apparently only introduced after collaboration with NGOs (FAA7; FAA10; FAA29). The first NGO collaborating with the villagers (from 1989 onwards) was the Wildlife Fund Thailand (WFT) – particularly active in Thailand at that time (Forsyth, 2007, p. 2118 ff.) . WFT helped the villagers to understand the dams' socio-economic impacts, e. g. via organizing visits to communities resettled because of the Siriki and Bhumibol Dam (FAA24; FAA27; TNL10; TNL26). Yet WFT's primary concern was not the project's socio-economic impacts (the framing of the villagers) but its environmental impacts (TNL26); the project would flood teak forests that WFT wanted to protect (TNL26). When WFT arrived, villagers were cutting down teak trees to support their livelihoods (TNL26). The conservation framing was eventually adopted by the villagers (in addition to the still dominant framing on the dam's socio-economic impacts) with WFT claiming that no support could be gathered for villagers exploiting their forests (TLN26). "Convincing them took two years", WFT staff said (TNL26).

Yet the dam project was and is framed not only by the villagers and WFT, but also by the government and people downstream of the potential site. These view the project as a prime solution to flooding and drought issues downstream and are thus seen as key antagonists by the villagers (e. g. acknowledged by FAA31, FAA39 or FAA45).

Movement leadership, constituents and organization: The movement is largely organized by villages' anti-dam committee counting 140 members (FAA40) and it thus particularly resonates with the notion of 'environmentalism of the poor'. It is also amplified by networks to various NGOs (FAA41; TG5; FNL18). The committee is led by a chairman (elected by the committee) (FAA31), and a secretary administering the committee's funding (further

discussed at the end of this section) (FAA42). Each of the affected villages also has a specific movement chairman reporting to the overall chairman and the specific charimans appoint further sub-leaders at times (FAA42; FA44) which emphasizes the sophisticated organizational structure of the movement. The committee monitors governmental efforts regarding dam construction and adjusts its level of activitiy accordingly with rather low levels of protest activity since 2014, after the current military government indicated that the project would not be a priority (FAA44). The committee also takes majority decisions regarding which tactics to implement ("and everyone accepts these" (FAA44)) which are then passed down to the villagers via the described structure.

The tactics developed by the committee and implemented by the villagers (with 22 of 23 villagers asked reporting having taken part in them) evolved over time – partly as a response to the framing of the project by downstream communities and the government. "In the beginning, we had no system" (FAA24). As a result, the government did not take the resistance seriously (FAA24) and thus a different campaign approach was needed. Particularly the NGO Living River Siam Association was credited with having taught the villagers how to campaign since it introduced *Thai Baan* research (Käkönen & Hirsch, 2009, p. 346 ff.) which also includes the development of alternatives to the construction of the dam to the villages (FNL18). *Thai Baan* research helped the villagers to carry out factual conversations with those proposing the project; these factual arguments (particularly the various alternatives suggested) are apparently particularly sought by journalists writing about the project (TG5; FAA31). Assembly of the Poor (AoP) (Missingham, 2002) was also credited, particularly for inviting the villagers to various mass demonstrations in Bangkok and Chiang Mai (carried out by villagers from all over Thailand that feared dam-induced displacement and possible due to the country's relatively open POS) (FAA40). The demonstrations ensure that the protests against the project remains visible to key decision-makers

The current protest system comprises not only demonstrations and *Thai Baan* research, but also 24/7-monitoring of the potential site, spiritual activities such as puppet burning and collaborations with villages downstream. The 24/7-monitoring ensures that project proponents

cannot take the villagers by surprise with all villagers gathering at the dam site to defend it if dam proponents approach (FAA10). The puppet burning is usually targeting specific officials within Thailand's Royal Irrigation Department; "one official whose puppet we burnt even came to our villages and asked us to remove the curse" (FAA40). Lastly, an NGO-funded project in the late 1990s (with a follow up in the mid-2000s) brought together the 11 provinces on the Yom River to exchange views (FAA31; FAA40) and villagers argued that the support of downstream people for the dam would have lessened as a result of these exchanges (e. g. argued by FAA30).

The various protest activities constituting a "system of protest" (FAA61) are seen as the key reason by various interviewees (e. g. FAA11, FAA16) why the dam has not yet been constructed and my reading of the case also suggests that this system of protest is most decisive for this movement's success.

Financial resources: The various outreach protest activities described (e. g. travel to protests in Bangkok) are mostly financed via a dam opposition fund (FAA41). The fund with a volume of around 4,000 USD was set up and is maintained by the volunteer movement leaders (FAA40). Approximately 2,000 USD is gathered via a 'mandatory payment' (FAA40; FAA41) – with households asked to contribute 3 USD each whenever funding runs low (FAA38; FAA41). The remainder is collected via donations from villagers with donations averaging 3 USD per interviewee per year (FAAA32, FAA33). The average annual household in the villages was reported be at USD 718 (FAA40). If this estimate was correct, the entire fund volume would only amount to the combined income of six households in the villages (government data reviewed indicates that the annual income in the villages may be higher).

It is acknowledged that the involved NGOs also require some funding to support the movement, e. g. AoP for organizing protests of multiple villages in Bangkok, and staff of these NGOs is usually paid with the overall movement thus facing some self-administration costs. Relevant funding data of the various NGOs involved in the movement could not be obtained. It is assumed that the bulk of relevant movement funding is covered by the dam opposition fund, though, since villagers' travel costs to a protest are likely to be much higher than the

organization of it, for instance. Hence, the described sophisticated system of protest can likely be implemented without much funding.

5.6 DISCUSSION

The previous section presented two case studies of successful anti-dam campaigns which both particularly highlighted the importance of framing when analysing successful anti-da campaigns. Indeed, I contend that the framing of a dam project is the starting point for understanding an anti-dam movement (echoing the constructionist school within social movement studies). The instrumental role of framing for an anti-dam movement has already been highlighted by Moore (1998, p. 299 ff.), Hou (2000, p. 2 ff.) or Sneddon & Fox (2008, p. 637 ff.) and the emotional framing of the Myitsone Dam case as a project threatening Myanmar's national cultural heritage was identified as the main reason for the movement's success with most of the interviewees pointing out that this framing would have helped to unite an ethnically divided country (Kipgen, 2015, p. 19 ff.) against the project. While an alternative explanation for a movement's success (a sophisticated protest system) was suggested in the case of the Kaeng Suea Ten Dam, I argue that the contestation over framing regarding this project prepared the ground for the movement's eventual success.

Indeed, various tactics implemented by the movement against the Kaeng Suea Ten Dam (resulting in the sophisticated system of protest which has led to the suspension of the project for 36 years already) may be seen as a result of competing framings. Yong & Grundy-Warr (2012, p. 1045 ff.) also imply this proposition in their analysis of the Lower Mekong mainstream dam debates, finding that activists started engaging in scientific research on dams' impacts as a response to pro-hydropower advocates' narrative (this mechanism is also described by Chandra (2013, p. 55 ff.)). Similarly, I found that activists adopted more sophisticated strategies (e. g. conducting *Thai Baan* research and suggesting dam project alternatives) as a response to the government promoting the dam as a solution to flood and drought issues. No comparable activities were observed in the case of Myanmar's Myitsone Dam since activists did

not have to compete with a (domestic) pro-Myitsone-Dam narrative; the military junta would just not explain its stance or respond to any protests until project suspension, while 90% of the project's electricity would be exported to China, viewed by many as Myanmar's main antagonist (FNL3; Kiik, 2016, p. 375 ff.).

My case studies further suggest that a movement's framing broadens over time and that this broadening is vital for the movement's success. Tarrow (1998, p. 105) states that movements "must frame their demands in ways that will [many] attract followers", a statement shared by many constuctionists, as outlined in section 3. Various authors on social movements, e. g. Kilgore (1999, p. 194 ff.) or Kim (2011, p. 320 ff.), assume that the framing to appeal to a popular base is static. However, the framing of Myanmar's Myitsone Dam developed from a narrative of displacement and threat to the Kachin people and their culture to a narrative that addressed the entire country via a focus on the Irrawaddy River's cultural significance for Myanmar – leading many more to perceive a stake in the project due to this eventual framing beyond the local scale. Meanwhile, the movement's framing of Thailand's Kaeng Suea Ten Dam evolved from a narrative on displacement to one that also stressed the environmental implications of the project (echoing findings on environmental activism in Thailand by Forsyth (2007)).

The case studies further suggest that changes in the movement's constituents induce changes in framing and also impact its key tactics with the movement's constituents thus being key for a movement's success (echoing the structural school within social movement studies). Ganz (2004, pp. 178–179) noted that the failure to focus on movement leadership and constituents is a "serious shortcoming of social movement theory", a claim largely echoed by Morris (2004, p. 209 ff.). This alleged shortcoming has been addressed by scholars on anti-dam movements in recent years, e. g. Young (2008, p. 183 ff.). My case studies replicate these findings stressing that the national cultural framing of the Myitsone Dam campaign was consciously adopted since it was viewed to be the most "sticky message" (FNL20) with emotional appeal for a wide audience. Some of the activists joining the movement in Yangon had only returned to Myanmar from exile upon its opening up and leveraged their campaign

experience gathered abroad (including in Thailand); they understood that significant solidarity for the issue of those (to be) displaced could only be gathered if the framing of the movement was broadened (e. g. stated by FNL3, FNL20, FNL21). Meanwhile, the environmental framing of the Kaeng Suea Ten Dam campaign was also only introduced once it developed beyond 'environmentalism of the poor' with WFT joining in and linking their knowledge (claims) regarding framing to the movement. WFT was active in Thailand due to its relatively open POS at that time and the movement thus benefitted from these relatively open POS. Furthermore, NGOs introduced novel tactics to those villagers to be displaced by Thailand's Kaeng Suea Ten Dam – from demonstrations to *Thai Baan* research which also proved decisive for the movement's success (FAA40; FNL18). This finding echoes Islam & Islam (2016, p. 12 ff.) who also describe how novel (international) movement's constituents introduced novel tactics, e. g. a petition to the United Nations, to the movement against India's Tipaimukh Dam.

Lastly, I find that the amount of campaign funding is seemingly largely irrelevant for the success of an anti-dam movement which can control much of its costs (including self-administration costs) via volunteers. This was also found by Chandra (2013, p. 55 ff.) attempting to explain the "spectacular success" of India's Koel-Karo movement. Yet Moore (1998, p. 310) argued that the struggle of the Sierra Club against the United States' New Los Padres Dam was successful since it "spent the most of any oppositional group". My research suggests that even the sophisticated protest system developed by the villagers fearing displacement because of the Kaeng Suea Ten Dam was implementable with extremely limited (and only local) financial backing (with the entire fund volume only amounting to the combined income of six of the 1206 households in the relevant villages) thanks to many volunteers devoting their time to it. While an estimate on the overall budget of the movement against Myanmar's Myitsone Dam could not be created, the data collected suggests that it was minuscule – particularly when compared to the budgets of those advocating for the project (with the leading environmental NGO advocating against the dam only reporting an annual budget of up to USD 50,000 for outreach activities, compared to 800 million spent by the dam developer

(TNL17; Lwin, 2015). This may be a finding particularly encouraging for environmental NGOS that frequently struggle to secure significant funding for their work.

5.7 CONCLUSION

Anti-dam campaigns are omnipresent and may significantly impact project conduct, e. g. the consultation or resettlement schemes implemented, as already discussed by Hall (1994, p. 1805 ff.). Yet anti-dam movements resulting in project suspensions or cancellations remain rare empirically (TNI15). Hence, scholars have had only limited opportunities to study the strategies of such successful anti-dam movements. Indeed, I only identified two scholarly case studies, Chandra (2013) and Sneddon & Fox (2008), which discuss anti-dam movements in the developing world that led to project suspensions or cancellations.

This paper's objective was to explain how anti-dam movements can be successful. For this purpose, I have analysed two successful anti-dam movements in Southeast Asia, likely the most successful ones in recent years, achieving project suspensions for five and 36 years respectively. I found that the movement against the Myitsone Dam in Myanmar was largely successful due to the eventual framing adopted which described the project emotionally as a threat to the national cultural heritage of Myanmar and thus appealed to a wide popular base (with the political change in the country in 2010/2011 creating conducive conditions for the movement). Meanwhile, the movement against the Kaeng Suea Ten Dam in Thailand ensured its success via the sophisticated campaign strategy that developed at least partly as a response to the competing framings regarding the project (with those opposing it framing it as a threat to villagers' livelihoods and the environment and those advocating it framing it as a solution to flood and drought issues).

The case studies overall particularly highlight the importance of framing as well as movement constituents when studying anti-dam campaigns. Emotional framing that appeals beyond the local scale can explain why an anti-dam movement has been successful and competing framings can sophisticate tactics chosen by a movement and thus also ensure a

movement's success. Framing was found to be evolving in both cases studied with the gradual broadening of the framing driven by the respective movement's (changing) constituents that linked their knowledge and experience with the respective movements that both started out as 'environmentalism of the poor', but benefitted from developing beyond this notion.

The case studies suggest that thinking from both the constructionist as well as the structural school within social movement studies can be helpful analytical lenses in order to explain why an anti-dam movement has been successful. Yet both case studies presented are embedded in specific contexts (and particularly the context of the Myitsone Dam case study may be a peculiarity due to the sudden political change occurring in Myanmar in 2011) and thus caution is warranted regarding the external validity of any findings presented. A medium-N study on this topic may thus be a relevant next research step to generate a more context-independent perspective on successful anti-dam movements in the developing world.

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6 PAPER 4: "LEARNING IT THE HARD WAY": SOCIAL SAFEGUARD NORMS IN CHINESE-LED DAM PROJECTS IN MYANMAR, LAOS AND CAMBODIA[9]

Chinese dam developers claim to construct at least every second dam worldwide. However, scholarly literature comprehensively investigating the social safeguard norms in these projects is rare. This paper analyses social safeguard norms in Chinese-led dam projects in Myanmar, Laos and Cambodia, hotspots of Chineseled dam construction. We find that social safeguard norms adopted have significantly changed in the past 15 years. While Chinese dam developers claimed to adopt standards of the host countries upon the launch of China's Going Out Policy in 2001, with occasional adoption of more demanding Chinese standards, they did not adopt international norms. In recent years, however, they increasingly take into account international norms. We argue that the root cause for this change is social mobilization, with the suspension of the Myitsone Dam in 2011 as a particular game changer. Enhanced social safeguard legislation in host countries and China, stricter rules of Chinese funders and cooperation of Chinese dam developers with international players have also facilitated this change.

Keywords: Myanmar; Laos; Cambodia; Chinese dam developers; large dams; social safeguards

[9] Clarifications for this chapter, developed based upon the feedback on this chapter from the assessors during the viva, are provided in the appendix of this dissertation.

6.1 INTRODUCTION

Global dam construction is accelerating with global hydropower production projected to increase by 73% in the coming years (Zarfl et al., 2014). Many of these projects are apparently Chinese-led. For instance, Sinohydro, a Chinese state-owned enterprise (SOE), claims to construct every second dam globally (Verhoeven, 2015). Most Chinese-led dam projects are pursued in Asia and the Pacific (170 projects), followed by Africa and the Middle East (88 projects), Latin America (23 projects) and Europe (12 projects) (International Rivers, 2014).

China's Going Out Policy is considered to be the main initiator regarding the engagement of Chinese dam developers overseas (Urban et al. 2013; Matthews & Motta 2015; Nordensvard et al. 2015) with only 17 Chinese-led dam projects abroad completed prior to 2000, compared to at least 75 projects completed post 2000 (International Rivers, 2014). Issued in 2001 as part of China's 10th Five-Year-Plan (2001 to 2005), the policy is particularly aimed at the country's SOEs that had frequently outgrown the domestic market (Murphy 2008; Urban et al., 2013) which meant for Chinese state-owned dam developers that they had developed all potential sites on the rivers they were assigned to (TN1[10]). China's Going Out Policy also coincided with the unwillingness of international donors to fund dam projects from the late 1990s onwards, allegedly, because of anti-dam NGOs and their media power (Biswas, 2012b); Chinese dam developers keenly stepped in to fill this gap (TNI3; International Rivers 2012, p. 3).

Initially, Chinese dam developers' expansion focused on Southeast Asia (TP13), due to the massive untapped hydropower potential in many Southeast Asian countries (with 97 percent of Myanmar's technically exploitable 100 GW hydropower potential undeveloped, for instance (Ironside, 2015)) in combination with the lagging technical skills in these countries (OP3; McDonald et al. 2009). Such Chinese-led hydropower development was and is frequently part of a larger agreement. As a consequence of a dam project carried out, China also expects a

[10] This and similar codes refer to interviews. Details are provided in the methods sections.

strengthening of political ties with the recipient (on China as a water hegemon: Liebman (2005), Sinha (2012) or Biba (2014)) as well as economic ties (Mattlin & Nojonen, 2015). The most controversial economic tie may relate to electricity exports with hydropower developed abroad supposed to power the Chinese economy at times. A case in point is Myanmar's Myitsone Dam with 90 percent of the electricity generated supposed to be channelled to China in exchange for USD 17 billion (Linn, 2013).

Chinese-led dam projects are also controversial due to the developers' alleged failure to address negative impacts of dams with many articles within the popular press published on this topic in recent years (e. g. Oster (2007), Motey (2008)). Criticism regarding the implementation of Chinese-led dam projects is directed at the norms employed by Chinese players during these dam projects. We are particularly interested in social safeguard norms. The scholarly literature on this topic is burgeoning. This research seeks to build on this literature in two ways. First, we analyse multiple projects in Myanmar, Laos and Cambodia, viewing these country cases as aggregate parts of a regional case study on social safeguards in Chinese-led dam projects. Current research analyses adherence to social safeguards via a case study approach that either focuses on only one or two dam projects (e. g. Hensengerth (2012), Siciliano et al. (2015), Urban et al. (2015), Kirchherr et al. (2016)) or a single dam developer (e. g. Nordensvard et al. (2015)). Thus, our work adds further validity to these findings by addressing multiple projects and dam developers simultaneously. Second, our research particularly aims to reveal the mechanisms that led to the adoption (or non-adoption) of various safeguards in Chinese-led dam projects. Current research usually analyses which social safeguards were adhered to, but does not investigate why these specific safeguards were adopted (a rare exception is Scheumann & Hensengerth (2014a) which is further discussed in section 3 of this paper).

Throughout our paper, we distinguish between three sets of social safeguard norms – host country norms, Chinese norms and international norms (see section 3). We find that Chinese dam developers only adopted (limited) standards of the host countries upon the launch of China's Going Out Policy, sometimes complemented by more ambitious Chinese standards.

In recent years, however, international norms were employed more frequently. We argue that the root cause for this change is social mobilization, with the resulting 2011 Myitsone Dam suspension as a particular game changer. Additional pathways are enhanced social safeguard legislation in the host countries and China, stricter rules of Chinese funders and cooperation of Chinese dam developers with international players.

When we refer to Chinese dam developers, we do not intend to convey them as a single actor. Rather, we are aware that different players adopt different social safeguard norms. Hence, we attempt to differentiate as much as possible, while respecting demands regarding anonymity and still conveying overarching trends regarding social safeguard norms in Chinese-led dam projects in Myanmar, Laos and Cambodia. We focus our analyses on players constructing dams, not on those merely providing equipment.

The remainder of this paper is organized as follows. In section 2, we describe the methods adopted. In section 3, we outline the literature on norms as the theoretical framing for our paper. In section 4, we discuss which norms were adopted by Chinese dam developers from 2001 onwards. We attempt to explain identified changes in section 5 and our argument is summarized in section 6.

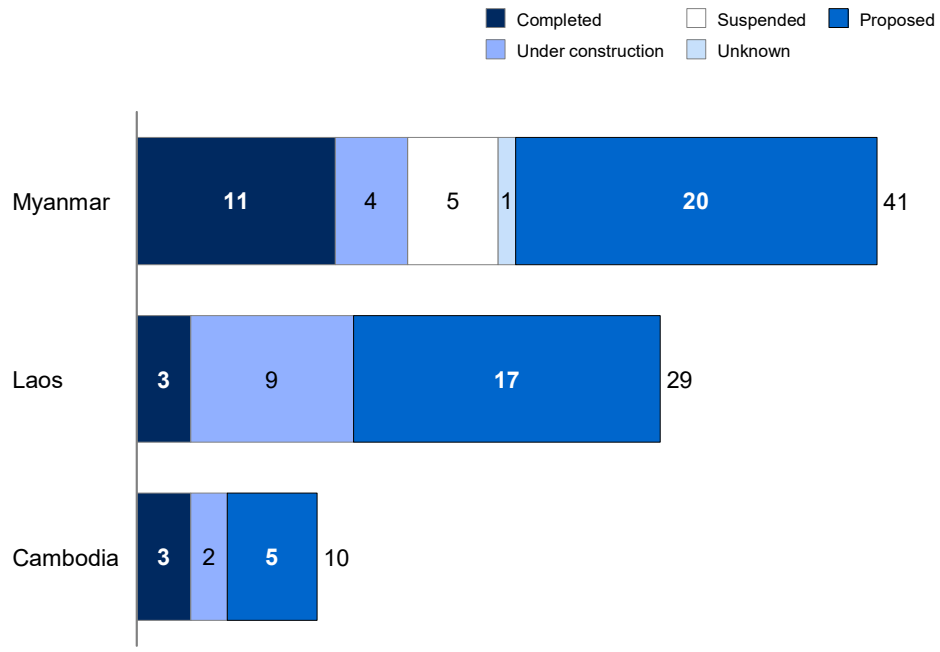
6.2 METHODS

Our aim for this study was to conduct a regional case study on social safeguards in Chinese-led dam projects and different country cases were envisaged to serve as aggregate parts of this regional case study. Our selection of country cases was guided by three criteria.

First, it was required that a significant number of Chinese-led dam projects were pursued in any country case included. This would ensure that there would be a sufficient number of relevant dam projects to study. Within Asia and the Pacific almost 50% of the

various Chinese-led projects are pursued in Myanmar, Laos and Cambodia which are thus particular hotspots of Chinese-led dam construction (Figure 14).[11]

FIGURE 14: CHINESE-LED DAM PROJECTS IN MYANMAR, LAOS AND CAMBODIA



SOURCE: International Rivers (2014)

Second, it was necessary that the authors of this paper were thoroughly familiar with any country case included. This would ensure that the research would be grounded in significant context knowledge of those conducting it which would contribute to the validity of findings (Basurto & Speer, 2012). Several authors of this paper have undertaken extensive fieldwork (oftentimes over multiple years) in Myanmar, Laos and/or Cambodia.

Third, we needed to study case countries and Chinese-led dam projects that had already been analyzed by previous academic studies concerned with social safeguards. This would ensure that results from our primary data collection could be triangulated which would further enhance the validity of our findings and contribute to the cumulative development of knowledge

[11] Data for these analyses is from . Projects pursued can be projects completed, suspended, proposed, or under construction as well as those with an unknown status.

on this timely topic. Our review of the scholarly literature indicated that multiple relevant academic studies had already been undertaken on Chinese-led dam projects in Myanmar, Laos and Cambodia, e. g. Lamb & Dao (2015), Sayatham & Suhardiman (2015) and Urban et al. (2015).

Findings outlined in this paper regarding these three country cases are based on semi-structured interviews, scholarly writings on Chinese engagement overseas (with a particular focus on Chinese dam developers) as well as relevant news articles and reports.

Semi-structured interviews were carried out in the field (Myanmar, Thailand, China and Singapore) from June to August 2015 and from February to April 2016; furthermore, telephone interviews (which include Skype interviews) were undertaken from April and August 2015 and from February to April 2016. Selected online surveys were also carried out during the telephone interviewing phase. All interviews are part of a larger research project investigating the politics of dam construction in Southeast Asia. More than 150 semi-structured interviews have been carried out for this research project to date; 47 of these interviews specifically addressed questions relevant for this paper (table 8). These interviews are interviews with scholars (4 interviews), international donors (5 interviews), NGOs (17 interviews) and private sector players (21 interviews) (table 8). All interviews are coded with the first letter indicating the mode of interviews (T for telephone/Skype, F for face-to-face, O for online survey/e-mail), the second letter indicating the type (A for academia, G for government, I for international donor, NI for international NGO, NL for local NGO, P for private sector) and the sequence of numbers indicating the overall interview number within a type.

TABLE 8: OVERVIEW OF INTERVIEWS

#	Interviewee	Organization	Code
1	Scholar	British university	TA1
2	Scholar	British university	TA2
3	Scholar	Chinese university	TA3
4	Scholar	Thai university	TA4
5	Staff	International donor	TI3

6	Staff	International donor	TI5
7	SIA consultant	Freelancer, mostly working for Asian Development Bank (ADB)	TI6
8	Senior official	World Bank	TI7
9	Senior official	World Bank	TI9
10	Senior staff	International NGO	TNI1
11	Staff	International NGO	TNI2
12	Senior staff	International NGO	TNI3
13	Senior staff	International NGO	TNI4
14	Consultant	Involved in various Chinese-led dam projects, mostly in Southeast Asia	TNI5
15	Senior leader	International NGO	TNI6
16	Senior staff	International NGO	TNI7
17	Activist	Norwegian environmental NGO	TNI8
18	Activist	Major international NGO	TNI15
19	Staff	Major international NGO	TNI16
20	Environmental activist	Southeast Asian NGO	TNL1
21	Activist	Burmese NGO	FNL3
22	Activist	Involved in various anti-dam movements in Myanmar, especially the Myitsone Dam	FNL4
23	Activist	Burmese NGO	TNL5
24	Activist	Involved in anti-Myitsone Dam protests	FNL6
25	Activist	Asian NGO	FNL7
26	Director	NGO in Myanmar	FNL14
27	Independent consultant	Served Sinohydro as a SIA consultant	TP1
28	Staff	Global dam association	TP2
29	Former employee	Chinese dam developer	OP3
30	President	Dam industry association	TP4
31	Consultant	Global dam association	TP5
32	Senior staff	European dam developer	TP6
33	Representative	Global dam association	TP7
34	Senior staff	European dam developer	TP8
35	Former employee	Major hydro player	TP9

36	Senior staff	Major Chinese dam developer	OP10
37	Lawyer, serving CEB in financing various Southeast Asian dam projects	Major global law firm	FP12
38	Managing partner	Consultancy specialized in hydropower and water resources projects	TP13
39	Environmental lawyer	Freelancer	FP16
40	Managing partner	Major global strategy consulting firm	TP17
41	Senior engineer	European dam developer, involved in various dam projects in Southeast Asia	TP20
42	Spokesperson	Chinese dam developer	TP21
43	Managing director	Large consultancy carrying out ESIAs	FP23
44	Former employee	Chinese dam developer	TP24
45	Managing director	Investment firm in Myanmar	TP25
46	Managing director	Major Burmese dam developer	TP26
47	Environmental specialist	Canadian dam developer	OP27

Snowball sampling was employed to recruit interviewees. This approach is frequently necessary when conducting research under less than optimal conditions (N. Cohen & Arieli, 2011). More formal sampling approaches were tried initially, but envisaged interviewees would not respond to any reach-outs. For instance, an initial e-mail reach-out to approximately a dozen Chinese dam developers yielded zero replies. A survey then initiated and sent out to more than 1,500 dam developers via Aqua~Media (the host of a major global dam developer conference) yielded 5 answers, one of which was complete. The seeds of the eventual snowball sample were mostly recruited via the professional networks of the authors, developed prior to this research, a common approach utilized in snowball sampling (R. L. Miller & Brewer, 2003). The sample was terminated when additional interviews yielded limited or no novel insights (thematic saturation) (O'Reilly & Parker, 2012). The data collected was organized via NVivo 11 with all interviews coded according to a set of predefined themes, e. g. "reasons for social safeguards adoption". The resulting clusters were then reviewed and analysed by the authors. Coding on additional sub-themes was conducted, if appropriate.

We note that many of our interviews were more of a "casual, comfortable conversation" (Berry, 2002), loosely structured, and with many open-ended questions; they were not the systematic execution of a questionnaire. Indeed, we believe – echoing Berry (2002) – that this conversational approach helped us build trust with interviewees and thus gain additional insights. We acknowledge that this approach can limit the comparability of the various interviews conducted (e. g. evident in Figure 15 with the status quo question posed in 30 interviews and the outlook question only posed in 21 interviews). Yet comparability (and even more representativeness) are not prime purposes of this research. Rather, we aim to provide an in-depth understanding, a common aim within qualitative research (Wilmot, 2005), regarding the Chinese-led dam industry in Myanmar, Laos and Cambodia through the eyes of those studied. The narrative outlined in this paper largely reflects the narrative of the players in the sector. While Berry (2002, p. 680) has noted regarding elite interviewing that "it is not the obligation of a subject to be objective and tell us the truth", we remain confident regarding our overall findings because the narrative is remarkably consistent across various stakeholders with differering interests (e. g. dam developers, international donors and NGOs).

The initial narrative from the semi-structured interviews was triangulated via a systematic review of the scholarly literature on Chinese engagement overseas (with a particular focus on Chinese dam developers), as outlined in the first paragraph of this section. For this purpose, we carried out keyword searches in several databases such as Thomson Reuters' Web of Science or Elsevier's Scopus. Searches included any scholarly journal articles, grey literature, book chapters and books that featured relevant keywords, e. g. 'Chinese dam developers' or 'social safeguards'. Furthermore, an advanced Google News Archive search was conducted for this paper (using multiple keywords such as 'Chinese dam developers' or 'social safeguards'). No limit was set for the time period, with the search yielding several hundred results. These results also pointed us towards various relevant reports, e. g. International Rivers (2015), which further helped to refine the narrative that emerged from the interviews.

6.3 THEORETICAL FRAMING

Social safeguards are defined as the policies in place to ensure that project-affected people are consulted about the project throughout the life of the project, from conception through to operation and removal, and that these people benefit from the project (World Bank, 2016). This definition of social safeguards is underpinned by notions of social justice[12] which scholars such as Boström (2012, p.5 ff.) and Nordensvard et al. (2015, p. 247 ff.) have conceptualized as entailing both a procedural and a distributive component. The procedural component of social justice relates to the consultation of those affected by a project, the distributive component to sharing the benefits of the project with those affected by it.

Discussions on distributive social justice are frequently embedded in a broader discourse on equitable development. While large dams provide multiple benefits such as electricity, irrigation or flood control at scale and thus can accelerate a country's overall economic growth (Biswas, 2012a; Tortajada, 2015), those displaced by a dam have been found to be mostly worse off upon displacement (Scudder, 2012) and scholars such as Moore (1998) and McCully (2001) have accused large dams of contributing only to unequitable development (with McCully (2001, p. 24 ff.) even claiming that large dams would not benefit a country's overall economic development, but only its elites). Community-based energy initiatives (including small dams) are often proposed as an equitable alternative to large dams (Ansar et al., 2014; Bauwens, 2016), whereas even most scholarly proponents of large dams, e. g. Biswas (2012a) or Tortajada (2015), acknowledge the "importance of ensuring that project-affected people are better off as a result of dam development" (WCD, 2000, p. 24).

Throughout this paper, we consider the category of norms to include shared ideas, expectations and beliefs about what constitutes procedural and distributive social justice in a

[12] Various definitions of environmental safeguards are frequently underpinned by notions of ecocentrism (Gagnon Thompson & Barton, 1994; Kopnina, 2016; Kortenkamp & Moore, 2001). Since environmental safeguards are not the focus of this paper, this underpinning is not further discussed, though.

large dam project with regard to project-affected people (on norms: Finnemore & Sikkink (1998), Moore (2012)). Norms evolve into a codified standard if consensus is sufficient among the stakeholders at question (Gilardi, 2012); with respect to the social safeguards for hydropower this can involve legal codification at a national level, and also involves codification in international law pertaining to indigenous populations, transboundary waters, or cultural heritage. However, norms should not be viewed as "immutable structures" (Park & Vetterlein, 2010), as they remain fluid even if consensus is reached. Codification is only an intermediate step in a continuous norm evolution process.

Chinese dam developers are influenced by three types of norms, according to our conceptualization: First, host country norms, which are the norms of the country the dam developers are operating in (codified by the host country government). This type of norm overlaps with laws since there is a legal obligation for dam developers to comply with them. Laotian social safeguard regulations would be an example of such host country norms. Second, the norms of the country the dam developer originated in, in our case China (codified by Chinese decision-makers). These norms are usually not legally enforceable for activities outside the originating country (with several exceptions such as international tax evasion, for instance). An example for such norms would be principles on foreign investment published by China's State Council. Third, global norms such as the Hydropower Sustainability Assessment Protocol (HSAP) (codified by international organizations, in this case the International Hydropower Association (IHA)). These international norms are usually non-binding from a legal perspective with dam developers voluntarily adopting them.

We view the various international norms as the most demanding ones among these three sets of norms from the perspective of the dam developer, with the norms outlined by the World Commission of Dams (WCD, 2000) "regarded as the gold standard for dam building" (International Rivers, 2016b). These are followed by Chinese norms in our point of view, with International Rivers (2012, p. 25) finding that China has relatively strong laws governing resettlement, for instance. Host country norms in Myanmar, Laos and Cambodia are least demanding, we find. Indeed, requirements to conduct an Environmental and Social Impact

Assessment (ESIA) were only introduced in Myanmar in January 2016 (Thant, 2016). Yet these requirements largely neglect social impacts (FP23) and the government lacks enforcement capabilities to implement them (FP16). Laos has had various social safeguard policies in place since the mid-1990s (ADB, 2010), though these are "too broad and complex for the available resources" (ADB, 2010) and are thus allegedly frequently not complied with. Cambodia passed a set of environmental and social safeguards in 2010 (MPWT, 2010), yet it has been questioned if (Chinese) dam developers comply with these since the Cambodian government's enforcement capabilities are also limited (Hensengerth, 2015). A typical procedural and distributive operationalization of these three types of norms, adapted from Kirchherr et al. (2016, p. 38), is provided in Table 9. We argue that a project would come closer to achieving procedural and/or distributive social justice if international safeguard norms, as operationalized in this table, are mostly implemented.

While NGOs generally call upon dam developers to adopt international social safeguard norms, we note that even these norms remain controversial. For instance, the HSAP is an international social safeguard norm developed by the dam industry as well as various NGOs (such as WWF, Transparency International) (HSAP, 2015). Yet International Rivers (2013) calls it an "industry effort […] to greenwash dams and undermine the recommendations of the World Commission of Dams (WCD)". An (also contested) alternative to both the HSAP and the WCD recommendations are the guidelines by the International Finance Corporation (IFC, 2016), a member of the World Bank Group; these norms were criticized (inter alia) because they would not (unlike WCD and HSAP norms) "apply specifically to hydro dams" (Scudder, 2005a) and thus neglect the various impacts specific to this infrastructure (Kirchherr & Charles, 2016).

We apply the proposed analytical framework on the three different types of norms that we have summarized in table 9 in section 4 of this paper in order to map social safeguards norm adoption in Chinese-led dam projects over time.

TABLE 9: TYPES OF NORMS ADOPTED IN DAM PROJECTS

Norm	Example policy	Requirements for dam developer	Typical operationalization
Host country	Laos Power Sector Environmental Policy Myanmar Environmental Impact Assessment Procedure (EIAP)	Limited (in Myanmar, Laos and Cambodia)	*Procedural:* No or only extremely limited project information is provided to project-affected communities *Distributive:* No compensation is given to project-affected communities
Chinese	Regulations on Further Regulating the Development of Contracting Foreign Projects Guidelines for Environmental Protection in Foreign Investment and Cooperation	Intermediate	*Procedural:* Project information is provided to project-affected communities, feedback is collected and (at least partially) incorporated *Distributive:* Some compensation is given to project-affected communities
Inter-national	Hydropower Sustainability Assessment Protocol (HSAP) World Commission of Dams (WCD) recommendations	Significant	*Procedural:* Project information is provided to project-affected communities, feedback is collected and incorporated to the maximum extent in a collaborative process *Distributive:* Significant compensation is given to project-affected communities and these communities are better off as a result of the dam development

The motivations for norm adoption by Chinese dam developers may be rational cost-benefit-calculations (with the adoption of certain norms eventually less costly than their non-adoption) or internalization (with those adopting them genuinely 'believing' in them) (Risse & Ropp, 2013) with Risse & Ropp (2013, p. 13) arguing that "the cost-benefit calculations of utility-maximizing egoistic actors [adopting international norms due to] market pressures eventually lead to the incorporation of [these] norms". This deterministic argument suggests that Chinese dam developers would eventually internalize any demanding international norm adopted.

Scheumann & Hensengerth (2014a) (in their recent book *Evolution of Dam Policies)* suggest three pathways that explain initial international norm adoption which are based on a comprehensive review of the relevant literature (with a particular focus on Risse & Sikkink (1999)).

First, norms may be adopted due to a reputational pathway, i. e. because of a country's or company's effort to become a respected international player. This pathway is also suggested by Risse & Sikkink (1999) who argue that those 'shamed' for their non-adherence to international norms – as a result of this shaming – start adhering to them. We note that this explanation is closely intertwined with and possibly induces legal drivers, i. e. certain norms are complied with because it is the law of the host country (with governments passing and enforcing certain laws in order not to be 'shamed', or companies avoiding the negative publicity of a law suit).

Second, norms may be adopted due to social mobilization, i. e. a thriving civil society in a country leads to the TNC's adoption of international social safeguards norms. This hypothesis also draws on Risse & Sikkink (1999) who particularly highlight the significance of activists, both domestic and international, that highlight violations of norms to the international community; their pressuring then eventually leads to the adoption of international norms. Deitelhoff & Wolf (2013) specifically discuss the relevance of social mobilization for international norm adoption in the private sector.

Third, norms may change due to reliance on foreign financial services, i. e. institutions such as the World Bank only provide funding for a dam project if international social safeguard norms are adhered to. This third hypotheses relates most to the literature on conditionality as a pathway for norm adoption (Mattlin & Nojonen, 2015; Risse & Ropp, 2013; Gilardi, 2012).

A prerequisite for the adoption of norms are the capacities of those expected to adopt them (Risse & Sikkink, 2013, p.276 ff.). "What if [TNCs] do not have sufficient capacity to enforce [the safeguards] to which they have committed?", Börzel & Risse (2013, p.74) ask. Even if these actors were motivated to adopt certain norms, these norms may be violated due to lacking capacities; particularly companies with limited experience overseas (such as Chinese dam developers in the early 2000s) may be lacking the capacities to implement international norms.

We apply the discussion on motivations for norm adoption in the beginning of section 5 of this paper. We then utilize the three pathways suggested by Scheumann & Hensengerth

(2014a) as an initial structure for our analyis on pathways explaining norm adoption. We close section 5 with a discussion on cooperation with international players – a pathway that emerged from our data – and capacities.

6.4 NORMS IN CHINESE-LED DAM PROJECTS OVERSEAS: 2001 AND BEYOND

This section is structured in three sub-sections. First, we focus on *host country social safeguard norms,* arguing that Chinese dam developers mostly claimed to adopt these norms upon the launch of China's Going Out Policy in 2001. Second, we discuss *Chinese social safeguard norms,* outlining that more demanding Chinese norms were adopted at times as well in Chinese-led dam projects in the early 2000s. Third, we investigate *international social safeguard norms,* providing evidence that these norms were adopted more recently by Chinese dam developers. We also offer a brief outlook on the future direction of norm adoption by Chinese dam developers in this final sub-section.

Host country social safeguard norms: The Chinese-led projects implemented in Myanmar, Laos and Cambodia upon the launch of China's Going Out Policy in 2001 largely claimed to adopt the social safeguard norms of the host country, according to our interviews (e. g. TNL1, TP13, TP21). This was seen as a reflection of "China's promise of 'non-interference in domestic affairs'" (McDonald et al., 2009), a principle criticized by many Western players with international donors such as the World Bank usually tying their loans to a set of policies to be implemented by the recipient country, e. g. anti-corruption measures, in order to, allegedly, further accelerate the recipient country's development (Nega & Schneider, 2011).

Yet the Chinese dam developers' emphasis of host country social safeguard norms could imply that no norms whatsoever were adopted since no codified social safeguards policies were in place in Myanmar and Cambodia in the early 2000s, as outlined in the previous section. An example of a Chinese-led dam project commenced in the early 2000s that was particularly criticized for its lacking social safeguards (with farmers resettled allegedly resettled to non-

arable land, a major violation of distributional social justice) is Myanmar's Paunglaung Dam whose construction started in 2004 (International Rivers, 2014; Lone, 2013).

Social safeguard policies were in place in Laos in the early 2000s, but it is contested that these were (and are) adhered to by Chinese players. A Chinese-led project whose construction started in 2001 "without public consultation or participatory planning" (Sayatham & Suhardiman, 2015) (and thus lacking procedural social justice) is the Nam Mang 3 Dam. A more current case in point are the seven dam projects pursued by Sinohydro on the Nam Ou River since 2011; these are particularly criticised for the limited information provided about them (Mang, 2016) and are allegedly built with very little oversight from the Lao government (with the government not even having the financial resources to visit the site at times) (TP13). These projects thus also reportedly lack procedural social justice.

Chinese social safeguard norms: While the adoption of host country norms may have been emphasized in early Chinese-led dam projects abroad, our interviewees also suggested that Chinese norms may have impacted Chinese-led dam projects in Myanmar, Laos and Cambodia at times (e. g. TP9, TP21, TA1). Initially this was through translation of established working practices: "When Sinohydro came to Laos, they thought Laos is a smaller version of China", a European dam developer advising Sinohydro noted (TP8). "You are much more familiar with your home country standards. So you will try to use them [abroad]", a Chinese dam developer explained (TP21). The adoption of Chinese standards could even imply that developers implemented various costly yet non-compulsory safeguard measures reflecting an operationalization of social justice more demanding than those of the host country. For instance, compensation was (and is) paid by China Power Investment Corporation (CPI) in the case of the Myitsone Dam resettlement, although such compensation was not required according to Burmese legislation at that time (no consultation was conducted, though, and communities were displaced to non-arable land) (Kirchherr et al. 2016). We note that various relevant pieces of safeguards legislation were introduced by Chinese authorities in recent years (table 10). While their adoption is voluntary, as outlined in the previous section, Mang (2013) from International Rivers still calls them "a signal to overseas dam builders […] to act responsibly".

TABLE 10: KEY CHINESE SOCIAL SAFEGUARDS LEGISLATION (RELEVANT FOR CHINESE DAM DEVELOPERS OVERSEAS)

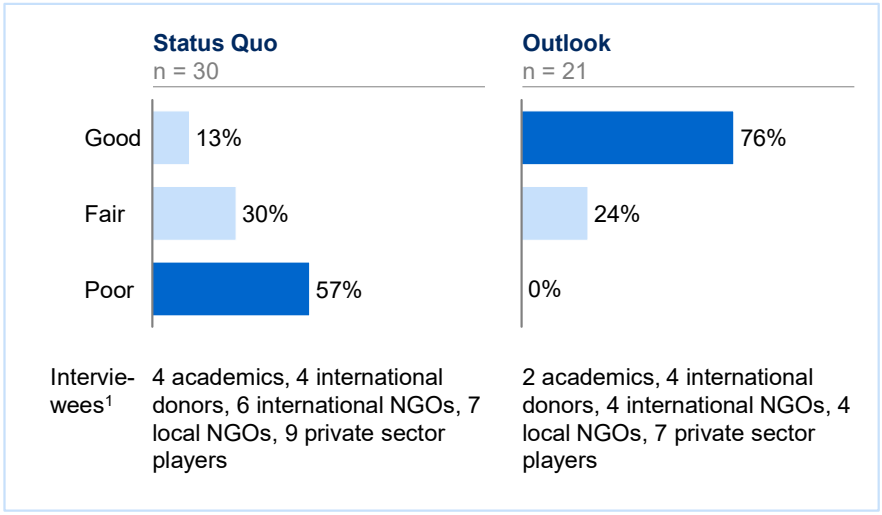
Year	Legislation	Details
2004	China Exim Environmental Policy	Three-paragraph-policy on China Exim Bank's environmental policy guidelines Publicly released only in April 2007
2006	9 Principles on Encouraging and Standardizing Foreign Investment	Called upon Chinese companies abroad to adopt host country laws and regulations Also asked Chinese companies to care for local communities and their livelihoods Largely based on norms already in place for projects in China
2007	Regulations on Further Regulating the Development of Contracting Foreign Projects	Detailing the '9 Principles on Encouraging and Standardizing Foreign Investment' Applicable also for banks, e. g. China Exim Bank (CEB)
2008	China Exim Bank's 'Environmental Guidelines'	Significant expansion of the 2004 three-paragraph policy by China Exim Bank on environmental policy guidelines Requires any firm funded by a CEB loan to conduct an EIA for the project at question and to compensate project-affected communities for any environmental damage induced by the CEB-funded project
2009	Initial Draft on 'Environmental Guidelines for Overseas Investment'	Developed by Chinese Academy for Environmental Planning (CAEP) (lead author) Eventually passed as 'Guidelines for Environmental Protection in Foreign Investment'
2013	Guidelines for Environmental Protection in Foreign Investment	Include not only guidelines regarding environmental protection, but also numerous provisions on social safeguard norms For instance, companies are encouraged to establish a communication channel with local communities on social issues

Sources: State Council (2007); Herbertson (2011); International Rivers (2012); Mekong Watch (2015); MOFCOM (2015)

International social safeguard norms: Chinese dam developers nowadays claim to adhere to various international social safeguard norms with China Three Gorges Corporation (CTGC) and Sinohydro both publicly committing not to build any projects without an ESIA, for instance (Bosshard, 2016), a commitment to procedural social justice. A Chinese developer in Myanmar said that safeguards by the World Bank would be "our reference" (TP21). Yet our

interviewees' overall judgement regarding international social safeguards adherence in Chinese-led dam projects nowadays is ambiguous (Figure 15). NGOs – the key watchdogs of dam developers – were the most critical regarding current project performance. Of the 13 NGOs responding to this question, over 75 percent believed current project performance was poor from a social safeguards perspective. The ambiguity we found in our interviews is also reflected in two recent rankings, compiled by International Rivers (2015a) (Figure 16) (with the results of these rankings reported to be even used in tenders by Sinohydro nowadays (TNI15)) (Figure 16).

FIGURE 15: SOCIAL SAFEGUARDS STATUS QUO AND OUTLOOK IN CHINESE-LED DAM PROJECTS IN MYANMAR, LAOS AND CAMBODIA



1 Interviewees responding to this question

SOURCE: Authors' analysis

Overall, our interviewees believed that international norms may soon prevail in projects implemented by Chinese dam developers, though (Figure 15). "The Chinese have now understood that it is not sufficient if there is a stamp on all of your papers and all permits are approved", an NGO leader collaborating with a major Chinese dam developer said (TNI3). "It is now widely accepted [by Chinese dam developers] that affected people are the first

beneficiaries", a representative from a global dam association said when asked about distributional justice in Chinese-led dam projects (TP2).

FIGURE 16: POLICY COMMITMENTS AND PROJECT PERFORMANCE OF CHINESE DAM DEVELOPERS

Good Fair Poor

Rankings of Policy Commitments Assessment of Chinese Overseas Hydropower Companies

Rankings	Company Name	Environmental Management Scores	Community & Labor Relation Scores	Risk Management Scores	Overall Scores
1	Sinohydro International	Good	Good	Good	Good
2	Gezhouba	Good	Fair	Good	Good
3	Datang	Fair	Good	Good	Good
4	PowerChina	Fair	Fair	Fair	Fair
5	Three Gorges	Fair	Fair	Poor	Fair
6	Huadian	Fair	Poor	Fair	Poor
7	Huaneng	Fair	Poor	Fair	Poor

Rankings of Project Performance Assessment of Chinese Overseas Hydropower Companies

Rankings	Company Name	Environmental Management Scores	Community & Labor Relation Scores	Risk Management Scores	Overall Scores
1	Sinohydro International	Good	Fair	Fair	Good
2	Gezhouba	Good	Fair	Fair	Good
3	Three Gorges	Good	Poor	Fair	Fair
4	Huadian	Fair	Fair	Fair	Fair
5	PowerChina Resources	Poor	Poor	Poor	Poor
6	Huaneng	Poor	Poor	Poor	Poor
7	Datang	Poor	Poor	Poor	Poor

SOURCE: International Rivers (2015)

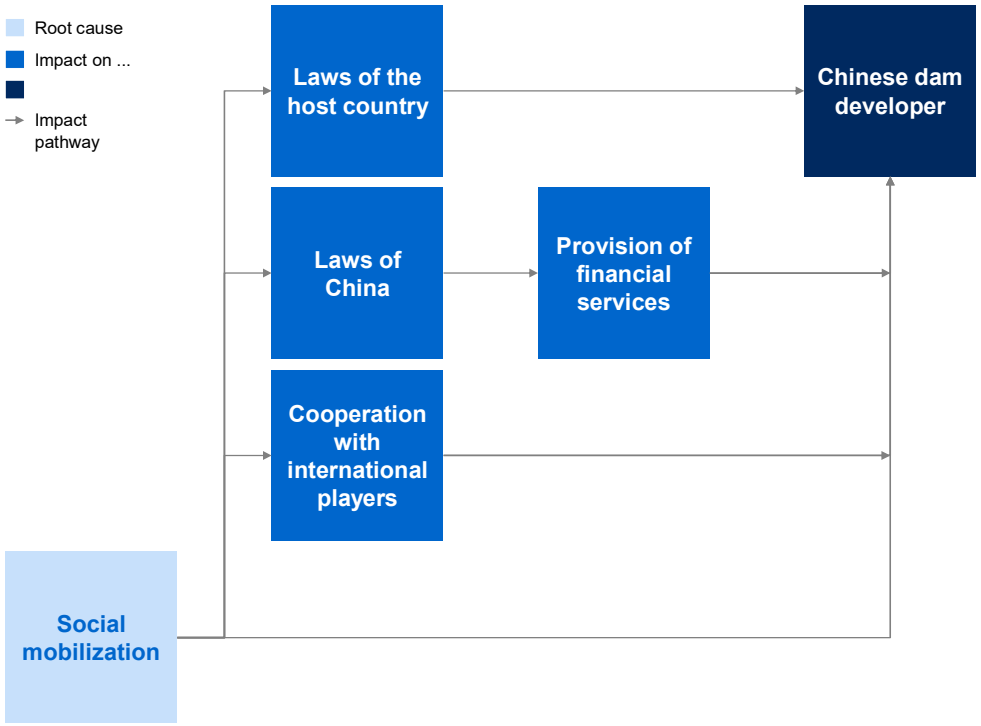
We note that the prevalence of international norms in Chinese-led dam projects may not silence critics, as already indicated in the previous section, since the various international norms remain contested. For instance, the Theun Hinboun Dam project in Laos led by Statkraft, a Nordic player, was called a benchmark for social safeguard norms (TNI8). Yet both procedural and distributional social safeguards deficiencies regarding Theun Hinboun were portrayed (inter alia) by Whitington (2012) and Virtanen (2006). A dam project in Laos that, according to its funders, the World Bank and the Asian Development Bank, is a best practice dam from a social safeguards perspective is the Nam Theun 2 Dam (Porter & Shivakumar, 2010). However, Baird et al. (2015, p.1101) find regarding Nam Theun 2's downstream impacts that "the situation is much less positive than has been portrayed", raising questions about distributional justice. These questions are largely echoed by Guttal & Shoemaker (2004). A consensus on international

social safeguards and thus the constituents of procedural and distributional social justice in large dam projects may need to be reached among NGOs and industry before any dam project will be uncontested.

6.5 PATHWAYS OF NORM ADOPTION IN CHINESE-LED DAM PROJECTS OVERSEAS

This section is structured in five sub-sections. First, we analyze *motivations for norm adoption,* arguing that Chinese dam developers are led mostly by rational cost-benefit calculations. Second, we outline *social mobilization* as a direct pathway and root cause for international norm adoption, showcasing how the suspension of Myanmar's Myitsone Dam was a particular game changer for Chinese dam developers. Third, we outline *laws of the host country and China* as an indirect pathway which functions particularly due to China's interest to safeguard its reputation abroad. Fourth, we discuss *provision of financial services* as an indirect pathway which is also largely enforced by Chinese legislation. We close this section with a discussion of the indirect pathway of *cooperation with international players and capacity,* arguing that Chinese dam developers commenced cooperation with international consultancies and NGOs to address capacity issues regarding international social safeguards. A conceptual visualization of the described pathways of norm adoption is provided in Figure 17.

FIGURE 17: PATHWAYS OF NORM ADOPTION IN CHINESE-LED DAM PROJECTS OVERSEAS



Motivations for norm adoption: The majority of interviewees believed that reported improvements in social safeguard policies are induced by rational cost-benefit-calculations of the Chinese dam developer – with the adoption of various international social safeguards ultimately less costly than their non-adoption (e. g. argued by TI5, TNI6, FNL4, TA4).13 Social impacts "are just problems to get around", an NGO leader said (TNI6), for instance. Meanwhile, a scholar argued that some Chinese-led high-profile projects would be acceptable from a social safeguards perspective. However, these would not be representative for all projects, particularly the smaller ones with little international coverage and campaigning of international NGOs

13 We note that it was also argued in our interviews that Chinese dam developers would have internalized international norms. For instance, staff from an international NGO stated (TNI3): "I was at a Sinohydro dam construction site. And a truck by one of the local communities close by was stuck. Sinohydro then took their crane to free the truck. And they did not charge anyone anything for this. They thought helping out would be natural. After all, they were just guests in this country". Such a viewpoint (focussing on 'caring' for impacted communities which may be seen as one operationalization of international safeguards norms) was not the prevailing viewpoint in our interviews, though, and is thus not further detailed in this paper.

(TA4), e. g. projects developed in Laos' Sekong River Basin, a Mekong tributary (International Rivers, 2014). Chinese dam developers allegedly believed they could get away with limited social safeguards in these projects.

Social mobilization: The example of Laos' Sekong River Basin already suggests that social mobilization was seen as the root cause altering Chinese dam developers' cost-benefit-calculations regarding the adopting of international social safeguard norms. "Chinese dam developers are very, very sensitive to public pressure", an investor said (TP25) (also echoed by TNL1 or TI5). A Chinese dam developer acknowledged that "[protests can] lead to project suspensions [and thus additional costs]. To carry on, we have sometimes had to radically change our project management approach" (OP3). This finding on the significance of social mobilization as a determinant for norm adoption particularly echoes Risse & Sikkink (1999), as outlined in section 3, and also resonates with Deitelhoff & Wolf (2013) who specifically discussed social mobilization as a root cause for norm adoption in the private sector. We note that Scheumann & Hensengerth (2014) did not conceptualize social mobilization as the root cause of international norm adoption in the dam industry, but only as one of three equal international norm adoption pathways – a conceptualization nuanced by our interviews.

A SIA consultant noted that protests against Chinese-led dam projects particularly culminated from 2008 onwards with various complaints then filed by international NGOs against Chinese-led dam projects (TI6). For instance, Laos' Nam-Lik 1-2 Dam (with construction starting in 2007) was criticized regarding its compensation scheme with (inter alia) the infrastructure provided to resettlees allegedly being substandard (Saokhamkeo et al., 2016). A second project also criticized for its limited social safeguards is Cambodia's Kamchay Dam (whose construction started in 2008) (Hensengerth, 2015; Siciliano et al., 2015). A third controversial project that allegedly was influential in changing the norms adopted in Chinese-led dam projects was Myanmar's Myitsone Dam (e. g. stated by TP25, TNL1, OP3 or TA4). The project was suspended in 2011 due to massive public protests (Linn, 2013; Lynn, 2011). "This suspension was a really painful punch in the stomach", a Hydropower Sustainability

Assessment Forum (HSAF) participant said (TNI3). “Chinese SOEs learnt a great deal out of the Myitsone project”, a former employee of a Chinese dam developer stated (TP24).

While it was generally believed that governments in Myanmar, Laos and Cambodia would not halt a Chinese-led dam project, this perception changed upon the suspension of the Myitsone Dam with Chinese dam developers suddenly considering the halting of a project to be a credible worst-case scenario in Myanmar, Laos and Cambodia (e. g. stated by TI6, TI7, TNL1). CPI had spent over 800 million (according to its own calculations) on the Myitsone Dam prior to its suspension (Lwin, 2015) – investments irreversibly lost if the project is not resumed (asssuming the Burmese government would not pay compensation to CPI once the project was permanently cancelled). If the Myitsone Dam project had adhered to international safeguards (particularly the consultation of project-affected people and civil society), this would have minimized protests and possibly avoided the suspension and thus financial loss, relevant private sector players believed (e. g. OP3, TP21, TP24). Indeed, CPI has now launched a civil society consultation regarding the project in order to resume it, a stark contrast with the lack of consultation prior to the suspension (Ikners, 2016).

The Myitsone Dam suspension and its alleged drivers (with lacking safeguards frequently mentioned as a key driver) were widely discussed in the press in Southeast Asia and beyond and the project was thus particularly seen as a warning sign by Chinese dam developers (TP24; OP3; Motlagh 2012; Harvey 2011; Kiik 2016). “If you oversee a project like the Myitsone Dam and it blows up, then your career is basically over”, an investor in Myanmar said (TP25), since pressure to deliver projects on budget and on time is tremendous within increasingly commercial Chinese dam developers (Reuters, 2014). “Learning it the hard way – that really describes the experience of Chinese hydro-players going abroad”, an HSAF participant summarized (TNI3).

We also found evidence via our interviews that selected intra-organizational dynamics within Chinese dam developers adversely impact improvements regarding social safeguard policies, though. For instance, salaries within Sinohydro are usually directly tied to the achievement of certain project milestones which may lead to prioritizing rapid project progress

over sustainable implemention (TP8). This allegedly is a common practice among all industry players (TP25). Furthermore, a European dam developer claimed that the project budget for social safeguard policies in his firm is always fixed prior to the project start (TP8). By contrast, at a firm such as Sinohydro the project manager would decide upon the budget for social safeguard policies. “So it is up for negotation, competing with many other demands”, the developer said (TP8). Particularly due to the frequent cost overruns in dam projects – estimated to be 99 percent for large dams on average (Ansar et al., 2014) – this can lead to the slashing of social safeguard budgets which may be a common practice in the entire industry, though (L. J. Haas & Skinner, 2015).

Our research suggests that NGOs can be central in counteracting these intra-organizational dynamics, however their campaigns must be permanent (Nordensvard et al., 2015). For instance, a European dam developer said (TP6):

> “The NGOs are an extremely important actor. They are the independent police force that always will nag you and bite you and keep on your tail and make sure that you stay in line as a big, gigantic international cooperation”.

Social mobilization impacts Chinese dam developers’ social safeguard norms directly, as argued above, but it has also three indirect effects on Chinese dam developers, according to our interviews. While the first indirect effect (reputation/ legislation) and second indirect effect (reliance on foreign financial services) echo the hypotheses developed by Scheumann & Hensengerth (2014) outlined in section 3 of this paper, the third indirect effect (collaboration with international players) only emerged from the research conducted for this paper.

Laws of the host country and China: First, our research suggests that both host country governments and the Chinese government adopted higher standards due to social mobilization which Chinese dam developers then enforce. After all, countries with various protests or whose TNCs face various protests due to lacking social safeguards may fear for their reputation. Regarding host country legislation, the Chinese dam developers interviewed (e. g. OP3, OP10) confirmed that this has direcly impacted their social safeguards. Mang (2015) from International Rivers also found that "[Chinese dam developers] performed strongest at the project site if they

were forced to do so by the laws of the host country". These government policy changes in standards are believed to be driven by social mobilization (OP10, TI6) with particularly the controversial Nam Theun 2 project having impacted safeguards legislation in Laos, for instance (Baird & Quastel, 2015; Boer, Hirsch, Johns, Saul, & Scurrah, 2016). Meanwhile, particularly China's Ministry of Foreign Affairs (MOFA) is "concerned with safeguarding China's reputation in foreign countries" (International Rivers, 2012) since "China is trying to become one of the big players, and [thus] behaving seriously in these areas", as a European dam developer said (TP8). The causality between social mobilization and Chinese legislation may also be seen in table 10 with the 'Guidelines for Environmental Protection in Foreign Investment', China's major social safeguards for its dam developers, only adopted upon the suspension of the Myitsone Dam, although the draft had already been developed in 2009 upon the initial culmination of protests against Chinese-led dam projects, as discussed previously.

Provision of financial services: Second, our interviews suggest that those financing Chinese dams overseas (mainly China Exim Bank (CEB) and China Development Bank) adopted stricter social safeguard norms due to social mobilization, which then, in turn, had to be adopted by the dam developer (e. g. stated by FP12, TI9). These changes in CEB's norms (with CEB's main environmental guidelines publicly released only upon the initial culmination of protests in 2008 (Herbertson 2011, p.41; table 10)) are also induced by the Chinese government, significantly intertwining the first and second indirect effect. After all, CEB and different dam developers are usually supervised by the same ministries. For instance, the 2007 "Regulations on Further Regulating the Development of Contracting Foreign Projects" are applicable both to Chinese banks as well as dam developers (International Rivers, 2012). A lawyer serving CEB on the dam projects confirmed that CEB nowadays pays close attention to social safeguards (FP12). A World Bank official said that "the approaches the Chinese banks take change really fast. They are now much more in sync with [our] approach" (TI9). CEB's evolved approach to environmental and social safeguards is reflected in its action regarding Gabon's Belinga Dam, for instance, with CEB suspending funding for the dam of upon safeguards concerns raised by various NGOs (Bosshard, 2010a).

Cooperation with international players and capacity: Third, our interviews suggest that Chinese dam developers' collaborations with various international players may also result in the adoption of international norms in Chinese-led dam projects (e. g. TNI1, FP16, TP20). This pathway is particularly intertwined with the issue of capacity, discussed at the end of section 3. Indeed, Chinese dam developers were likely neither familiar with Chinese nor any host country social safeguard norms upon initially expanding abroad since dam developers in China solely have to focus on the engineering aspects of the dam, while social safeguards are the responsibility of the provincial and district level government (TNI1). Accordingly, a European dam developer reviewing a Chinese-led dam project in Laos recalled that "they did not even have a copy of any ESIA legislation [from] that country. […] They were not aware that they existed" (TP6)" – an evident breach of the law made possible due to the limited enforcement capabilities of the Laotian government discussed in section 3.

Chinese players hired local NGOs, local consultancies and international consultancies to carry out ESIAs to address capacity shortages regarding social safeguards, but also to fend off civil society criticism (assuming that projects would not be criticized regarding social safeguards if the project's ESIA was carried out by NGOs and/or respected consultancies) (e. g. stated by TP20, TP25). For instance, the Changjiang Institute of Survey, Planning, Design and Research (CISPDR), a Chinese high-tech SOE (Mang 2011), conducted the ESIA on the Myitsone Dam jointly with the Biodiversity and Nature Conservation Association (BANCA), a Burmese NGO. Meanwhile, Sinohydro contracted Earth Systems Mekong, a Lao consultancy, to carry out the ESIAs on the Nam Ou Dams (TP8). The ESIA for Myanmar's Mong Ton Dam project is being carried out by SMEC, an Australian consulting firm (SMEC, 2015).

Interviewees also noted that Chinese dam developers possibly started adopting international norms due to collaborations with various dam industry players beyond ESIAs. For instance, Sinohydro has maintained an ongoing dialogue with International Rivers since 2009 (Bosshard, 2014) and CTGC with WWF (WWF, 2010), possibly as a pre-emptive move to lessen these NGOs' opposition against their projects (TNI16). Reportedly, attendance of

Chinese dam developers at international dam conferences has also increased in recent years (TNI5; TP2).

6.6 CONCLUSION AND POLICY IMPLICATIONS

The alleged failure of Chinese dam developers to address dams' impacts on project-affected people has been discussed frequently in the popular press and also (increasingly) in the scholarly literature and the contribution of large dams to equitable development has been questioned on the basis of this alleged failure to address these impacts. We have researched social safeguard norms in Chinese-led dam projects in Myanmar, Laos and Cambodia with the intention to build on the burgeoining scholarly literature on this topic in two ways. First, we present the very first regional case study on social safeguard norms in Chinese-led dam projects (with previous work usually analyzing on 1-2 dam projects or a single dam developer) thus potentially enhancing the external validity of previous research. Second, we focus our work not only on which social safeguards were adhered to (as most previous scholarly work), but also on why these safeguards were adhered to – a question of particular interest both to NGOs as well as policy-makers.

Overall, we find that social safeguard norms adopted in Chinese-led projects in Myanmar, Laos and Cambodia have significantly changed in the past 15 years. Chinese dam developers claimed to adopt host country social safeguards upon the launch of China's Going Out Policy. Yet no social safeguard legislation was in place in Myanmar and Cambodia in the early 2000s and compliance with Laotian social safeguard norms by Chinese dam developers is contested. At times, more ambitious Chinese standards would be adopted in Chinese-led dam projects in the early 2000s – with various relevant Chinese legislations introduced particularly from the mid-2000s onwards. Only in recent years were international norms employed more frequently in Chinese-led dam projects, with the majority of our interviewees (76%) believing that mostly international norms will be adopted in Chinese-led dam projects in Myanmar, Laos and Cambodia in the near future.

Our interviews suggest that Chinese dam developers now increasingly view the adoption of international social safeguards norms as less costly than their non-adoption. Social mobilization plays a key role in this process. According to our research, the 2011 suspension of Myanmar's Myitsone Dam in particular directly altered the norms adopted by Chinese players in Myanmar, Laos and Cambodia, since only upon the suspension of the Myitsone Dam project, did Chinese dam developers begin to see the halting of a project by a government in Myanmar, Laos and Cambodia (partly) due to lacking social safeguards as a credible scenario.

We also found that social mobilization likely has led to stricter host country and Chinese legislation, stricter rules of Chinese funders (partly as a consequence of Chinese governmental legislation) as well as cooperation with international players – both via ESIAs and beyond. The collaboration with various international players was meant to not only to fend off civil society criticism, but also intended to address capacity issues of Chinese dam developers regarding social safeguards since these developers are not responsible for social safeguards when implementing projects in China (this is the responsibility of the Chinese government).

Our research overall paints a rather optimistic picture regarding social safeguards in Chinese-led dam projects in Myanmar, Laos and Cambodia and particularly highlights the impacts of activists regarding the adoption of international social safeguards. This suggests that policy-makers keen to ensure adoption of international social safeguards in Chinese-led dam projects could usefully provide targeted funding for relevant environmental NGOs, in addition to the more obvious remedy of expanding host countries' capacity to develop and implement more robust social safeguard legislation and regulations. These can then continue to play and possibly expand their role as watchdogs of the dam industry. We note, though, that this recommendation is only tentative. Indeed, more single case study research is needed to further nuance the narrative from this regional case study – too many (particularly smaller) Chinese-led dam projects in Myanmar, Laos and Cambodia have not been analyzed by scholars yet. Also, replication of this regional case study research may be needed soon since the social safeguard norms adopted by Chinese dam developers seem to be evolving at a rapid pace.

7 DISCUSSION AND CONCLUSION

7.1 INTRODUCTION

This chapter discusses and summarizes the contributions of this thesis. The thesis aims to make three substantial contributions — two to the field of anti-dam movement studies and one to the methodological discourse within the social sciences and beyond. Future areas for research are also outlined at the end of this chapter.

First, this work aims to help integrate the field of anti-dam movement studies via the proposed anti-dam protest cycle, the dissertation's main framework. The meta-synthesis indicated that the research on anti-dam movements can be categorized into research on root causes, strategies and impacts of anti-dam movements; therefore, a framework was suggested in chapter 2, the anti-dam protest cycle, that connects the root causes, tactical repertoire and impacts of anti-dam movements. This framework is revisited below, based on the empirical results from chapters 4, 5 and 6 to particularly identify insights emerging across these chapters.

Second, this work aims to change scholarly perceptions regarding anti-dam activists. Throughout this dissertation, they are portrayed as a powerful source of change in Southeast Asia's dam industry. With broad issue framing and/or a sophisticated strategy, these 'water warriors' can stage effective protests in a mostly restrictive political environment, even with extremely limited resources. Previous scholarly writings have usually not discussed impacts of activists on the dam industry, instead adopting a state-centric perspective arguing that government regulations would largely determine dam project conduct. Meanwhile, the emergence and staging of successful protests was frequently linked by social movement scholars working on anti-dam movements to political opportunity structures and ample financial resources. While this work does not mean to rebut the structural approach, it showcased the contexts where the constructionist approach is more informative. The most notable case in point challenging the structural approach is the campaign against the Myitsone Dam, an extremely

chaotic yet eventually successful campaign (from the perspective of the activists) with almost no financial backing that was launched under an authoritarian regime.

Third, this dissertation aims to provide practical guidance to social scientists and others regarding methods of conducting of snowball sampling. The systematic analyses and resulting recommendations presented in chapter 3 aim to encourage researchers to consciously adopt snowball sampling to maximize sample diversity. The reflexive account presented in this chapter may be the first such account of the method that is based on on systematic quantification, not solely anecdotal evidence.

Last, future areas for research are outlined. Additional scholarly work on (i) the design of social safeguards, (ii) entry points for NGOs in the dam policy-making process and (iii) on the adherence to safeguards are proposed as three future focus areas of research that may be of substantive interest both to academics and practitioners.

7.2 MAIN CONTRIBUTIONS

7.2.1 The Anti-Dam Protest Cycle

No framework was identified within the scholarly literature on anti-dam movements that integrates the root causes, tactical repertoire and impacts of anti-dam movements on the dam developer. Although preliminary, such a framework was thus developed from scratch, and it is introduced in chapter 2 as the main framework of this dissertation. The three key elements of the framework — root causes, strategies and impacts — were analyzed in chapters 4, 5 and 6. The resulting revised framework is depicted in Figure 18 below. As outlined in chapter 2, conclusively verifying the cycle suggested in the framework is not the aim of this dissertation. Rather, this highly hypothetical and idealized cycle aims to serve only as an indicative integrative framework of the empirical research carried out for this dissertation, and it ought to be further developed in a research endeavor beyond this work.

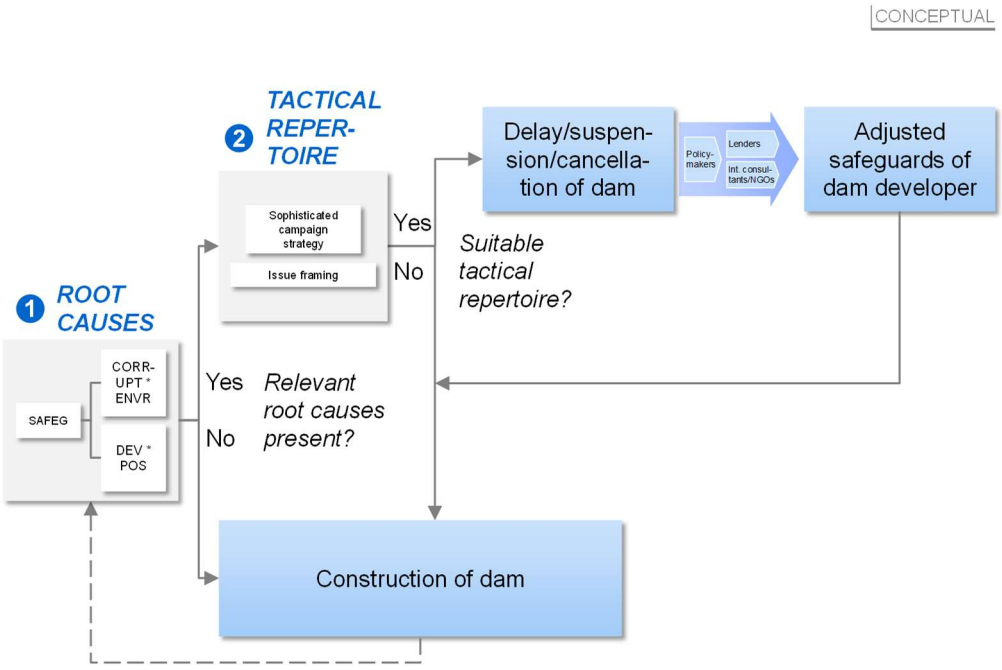
Yet developing even such an initial integrative framework to connect scholarly work on the topic is essential for a thorough understanding of anti-dam activism. One of the first findings

of my research (reflecting the fact that scholarly work is usually a messy process, with research questions constantly evolving [Clark et al., 2007]) was that social mobilization plays a key role in determining which social safeguard norms Chinese dam developers adhere to (discussed in chapter 6)[14]. The suspension of the Myitsone Dam was identified to be a game changer for the industry. This finding then evoked the question of why the campaign against this dam led to the project's suspension. I was keen to understand the underlying success factors of an anti-dam movement (with success defined from the perspective of the activists as the suspension or cancellation of a project; chapter 5). Understanding these success factors, in turn, evoked the question of why significant anti-dam protests emerge in the first place (chapter 4). Hence, only the combination of chapters 4, 5 and 6 created a coherent picture regarding how anti-dam activism and policy change are interconnected. The finding that activists contribute to adherence to international social safeguard norms in dam projects is only complete once strategies of successful anti-dam movements and their root causes are also understood.

As outlined in chapter 2 and the introductory paragraphs of this chapter, an extended discussion of this framework follows.

[14] The first finding developed as part of this doctoral research, published as Kirchherr, Disselhoff & Charles (2016), was actually that adherence to various international social safeguards in Chinese-led dam projects may be portrayed too negatively by the popular press. It was then asked what determines adherence to various social safeguard norms in these projects (chapter 6).

FIGURE 18: INTEGRATIVE FRAMEWORK ON ANTI-DAM MOVEMENTS



The two decision points conceptualized in the framework presented in Figure 18 determine whether a dam is constructed versus delayed, suspended or even cancelled. Both of them represent a struggle for power between those advocating for the dam and those opposing it. McCully (2001, p. 24) noted this struggle, writing that "large dams are not built and operated by all of society, but by an elite […]. The dams give the elite the ability to direct water for their own benefits, depriving the previous users of […] their access to riverine resources". Similarly, Moore (1998, p. 290) argues that "giant dams that supposedly control wild and wasted rivers […] are usually devices for expropriating common resources from some users and turning them over to others". It was conceptualized in chapter 2 that those opposing a dam are NGOs and adversely affected people, while those advocating for it are the dam industry, policy-makers and international donors.

The first decision point in the framework relates to the emergence of anti-dam protests. Certain causal recipes need to be present for significant protests to emerge, and the fsQCA carried out for this dissertation in chapter 5 elicited two of them. First, the lack of social safeguards in combination with significant environmental risk and rampant corruption induce

significant anti-dam protests (with the example case studies being the Myitsone, the Xayaburi and the Sardar Sarovar dams). Second, the lack of social safeguards in combination with political opportunity structures and development induce significant protests (with the example case studies being the Bakun, San Roque and Kaeng Suea Ten dams). The presence of either one of these two recipes results in significant anti-dam protests. If neither is present, significant protests are unlikely to emerge, and the anti-dam protest cycle will not be launched.

The second decision point relates to the campaign of a dam movement. Indeed, significant anti-dam protests do not inevitably lead to project suspensions (e.g., four of the six recent dam projects featuring significant anti-dam protests presented in chapter 4 are still under construction or completed). This situation also holds true for 28 of the 33 dam projects investigated by scholars focusing on the tactical repertoire of anti-dam movements (summarized in chapter 5). Thus, successful anti-dam campaigns may be quite rare empirically (with success defined from the perspective of the activists as project suspension or cancellation). Nevertheless, many dam developers point to anti-dam movements as one of their key concerns (Plummer, 2013), indicating that they are perceived as a serious threat to a project.

The comparative case study in chapter 5 overall particularly highlights the importance of framing as well as movement leadership when studying anti-dam campaigns. Issue framing can explain why an anti-dam movement was successful, and competing issue framings can determine tactics chosen by a movement. Issue framing was found to be evolving in both cases studied, with the gradual broadening of the framing driven by the respective movement's changing leadership. Indeed, the eventual framing of the Myitsone Dam as a threat to the country's national cultural heritage, which appealed to a broad popular base, was only introduced when activists joined the campaign once it reached Yangon (the key success factor of the movement was the political change in the country in 2010/2011, which created conducive conditions for the campaign). Meanwhile, the collaboration of an environmental NGO with villagers to be displaced by Thailand's Kaeng Suea Ten Dam ensured that the campaign against the project would focus on environmental impacts as well as displacement, which enhanced its popular appeal. These NGOs also helped the villagers develop the main success factor of this

movement, their system of protest, which they needed to undertake as a response to the competing framing of the dam introduced by the government and supported by downstream communities as a solution to flood and drought issues.

If a dam campaign is successful (either because of the issue framing or the sophisticated campaign strategy adopted), the delay, suspension or cancellation of a dam project causes some level of backlash against the dam developer, according to the framework developed and as further detailed in chapter 6. Because it is the best interest of the dam developer to complete the project, they will adjust their project management approach (or at least pretend to do so). In particular, they will address the project's social safeguards as the key interface with people adversely affected by it, who frequently start anti-dam movements – captured by the notion of 'environmentalism of the poor'. The purpose of this adjustment is to appease those opposing a dam project (and possibly dam construction overall). These adjustments are enhanced by various additional players. As showcased in chapter 6, protests against dam projects also cause governmental policy changes regarding dam construction, both in the host country and the country of the dam developer. These changes may also alter the lending rules of dam financiers (which may also change as a direct consequence of dam protests). These changes consequently impact the project conduct of the dam developer. The dam developer may also involve NGOs, international consultancies and even PR companies. For instance, in order to carry on with a project after the Myitsone Dam suspension, CPI hired the reputation management company Bell Pottinger to manage public relations and to help it adjust its overall project management approach (Lwin, 2015). The adjusted approach may still not be equivalent to what NGOs would consider best practice project conduct (as discussed in chapter 6), since even NGOs contest which international social safeguard norms to adopt (Kirchherr et al., 2017, p. 533 ff.); however, at least the changed approach will likely appear to appease more of the demands of those opposing the project. Since addressing the demands of those adversely affected by a project is costly for a dam developer, it is in their interest to adopt project conduct that is just barely acceptable to the opposition (echoing the interest-based argument outlined in chapter 6).

It may also be more plausible at times for the project's advocates to wait out opposition than to accommodate the demands of its opponents. Frequently backed by narratives of 'progress' and 'development', dam projects tend to endure once they are proposed. For instance, Jawaharlal Nehru, India's first Prime Minister, famously called the country's Bhakra Dam a 'temple of modern India' (Verghese, 2006), as discussed in chapter 1. The construction of Ghana's Bui Dam was first proposed in 1925 (Hensengerth, 2011, p. 9), yet construction started only in 2008 (The Statesman, 2008). Meanwhile, the idea of damming the Narmada River dates back to the 1950s (Garikipati, 2005). However, the Sardar Sarovar Dam's project appraisal began in the early 1980s (Dwivedi, 1999) and construction of the dam commenced in 1987 (Garikipati, 2005). The world's largest dam, the Three Gorges, was first proposed in 1919 (Kittinger et al., 2009), and initial construction began in 1993 (PT, 2015).

These examples indicate that parties advocating a dam project can have great staying power. A project may be shelved publicly, only to be proposed again a few years (or even decades) later. In many instances, the root causes that induced significant and successful anti-dam protests may no longer be present (e.g., the political regime may have changed or novel approaches to mitigate environmental risks may have been developed) and/or the movement's leaders opposing the project via a framing and/or campaign strategy may have faded (with key movement leadership figures moving away, for instance). The dam originally cancelled may then be constructed. Project advocates are usually part of an institution through which their views and power are expressed, and institutions are extremely persevering. Famous evidence to back this claim was presented by Acemoglu et al. (2000), who demonstrate that development levels of formerly colonial countries can be explained by the quality of institutions set up in the 17th, 18th and 19th centuries. Meanwhile, activists frequently operate within non-institutionalized movements whose staying power is constantly in a flux and thus significantly more volatile (with social movements not equating to social movement organizations [SMOs], as discussed *inter alia* in chapter 2).

If a dam is eventually constructed, either because the demands of its opponents were addressed or because resistance was waited out, additional dams proposed may induce

additional protests (for the foreseeable future). A key reason is the narrow spatial focus currently adopted by social impact assessments (SIAs; discussed in depth in Kirchherr & Charles, 2016). Indeed, most SIAs (which set the basis for compensation schemes that frequently break their promises; Nordensvard et al., 2015) neglect those upstream and downstream who can also be negatively impacted by dam construction. Cernea (2004) pointed out that "downstream impacts [e.g., a reduction of fisheries] have been understudied and overlooked by dam planners, as well by the authors of many [SIAs]". Greathouse et al. (2006) argue that upstream impacts (e.g., restrictions regarding water withdrawal from a river in order to fill the reservoir) have been even more understudied than downstream impacts.

The completion of one or more dam projects showcases their various negative impacts on those up- and downstream. These outcomes likely change perceptions regarding best-practice social safeguards among project opponents. Identified as a necessary condition for significant anti-dam protests, safeguards now deemed best practice that may help mitigate anti-dam protests may soon be considered inadequate. Indeed, NGOs already highlight downstream impacts frequently (e.g., the impacts of reduced fisheries on food security). For instance, *Conservation International* warns that dam construction on the Mekong may threaten the food security of more than 60 million people living in its delta (Farrell, 2012). Frequently, many people living up- or downstream of a dam project may not oppose it, if it does not affect them. With a world more connected than ever, this reality may soon change, since information on negative impacts of dams can be readily available for anyone. Thus, the framing of anti-dam protests may soon broaden, with NGOs playing a vital role and with the kind of broad issue framing identified in chapter 5 being a key success factor for project suspensions. Hence, the anti-dam protest cycle may continue.

Two scenarios could halt this cycle. In the first, project advocates could prevent massive anti-dam protests by mitigating environmental risks, eliminating corruption, and comprehensively compensating those negatively affected by a project (not only those resettled, but also people up- and downstream). A key assumption in this scenario is that a dam project remains economically viable even if the benefit-sharing mechanism is considerably expanded,

which is not guaranteed. For instance, one third of the total costs of China's Three Gorges Dam were devoted to compensation and mitigation measures (TP2). Nevertheless, scholars such as Wilmsen et al. (2011) and Kittinger et al. (2009) criticized the project's safeguards. Hence, a second scenario could be that projects that significantly expand their benefit-sharing mechanisms (even devoting more than one-third of total costs to safeguards) become economically unviable, with the protest cycle then halted because no more dam projects are constructed. Various alternatives to dam construction would then need to be explored by policy-makers. These options may be evident for some benefits dams provide (e.g., electricity production with various renewable and non-renewable energy sources as substitutes) and less so for others (e.g., the significant flood control benefits of large dams). If no substitutes can be identified for selected benefits that dams provide (such as flood control), then dam construction — and thus the protest cycle — may start again.

7.2.2 Complementing Scholarly Perceptions Regarding Anti-Dam Activists

This dissertation aims to help integrate the field of anti-dam movement studies via the proposed anti-dam protest cycle, as well as to complement scholarly perceptions regarding anti-dam activists. The impacts of anti-dam activists on the dam industry have been frequently acknowledged. For instance, Wolfgang Pircher, the former president of ICOLD, warned as early as 1992 that the industry faced "a serious general counter-movement that […] is starting to make work difficult for our profession" (cited in McCully, 2001, p. 36). Yet scholars tend to think that dam activists operating in countries with limited political opportunity structures and/or with limited human and financial resources are usually of little relevance for the progress of a specific dam project. This dissertation challenges this thinking, portraying activists as a powerful source of change in Southeast Asia's dam industry. Even with very limited human and financial resources, these 'water warriors' can stage successful protests in politically restrictive environments.

The current perception regarding anti-dam activists may be driven largely by the dominance of the structural approach in research on social movements, as discussed in chapters

2, 4 and 5 of this dissertation. This approach emphasizes the importance of political opportunity structures (i.e., democratic institutions), as well as the human and financial resources for the emergence and staging of successful protests, whereas the constructionist approach focuses particularly on culture and framing (Goodwin & Jasper, 2004; Smith & Fetner, 2010; van der Heijden, 2014).

Three key insights on anti-dam movements emerge across the main empirical chapters of this dissertation that complement the scholarly perception of them. First, they relativize the significance of political opportunity structures in the study of anti-dam movements. While social movement scholars engaging with the concept of political opportunity structures have found that social movements also operate in authoritarian regimes — examples are Heeks & Seo-Zindy (2013), Arif (2014) or Figueredo (2015) — many scholars studying anti-dam movements have emphasized the presence of political opportunity structures as a key causal condition inducing significant, successful anti-dam protests. They include Rothman & Oliver (1999), Swain & Chee (2004), Foran (2006), Xie & van der Heijden (2010), Khatun (2013) and Evren (2015). Their work is corroborated bfy chapters 4 and 5 of this dissertation. Chapter 4 found the lack of social safeguards in combination with the presence of development and political opportunity structures to be sufficient for significant anti-dam protests to emerge, while chapter 5 described how Myanmar's POS exacerbated the work of the movement against its Myitsone Dam prior to its opening in late 2010. Activists masked various protest activities (e.g., framing demonstrations as mass prayer ceremonies), and the movement only gained substantial momentum upon the country's opening up.

Yet both chapters 4 and 5 also showcased how significant and successful movements can emerge, even if POS are limited. The fsQCA indicated that social safeguards in combination with rampant corruption and environmental risk may induce significant anti-dam protests. Myanmar's Myitsone Dam, Laos's Xayaburi Dam and India's Sardar Sarovar Dam represent examples of this causal recipe, with the Myitsone and Xayaburi exemplifying cases from countries with limited POS. The movement against Myanmar's dam arguably needed the country's political change in late 2010 to succeed, but chapter 5 also outlines how the

movement against Thailand's Kaeng Suea Ten Dam remained successful even during periods of military rule. Chapter 6 built on these findings, arguing that any project suspension in a country with limited POS will result in dam developers adopting a more cautious approach regarding social safeguards in any such country (with dam developers recognizing a lack of social safeguards as the starting point for 'environmentalism of the poor' [Martinez-Alier, 2002], since these suspensions are visible to any industry player.) It is in the interest of these players to avoid project suspensions; thus, as the interface with project-affected people, social safeguards are altered across a variety of projects if a single suspension only occurs.

Second, the main empirical chapters of this dissertation relativize the role of movement organization in the study of anti-dam movements. The importance of organization for a movement's success has been highlighted by social movement scholars such as Edwards & McCarthy (2003, p. 1), McCarthy & Zald (1977, p. 1216 ff.) and Opp (2009, p. 128 ff.). Organization was also highlighted (*inter alia*) by Islam & Islam (2016), who studied resistance against India's Tipaimukh Dam, and Young (2008), who studied the Sierra Club's anti-dam movement in the United States. These emphases resonate with the empirical work carried out for this dissertation. In the case of Thailand's Kaeng Suea Ten Dam, chapter 5 identified a sophisticated organization (including *inter alia* demonstrations, *Thai Baan* research, 24/7-monitoring of the dam site and spiritual activities) as the key reason for this movement's success over more than 35 years (it is likely the most successful anti-dam movement in Southeast Asia). Meanwhile, chapter 4 discussed the presence of movement organization as a causal condition inducing significant anti-dam protests and described how a lack of movement organization led to a "disjointed" campaign against Myanmar's Myitsone Dam (Kirchherr, Charles & Walton, 2016, p. 4).

Yet this campaign induced significant protests that led to the suspension of Myanmar's Myitsone Dam, as described in the three main empirical chapters of this dissertation. While it is acknowledged in chapter 5 that the organization of the movement improved once it reached Yangon, with leadership aligning on its key message regarding the Myitsone Dam's national cultural impacts on the Irrawaddy River, it was found that overall it never maintained an

organizational structure. The emotional framing of the movement's main issue, the cancellation of the Myitsone Dam, appealed to a large popular base and largely sufficed to induce project suspension. The movement's far-reaching impacts beyond the dam's suspension are described in chapter 6. The adoption of Myanmar's Environmental Impact Assessment (EIA) procedures in early 2016 (Thant, 2016) may be seen as a partial result of the movement, like the adoption of international social safeguards in Laos and Cambodia (with 76% of interviewees noting that this trend would continue for the foreseeable future). Yet these notable impacts were accomplished by a movement that largely lacked organization.

Third, the main empirical chapters of this dissertation relativize the role of funding in the study of anti-dam movements. A variety of scholars adhering to the structural school within social movement studies have highlighted funding as decisive for a movement's emergence and success. Examples include Ganz (2004), Morris (2004) and Young (2008). Studying the struggle against the New Los Padres Dam in the United States, which was eventually cancelled, Moore (1998, p. 310) also argued for its success, since it "spent the most of any oppositional group". This argument resonates only partly with the work carried out for this dissertation. Chapter 4 examined development (operationalized via the Human Development Index [HDI]) as a possible causal condition for significant anti-dam protests. As argued by McAdam et al. (2010, p. ff.), the HDI can be seen as a proxy for the resources of an anti-dam movement, but it is arguably an imperfect one, since even in countries with an extremely low HDI, local NGOs may receive significant outside funding and/or international NGOs with significant funding may intervene (assuming relatively open POS). When HDI is accepted as a proxy for the funding of a movement, chapter 4 corroborated its role as a causal condition inducing significant anti-dam protests via the cases of Malaysia's Bakun Dam and the Philippines' San Roque Dam.

The case of Thailand's Kaeng Suea Ten Dam (chapter 4) was also found to feature both high levels of development and significant anti-dam protests, but the close examination in chapter 5 revealed why the HDI is an imperfect proxy for a movement's funding at best. Indeed, it was found that the movement in question operated on extremely limited funding. The entire volume of the funds maintained by key movement leaders amounted only to the combined

income of six households in the four villages surveyed (2,960 people). Because of its scattered nature, no concrete estimate could be created regarding the funding of the movement against Myanmar's Myitsone Dam. Yet data gathered suggest that its funding was also miniscule, particularly when compared to that of the Myitsone Dam's proponents. The environmental NGO allegedly most involved in that movement (FNL21), Kachin Development Networking Group (KDNG), has an annual budget of up to USD 50,000 (TNL17), while the project's main developer, China Power Investment Corporation (CPI), has allegedly spent USD 800 million on the project already (Lwin, 2015). Both case studies suggest that anti-dam movements can succeed, even if operating on limited budgets. It is assumed that movements will depend even less on funding in the future, with new social media continuing to spread and offering tremendous reach at no cost (Cammaerts, 2015; Lopes, 2014).

With the campaign against Myanmar's Myitsone Dam being a particularly powerful illustration, the main empirical chapters of this dissertation suggest that an activist in a remote village in a country with an autocratic government can engage in a powerful movement and significantly impact dam project decision-making and, ultimately, dam policies.

7.2.3 Improving Snowball Sampling

This dissertation presents the first holistic framework on the root causes, tactical repertoire and impacts of anti-dam movements as an attempt to integrate studies in the field. Furthermore, it aims to change the scholarly perceptions of anti-dam activists by portraying them as a powerful source of change in the dam industry, even when operating in the most difficult of environments. Although these contributions are meant to be specific to the scholarly field of anti-dam movements, this dissertation may also be of interest to social scientists who are not primarily interested in social movements (and even to disciplines beyond the social sciences), since it provides practical guidance on how to conduct snowball sampling.

Much of the data presented and analyzed in chapters 4, 5 and 6 were collected via snowball sampling. This technique has been repeatedly criticized (see in-depth discussion in chapter 3), with Atkinson & Flint (2001, p. 1) arguing that "snowball sampling lies at the

margin of research practice", for instance. Even its proponents frequently consider it a second-best method (Cohen & Arieli, 2011, p. 428 ff.).

Yet adopting this method was necessary for this piece of work because one of the populations of interest, Southeast Asia's dam industry, proved extremely difficult to reach (e.g., the initial email to approximately a dozen Chinese dam developers yielded zero replies). Snowball sampling is a proven technique to reach such populations eventually (Faugier & Sargeant, 1997; Sadler et al., 2010; Shaghaghi et al., 2011), while a dismissal of it can imply that no research can be carried out on the population of interest. As King et al. (1994, p. 6) point out, "an important topic is worth studying even if very little [access to] information is available".

As discussed in chapter 3, snowball sampling is extremely popular among human geographers, but also among political scientists, sociologists, anthropologists and even physicians. Reflexive accounts on it are rare, however (Browne, 2005), and those identified on the topic at hand rely solely on anecdotal evidence. Based on more than 80 interviews, the systematic, mostly retrospective analyses and recommendations presented in chapter 3 aim to encourage researchers to adopt snowball sampling consciously to ensure the diversity of samples generated thereby.

The main benefit of snowball sampling that emerged while carrying out research for this dissertation is that this technique facilitated interviews with an extremely diverse set of stakeholders, which revealed novel viewpoints and helped uncover mechanisms relevant for the eventual conclusions. For instance, Chinese dam developers such as China Power Investment Corporation (CPI), international donors such as the World Bank, government officials such as a senior official from the Department of Hydroelectric Power in Myanmar's Ministry of Electric Power, international NGOs such as International Rivers, local NGOs such as the Karen Environmental and Social Action Network (KESAN), and dam-displaced communities could all be interviewed, with access frequently ensured via snowball sampling.

The diversity of stakeholders interviewed posed a significant challenge initially, since several of them fundamentally diverged in their narratives at first sight. For instance, one

international NGO (TNI6) argued that Chinese dam developers would adopt international social safeguard norms due to rational cost–benefit calculations, while another (TNI5) argued that these developers would have internalized these norms (as outlined in chapter 6). The attempt to resolve such divergences involved collecting additional data to reveal dominant narratives. For instance, it was found upon collecting additional data that most interviewees (including those from the groups 'local NGOs', 'international donors' or 'academicians') believed that Chinese dam developers adopted international social safeguard norms due to rational cost–benefit calculations (as outlined in chapter 6). Whenever possible, data triangulation was complemented by methodological triangulation. For instance, various documents (including scholarly writings, press releases and reports) were reviewed to find motifs of Chinese dam developers adopting social safeguards. Such data and methodological triangulation help to approximate the truth, although caution remains mandatory regarding any results gathered via triangulation.[15]

A specific value of snowball sampling as a data collection method that helps to approximate the truth is particularly evident in chapter 4. First, snowball sampling interviews in combination with a review of the scholarly literature helped to develop the list of possible root causes of anti-dam protests outlined in chapter 4. If snowball sampling had not been adopted as a research method, causal conditions such as cultural impact may not have been included in the analysis, since this specific causal condition was not found in the scholarly literature. Second, it helped uncover the interactions of the different causal conditions identified in the causal recipes of the fsQCA (outlined in the discussion section of chapter 4). It sent me through the entire network of protest against the Myitsone Dam (e.g., from activists in Yangon who framed the campaign from a cultural/corruption perspective to activists in Kachin State, who were most concerned about livelihoods and the environment). This gathering of views from the various

[15] It is also acknowledge that several truths may prevail at the same time. After all, Chinese dam developers are not a single actor, as specified in chapter 6, and thus different motifs regarding norm adoption may prevail for (and even within) different dam development organizations.

stakeholders involved helped uncover the step-by-step mechanisms that led to the emergence of the protests.

In sum, snowball sampling proved invaluable as a data collection method for this dissertation, both in revealing novel ideas and in uncovering mechanisms.

7.3 FUTURE RESEARCH

This final section of the dissertation outlines potential worthwhile and timely research on anti-dam movements.

First, additional research is needed on the design of social safeguards in the context of dam construction. Chapter 4 outlined the lack of social safeguards as a key causal condition inducing significant anti-dam protests; however, what best-practice social safeguards entail was not described in detail. Rather, chapter 7 explained that the various international social safeguards (usually viewed as best practice) remain extremely contested. While industry players and selected international donors opt for the HSAP (TI1), many NGOs still favor the WCD recommendations (TNI13) — which industry players call non-implementable in practice (TI2). Meanwhile, IFC guidelines are criticized for their lack of specificity regarding the peculiarities of dams (Scudder, 2005a). The novel framework on dams' social impacts presented in chapter 1 of this dissertation (and discussed in depth in Kirchherr & Charles, 2016) may be viewed as a first step to establishing which impacts need to be addressed when designing social safeguards. More research is needed, however, since the social impact consultants interviewed asserted that the scholarly literature on the topic does not yet provide practical guidance (FP23). (The scholarly literature on designing social safeguards was not reviewed in depth for this work.) Various interview partners in the private sector believed that engagement with adversely affected communities from the beginning of a project would be key to overcoming opposition, but they were uncertain *how* to implement this engagement. Researchers may help to answer this question rigorously.

Second, additional research may be needed on entry points for NGOs in the dam policy-making process. Chapter 6 described how activists can halt dam projects. Doing so may benefit the public in various instances across Southeast Asia — particularly in Myanmar, the country focused on most for this dissertation. Many projects there lack transparency entirely, and thus provide ample reasons for the assumption that benefits will not be shared equitably. However, even an interviewee from an international NGO that is usually believed to fundamentally oppose the construction of large dams argued that at least some of them are needed to foster a country's economic development (TNI15). Once the question becomes not *whether* large dams are built but *how* they can be built sustainably, a nuanced understanding of dam policy-making processes will become essential. An NGO staff member interviewed argued that she believed it would be more effective to shape governmental dam policies than to collaborate with dam developers (TNI16). Only a nuanced understanding of dam policy-making processes can ensure that NGOs (with their limited resources) can target their advocacy efforts to help shape government safeguards and policies to benefit those adversely affected by dam construction. With Chinese dam developers allegedly constructing every second dam worldwide (Verhoeven, 2015), research on dam policy-making processes in China may be of particular value to NGOs. Scholarly work on these developers is burgeoning — see Hensengerth (2015), Kirchherr et al. (2016), and Urban et al. (2015). Dam policy-making processes in China have also been studied, most notably by Mertha (2008) and Tilt (2014). Yet more research on these processes could be of academic relevance to elicit other influencing tactics that environmental activists working on Chinese-led dam projects could adopt.

Third, additional research is needed on adherence to social safeguards in dam projects. Chapter 7 has been able to capture only a snapshot regarding these matters. One international donor noted that "the approaches the Chinese […] follow change and they change really fast" (TI9). With such a dynamic industry, frequent follow-ups are needed to understand if improvements regarding adherence to international social safeguards by Chinese dam developers are enduring. A scholar also warned that some high-profile projects may not represent all projects, particularly the smaller ones with little international coverage or

campaigning by international NGOs (TA4) — for example, projects developed in Laos's Sekong River Basin, a Mekong tributary (International Rivers, 2014). Furthermore, little is known regarding the current adherence of dam developers in Africa and Latin America to safeguards, although exceptions for Africa are Hensengerth (2012) and Kirchherr et al. (2016). A European dam developer called anti-dam activists an "independent policy force" ensuring that dam developers adhere to international social safeguards (TP6). Additional research on adherence to safeguards could ensure that academics become auxiliary watchdogs of the dam industry. Their findings could be of great use in the advocacy work of activists.

□ □ □

Activists are a powerful source of change in Southeast Asia's dam industry. With a sophisticated strategy and/or broad issue framing, these 'water warriors' can stage effective protests in the most restrictive of political environments, even with extremely limited financial backing. These are the key findings of this dissertation. Additional research on the design of social safeguards, on entry points for NGOs in the dam policy-making process and on adherence to international safeguard norms would ensure that activists can further expand the significant function they fulfill in the region's dam industry today.

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9 APPENDIX

9.1 APPENDIX (CHAPTER 2): METHODS FOR THE CREATION OF A SAMPLE ON THE LITERATURE ON ANTI-DAM-MOVEMENTS

I have undertaken a meta-synthesis of the literature on anti-dam-movements for this dissertation. Meta-analysis, meta-synthesis and narrative review are three key approaches to literature review. Meta-analysis is considered the most robust approach. During a meta-analysis, the scholar systematically develops a sample of articles assessing identical or highly similar research questions. Then, empirical findings of studies at hand are aggregated. Herein, the meta-analysis helps to maximize the sample size which, in turn, may enhance the external validity of previous findings (Glass, 1976).

However, for the topic at hand insufficient quantitative evidence exists. Indeed, I was not able to identify a single article on the topic at hand which an economist would label as ‘quantitative’. Thus, I chose to undertake a meta-synthesis. During a meta-synthesis, the scholar also systematically develops a sample of articles on identical or highly similar research questions. Then, findings in the article are assessed against a framework.

Via a meta-synthesis, scholars quantify which parts of a theoretical framework have not yet been investigated sufficiently offering guidance to future researchers (Cronin et al., 2008). Hence, a meta-synthesis may be able to help integrate and focus the literature on the topic at hand.

Both meta-analyses and meta-syntheses are replicable. Thus, they are the "rigorous alternative to the casual, narrative discussions of research studies" (Glass, 1976, p. 3), the narrative review. Neither sample selection nor sample assessment is usually systematized within a narrative review. As a result, the narrative review cannot be replicated and may lead to subjective, possibly misleading summaries of the research.

9.1.1 Improving the Conduct of Snowball Sampling

The first step when conducting a meta-synthesis is the systematic creation of a sample. I generated my initial sample of articles on anti-dam-protests via a three-step-process.

Firstly, keyword searches were undertaken in four databases: Thomson Reuters' Web of Science, the University of Oxford Search Oxford Libraries Online (SOLO), Elsevier's Scopus and ProQuest. Searches included any scholarly journal articles, grey literature, book chapters and books that featured combinations of the keywords *anti-dam-movement, conflict, resistance* and *dam* as well as various plural forms of the keywords[16]. No starting date was set. Searches were not restricted to any particular discipline.

Secondly, I asked an expert in the field who had recently completed a doctoral dissertation on hydro-politics regarding the alleged key pieces of literature on this topic and also added these pieces to my initial sample.

Thirdly, I added the bibliographies of several key pieces of literature (according to my reading and the reading of the expert consulted) to my sample, namely the bibliographies of Evren (2015), Khatun (2013), McCormick (2006), Simpson (2013), Sneddon & Fox (2008), Swain & Chee (2004), Tilt (2014) and Yasuda (2015).

My initial sample based upon this three-step-process comprised 1070 articles. I then refined this sample, removing any article from the sample if at least one of the six criteria below was met:

- *Repetition*: Pieces appearing more than once in the initial list;
- *Focus:* Pieces unrelated to anti-dam-movements[17];
- *Language:* Pieces not published in English or German;

[16] To enhance readability, I refer to every piece of literature as an 'article' for the remainder of this paper. However, an 'article' may also encompass a report, book, book chapter or dissertation.

[17] Whenever I was not entirely certain – based upon reading the abstract and skimming the body of the article – if the article in question was truly unrelated to anti-dam-movements, I chose to include it in the sample. I would then only exclude it based upon an in-depth-review of the article during the coding process.

- *Popular press:* Pieces on the topic published in the popular press, e. g. Wall Street Journal, the New York Times; or,
- *Conference reports*: Pieces related to anti-dam-movements, but only summarizing the outcomes of conferences;

My refined sample based upon these criteria comprised 60 articles, 6% of my initial sample. I do not presume to have collected all articles on anti-dam-movements in this sample. However, I believe, given the systematic approach adopted, I have identified a set that is fairly representative of the work carried out by the research community.

In the beginning of my doctoral studies (when I still intended to solely focus my research on the social impact of dams[18]) I carried out a meta-synthesis of the literature on the social impact of dams. For this purpose, I developed an initial sample of 1641 articles of which 213 (13%) were included in my eventual sample. Thus, my extraction rate (defined as the eventual sample divided by initial sample) on the social impact of dams exceeds my extraction rate on anti-dam-movements by 7%. This may indicate that the overall body of literature on anti-dam-movements is smaller than the literature on social impact of dams.

9.1.2 On Coding Rules

Synthesizing qualitative findings via a meta-synthesis will always remain more subjective than synthesizing quantitative findings via a meta-analysis. The effects of subjectivity may only be "minimized through carefully applied criteria for [sample development and] evaluation" (Beyea and Nicoll, 1998, p. 877).

I utilized NVivo 10 to ensure traceability of coding decisions and the objectivity of my evaluation. Because this is only a minor meta-synthesis, the articles in my sample were only coded by me. Ideally, the coding of each article would have been carried out by at least two

[18] I realized after approximately six months that the scholarly literature on the social impact of dams was so mature that it would be extremely difficult to develop a coherent and novel dissertation on this topic. Hence, I shifted my focus, as aligned with my assessors, towards anti-dam-movements.

scholars (as done in Kirchherr et al. (2016)). While coding, I tracked: the journal, year of publication, whether it was grey literature or not, the regional focus of the publication, whether it focused on a single case study or multiple case studies, whether the article employed a theoretical framework for analysis and whether the analysis focused on the root causes, the tactical repertoire or impacts of an anti-dam-movement.

I provide a brief overview regarding the entire sample in the next section and outline how the findings of this meta-synthesis motivated the set-up of chapters 4, 5 and 6 of this dissertation. To enhance readability of this dissertation, I discuss literature and findings from this meta-synthesis in-depth when showcasing and analyzing my empirical results on the root causes, tactical repertoires and impacts of anti-dam-movements in chapters 4, 5 and 6 of this dissertation.

9.2 APPENDIX (CHAPTER 4)

9.2.1 Clarifications

#	Issue	Clarification
1	It was unclear to the assessors of this dissertation what “lack of development” referred to in the sentence “The campaign overall was called “disjointed” (Kirchherr et al., 2016, p. 4) potentially resulting from a lack of development” (section 4.6).	It is noted that DEV throughout this chapter/paper is not only defined as economic development, but also skills of the protesters with the paper/chapter stating in section 4.2: "Indeed, resource mobilization scholars point out that resources also include skills and know-how on participating in political action; these would be needed to stage a movement in the first place (Lopes, 2014, p. 6 ff.; Shaffer, 2013, p. 237 ff.) and would frequently not be available in less developed countries." “Lack of development" thus is supposed to refer to the lacking skills of the protesters. This argument is further developed and related to Myanmar's political opportunity structures (POS) in the revised version of the next chapter (particularly in the discussion section) where it is pointed out that the movement against the Kaeng Suea Ten Dam could benefit early on from the experiences of international NGOs such as WFT due to Thailand's relatively open POS, while in Myanmar benefitting from international experience/NGOs was only possible after its opening up starting in late 2010 (with the resulting more open POS in Myanmar leading to increasing DEV [skills] of the movement).
2	It was unclear to the assessors how development is a consequence of political opportunity structures.	It is noted that DEV throughout this chapter/paper is not only defined as economic development, but also skills of the protesters with the paper/chapter stating in section 4.2: "Indeed, resource mobilization scholars point out that resources also include skills and know-how on participating in political action; these would be needed to stage a movement in the first place (Lopes, 2014, p. 6 ff.; Shaffer, 2013, p. 237 ff.) and would frequently not be available in less developed countries." Limited POS can thus also limit DEV [skills] of protesters since limited POS, as happened in the case of Myanmar (described in detail in the revised

		chapter 5), also restrict the interaction of local activists with international ones and this interaction can facilitate skills transfer
3	The assessors pointed out the various criticisms against fsQCA and asked for details on how these were addressed in the chapter at hand.	Three main criticism have been posed against fsQCA. First, it has been argued, e. g. by Hug (2013), that measurement error within the fsQCA dataset may lead to dramatically misleading inferences. A variety of efforts were undertaken to reduce measurement error, as described in chapter 4 (e. g. data was collected from various sources; one of the cases, the Philippines' San Roque Dam, was even excluded in one of the sensitivity analyses since data collected on this dam was judged to be particularly ambiguous). Second, it has been argued, e. g. by Hug (2013) or Krogslund et al. (2015) that fsQCA is prone to confirmation bias. Hence, a deductive approach was adopted for chapter 4 with hypotheses regarding causal recipes developed upfront based upon a literature review and semi-structured interviews. Thirdly, it has been argued, e. g. by Krogslund et al. (2015), that fsQCA is a "extraordinarily sensitive method whose results are worryingly suspective to minor […] model specification". To address this criticism, 10 model specifications of the main model were undertaken in chapter 4 which showcased that the results of the main model specification hold across even major model specifications.

9.2.2 fsQCA data

TABLE 11: RAW DATA MATRIX

	PROT	POS		DEV	ENVR			SAFEG		CORRUPT	CONFL			CULT		RESETTL
		Political rights	*Civil liberties*	*HDI*	*Environmental impact*	*Earthquake risk*	*Project size*	*Consultation*	*Compensation*		*Conflict history*	*Funding source*	*Electricity export*	*Cultural destruction*	*Indigenous people*	
Myitsone Dam	0.67	7	5	0.52	1	1	150	0.33	0,33	1.7	0.67	1	1	1	1	12,000
Upper Karnali Dam	0.33	4	4	0.55	0	1	64	0.67	0.67	2.9	0.00	0	1	0	0	224
Three Gorges Dam	0.33	7	6	0.60	1	1	181	0.33	0.33	3.1	0.00	0	0	1	0	1,350,000
Nam Theun 2	0.33	7	6	0.53	0.67	0	39	1.00	1.00	2.1	0.00	0	1	0	1	6,738
Sardar Sarovar Dam	1.00	2	3	0.44	1	1	139	0.00	0.33	2.8	0.00	0	0	1	1	127,000

Son La Dam	0.33	7	5	0.61	0.67	1	138	1.00	0.33	2.6	0.00	0	0	0	1	91,000
Kamchay Dam	0.33	6	5	0.57	1	0	110	0.33	0.33	2.0	0.33	1	0	0	0	0
Bakun Dam	0.67	4	4	0.73	1	0	205	0.00	0.33	4.9	0.33	1	0	1	1	10,000
Upper Kotmale Dam	0.33	4	4	0.72	0	0	35.5	0.67	0.67	3.3	0.67	0	0	0	0	1,880
Xayaburi Dam	0.67	7	6	0.57	1	1	32.6	0.33	0.33	2.4	0.00	0	1	0	0	2,100
San Roque Dam	0.67	2	3	0.62	0.67	1	200	0.33	0	3.0	0.33	0	0	0	1	20,000
Kaeng Suea Ten Dam	0.67	4	4	0.66	0	0	72	0.00	0.33	3.3	0.00	0	0	1	0	5,000

TABLE 12: CALIBRATED RAW DATA MATRIX (SENSITIVITY ANALYSIS, TABLE 5, ROW 1)

	PROT	POS	DEV	CORRUPT	ENVR	SAFEG	CONFL	CULT	RESETTL
Myitsone Dam	0.67	0.17	0.33	1	1	0.33	0.89	1	0.33
Upper Karnali Dam	0.33	0.67	0.33	0.67	0.44	0.67	0.33	0	0
Three Gorges Dam	0.33	0.17	0.67	0.33	1	0.33	0	1	1
Nam Theun 2	0.33	0.17	0.33	0.67	0.22	1	0.33	1	0.33
Sardar Sarovar Dam	1	0.84	0.33	0.67	0.89	0.17	0	1	0.67
Son La Dam	0.33	0.17	0.67	0.67	0.78	0.67	0	1	0.67
Kamchay Dam	0.33	0.33	0.33	0.67	0.56	0.33	0.44	0	0
Bakun Dam	0.67	0.67	0.67	0	0.67	0.17	0.44	1	0.33
Upper Kotmale Dam	0.33	0.67	0.67	0.33	0	0.67	0.22	0	0.33
Xayaburi Dam	0.67	0.17	0.33	0.67	0.67	0.33	0.33	0	0.33
San Roque Dam	0.67	0.84	0.67	0.33	0.89	0.17	0.11	1	0.33
Kaeng Suea Ten Dam	0.67	0.67	0.67	0.33	0.11	0.17	0	1	0.33

TABLE 13: RAW DATA MATRIX (SENSITIVITY ANALYSIS, TABLE 5, ROW 9)

	PROT	POS	DEV	CORRUPT	ENVR	SAFEG
Myitsone Dam	0.67	0.33	0.33	1	1	0.33
Upper Karnali Dam	0.33	0.67	0.33	0.67	0.33	0.67
Three Gorges Dam	0.33	0.33	0.67	0.33	1	0.33
Nam Theun 2	0.33	0.33	0.33	0.67	0.33	1
Sardar Sarovar Dam	1	1	0.33	0.67	1	0.33
Son La Dam	0.33	0.33	0.67	0.67	1	0.67
Kamchay Dam	0.33	0.33	0.33	0.67	0.67	0.33
Bakun Dam	0.67	0.67	0.67	0	0.67	0.33
Upper Kotmale Dam	0.33	0.67	0.67	0.33	0	0.67
Xayaburi Dam	0.67	0.33	0.33	0.67	0.67	0.33
San Roque Dam	0.67	1	0.67	0.33	1	0.33
Kaeng Suea Ten Dam	0.67	0.67	0.67	0.33	0	0.33

TABLE 14: TRUTH TABLE (FOR THE MAIN ANALYSIS, TABLE 5)

SAFEG	ENVR	POS	DEV	CORRUPT	NUMBER	PROT	Raw consist.	PRI consist.	SYM consist.
0	0	1	1	0	1	1	1.000	1.000	1.000
0	1	1	0	1	1	1	1.000	1.000	1.000
0	1	1	1	0	2	1	1.000	1.000	1.000
0	1	0	0	1	3	1	0.931	0.785	0.785
1	0	1	0	1	1	0	0.892	0.323	0.323
1	1	0	1	1	1	0	0.890	0.320	0.320
0	1	0	1	0	1	0	0.877	0.320	0.320
1	0	0	0	1	1	0	0.870	0.244	0.244
1	0	1	1	0	1	0	0.858	0.244	0.244
0	0	0	0	0	0				
0	0	0	0	1	0				
0	0	0	1	0	0				
0	0	0	1	1	0				
0	0	1	0	0	0				
0	0	1	0	1	0				
0	0	1	1	1	0				
0	0	0	0	0	0				
0	1	0	1	1	0				

0	1	1	0	0	0
0	1	1	1	1	0
1	1	0	0	0	0
1	0	0	1	0	0
1	0	0	1	1	0
1	0	1	0	0	0
1	0	1	1	1	0
1	0	0	0	0	0
1	1	0	0	1	0
1	1	0	1	0	0
1	1	1	0	0	0
1	1	1	0	1	0
1	1	1	1	0	0
1	1	1	1	1	0

Appendix E: Case studies

Note: Calibration justifications are provided for the following causal outcome conditions/sub-dimensions: Degree of public protest, environmental impact, consultation, compensation and cultural destruction. Information on this causal outcome condition/these sub-dimensions was collected via our online survey, as indicated below.

Case	**Myitsone Dam**
Country	Myanmar
Construction time	2009 – ongoing
Brief description	The Myitsone Dam project is currently developed by China Power Investment Corporation (CPI) as well as Asia World, a Burmese dam developer, "owned by regime crony Steven Law" (U. S. Embassy, 2011). If completed, it would be the 15th largest hydroelectric power station in the world with a capacity of 6,000 MW (Mang & Deetes, 2011). 90% of this electricity would be exported to China's Yunnan Province (Mang & Deetes, 2011). Its future height is reported to be 150 meters (Hkanhpa & Nan, 2010). The project would inundate 766 km^2 of forested land (Mang & Deetes, 2011). The project's costs are estimated to stand at USD 3.6 billion and the project required the relocation of approximately 12,000 Kachin people, an ethnic minority in Myanmar (Mang & Deetes, 2011). Construction of the project started in 2009, it was suspended in 2011 (Hkanhpa & Nan, 2010). The majority of those we interviewed view the suspension as a symbolic gesture, "the visible starting point of Myanmar's change process", according to a World Bank official (T26062015). The dam site is less than 100 kilometers away from the earthquake prone Sagaing fault line (Mang & Deetes, 2011).

Degree of public protest	0.67	Kirchherr et al. (2016, p. 4) report that "massive protests all over Myanmar, particularly in Yangon" took place against the project in the spring and summer of 2011. More covert protests took place prior to the regime change. For instance, KDNG (2009, p. 1) notes that "mass prayer ceremonies calling for the protection of the rivers" were held which we view as a means to protest against the dam project. Already in 2010 (when the military government was still in place), 10 bombs exploded around the dam site, killing at least one Chinese worker (Hadfield, 2014). Yet this bombing was largely attributed to the ongoing ethnic conflict in Kachin State. The project was suspended in September 2011 due the significant public opposition (Harvey, 2011). Yet protests continue until today. One of the NGO staff we interviewed told us that "we have a 4-year-celebration for the suspension of the Myitsone Dam last year. 1,000 people walked from the church and shout 'Stop the Dam' and they walked near the river" (FNL23). Of those 4 experts recording their views on the project via the online survey, 3 stated that the project had incited significant and/or violent protests; one argued it had incited a moderate number of protests.
Environmental impact	1	The region the Myitsone Dam is built in has been recognized for its ecological value; it is one of the world's eight hotspots of biodiversity (Mang & Deetes, 2011). All three experts that recorded their views via the online survey regarding the project's environmental impact stated that it would be significant.
Consultation	0.33	An EIA was carried out for the project. However, there was no involvement of local communities took place (KDNG, 2007).

		Harvey (2011) reports that no public consultation took place regarding the Myitsone Dam project. Three experts providing a view on this sub-dimension via the online survey stated that project information was provided to the communities. However, feedback was not collected. A former employee of CPI, the lead developer, confirmed this (T22072015).
Compensation	0.33	Supposedly, the resettlement process was carried out "using intimidation by military authorities" (KDNG, 2009, p. 5). Nyein (2013) reports entirely insufficient compensation regarding the Myitsone Dam project. Allegedly, not even crops could be grown because the land was stone. Three experts provided their views on this sub-dimension via the online survey. All also stated that the compensation given was insufficient.
Cultural destruction	1	The dam will submerge historical churches, temples, and cultural heritage sites that are central to Kachin identity and history (Asian Sentinel, 2011). Furthermore, the river the dam is built on, the Irrawaddy, is widely seen as a cultural heritage and lifeline of Myanmar (Harvey, 2011).

Case	**Upper Karnali Dam**	
Country	Nepal	
Construction time	N/A	
Brief description	The project development agreement for the dam was only signed in 2014; commercial operation is supposed to start in 2021 (HydroWorld.com, 2014). The capacity is supposed to stand at 900 MW (HydroWorld.com, 2014); most of the electricity produced from the project will be exported to India, 12% of the dam's electricity will be received by Nepal free of charge (Government of Nepal, 2015b). Its supposed height is 64 meters (Government of Nepal, 2015b). Project costs are estimated to stand at USD 1.4 billion (Bhushal, 2014b). The project will be constructed by GRM Energy, an Indian firm (Bhushal, 2014b). No evidence was found that the Chinese government was involved in the project. The Government of Nepal (2015) points out that 2,000 jobs will be created during the construction period. 56 households (a total of 224 people, assuming an average household size of 4) will need to be resettled for the project (Government of Nepal, 2015a). No evidence was found that these are indigenous people. Nepal is prone to earthquakes which also may damage the Upper Karnali Dam (Schneider, 2015).	
Degree of public protest	0.33	Bhushal (2014) explicitly reports that the public is largely supportive of the project. Nevertheless, the project still has critics which have sent an open letter to the prime ministers of Nepal and India demanding that the project is scrapped (Bhushal, 2014a). Three experts reported their views on the project via the online survey. 2 reported limited to no public protest, one moderate protests.

Environmental impact	0	No reports indicating significant environmental impacts of the project were identified. Two experts that recorded their views on the project via the online survey indicated some environmental impacts. Due to the lack of evidence regarding significant environmental impacts, this sub-dimension was coded "0" eventually.
Consultation	0.67	The Government of Nepal (2015b) claims that it aims to ensure a smooth, transparent consultation process working closely with the affected communities. The project is also supposed to follow Asian Development Bank and the International Finance Corporation (IFC) standards (Government of Nepal, 2015b). The Resettlement Action Program (RAP) was seemingly endorsed by the affected districts indicating a sufficient consultation process (Government of Nepal, 2015a). Two experts stated their views in our online survey. These were both in lead roles in the project's environmental and social impact assessment (ESIA) and were thus deemed credible. One argued that no public participation had taken place, one indicated that basic information was provided to the villagers. However, both acknowledged that their knowledge only related to the very early stages of the project and that the consultation approach may have changed, though. Due to the statements by the Nepalese government regarding the consultation process and no opposing identified by NGOs, this sub-dimension was eventually coded 0.67.
Compensation	0.67	Ample compensation is supposed to be provided for those displaced because of the Upper Karnali Dam, according to CDM (2013). "A compensatory approach will be taken at replacement costs" (CDM, 2013). Jobs created by the project are supposed to be given first to

		those adversely impacted by it (CDM, 2013). The Resettlement Action Plan (RAP) supposedly follows social safeguard policies by the Asian Development Bank and the International Finance Corporation (IFC); yet only 1 percent of total project costs must be spent on resettlement, rehabilitation of affected people as well as the mitigation of environmental impacts, though (Government of Nepal, 2015a). No information on compensation was recorded by any of the experts via the online survey. Since there is no indication so far that compensation may be insufficient, this sub-dimension was eventually coded 0.67, due to the report by CDM (2013) on compensation.
Cultural destruction	0	No press reports were found regarding any destruction of cultural heritage due to the Upper Karnali Dam. An engineer who had completed a pre-feasibility study for the project confirmed via our online survey that cultural heritage was not impacted by the project.

Case	**Three Gorges Dam**	
Country	China	
Construction time	1993 – 2008	
Brief description	The Three Gorges Dam is the largest hydroelectric power station in the world with a generating capacity of 22,500 MW and a height of 181 meters (USGS, 2015). It provides approximately 3% of China's 2010 energy needs (National Geographic, 2010). The history of the Three Gorges Dam is extensive. A dam was first proposed at the Three Gorges site in 1919 (Kittinger et al., 2009, p. 602). Initial works began in 1993, construction was completed in 2008 (PT, 2015). 1.35 million people were displaced because of the project (Wilmsen et al., 2011, p. 22). No evidence was found that these are indigenous people. Project cost are estimated at USD 37 billion (International Rivers, 2012, p. 2). The dam is placed on two major fault lines (NTD, 2014).	
Degree of public protest	0.33	Protests certainly occurred within China against the Three Gorges Dam. However, these were limited overall. Wilmsen et al. (2011, p. 22) report that "those affected by the project have taken their concerns to the street, staging protests and travelling vast distances to air their anxieties in Beijing". Of the nine experts reporting their views on the project, 7 reported moderate protests, 1 many protests and 1 violent protests.
Environmental impact	1	Environmental impacts of the Three Gorges Dam are reported to be significant. The project is located in one of the world's biodiversity hotspots. Its construction may contribute to the distinction of the Yangtze River dolphin as well as the potential loss of more than 44

		species of endemic fish (Kittinger et al., 2009). 11 experts recorded their views regarding the Three Gorges Dam via the online survey. All reported that the project has significant environmental impacts.
Consultation	0.33	Of the 9 experts recording their views via our online survey, 5 argued that basic information was provided to impacted communities, 2 also pointed out that feedback was collected. Only 2 argued that feedback was also incorporated. Thus, this sub-dimension was coded 0.33.
Compensation	0.33	Compensation was given to those impacted by the Three Gorges Dam. The resettlement and displacement costs were about 40% of the total project costs (Wilmsen et al., 2011, p. 359). However, this still seems to have been largely insufficient. Wong (2007) argues that much of the financial resources devoted to those resettled would have been lost to corruption. "Residents said they had received only $645 of the $4,900 entitled to them for land expropriation", she reports. Wilmsen et al. (2011, p. 372) also finds that those resettled overall lost assets due to the resettlement. This is reflected by the findings of the online survey. Of those 10 experts recording their views on compensation regarding the project, 7 experts stated that compensation was largely insufficient, 3 argued it was largely sufficient. Thus, this sub-dimension was coded 0.33.
Cultural destruction	1	Dozens of cultural and architectural sites have been inundated due to the dam (National Geographic, 2010). The most notable relics lost may be those of the ancient Ba people who lived in the region more than 4,000 years ago already (National Geographic, 2010). Efforts were undertaken to save the cultural heritage threatened by the

project. However, this was reportedly not a priority of the project developers (Kuhn, 2008). We collected 9 assessments regarding the project's cultural heritage via our online survey. All but one reported that the significant cultural and religious heritage sites inundated, while few to none were preserved. Only 1 respondent argued that some sites were inundated, while some were preserved.

Case	**Nam Theun 2**
Country	Laos
Construction time	2006 – 2010
Brief description	When launched in 2011, Nam Theun 2 – with a height of 39 meters – was the largest energy project developed in Laos (Mirumachi & Torriti, 2012, p. 126). Environmental and social safeguard studies for the project were completed in 1997 after a planning period of 10 years (Erlanger et al., 2008, p. 225). Similarly to the Myitsone Dam, the project is supposed to generate revenue for the government; its electricity is exported to Thailand (Lee, 2015); the project has a reported capacity of 1083 MW (Erlanger et al., 2008) of which 995 MW of this will be exported to Thailand (Power Technology, 2015). 6738 people from 17 villages were replaced due to the project (Sayatham & Suhardiman, 2015, p.. 71). These were mostly indigenous people (Shoemaker et al., 2014). The USD 1.45 billion project is particularly notable because it was meant to be the World Bank's flagship project (Shoemaker et al., 2014); prior to this project, the World Bank had entirely abandoned the hydropower sector for about a decade (H. Schneider, 2013). Indeed, the World Bank argued that "insights and lessons that can be applied in future projects of similar size, scope, and complexity" (Porter & Shivakumar, 2010). The project is operated by the Nam Theun 2 Power Company (NTPC) which, in turn, is owned by a consortium of Electricite de France International (EdFI) of France (35%), Electricity Generating Public Company (EGCO) of Thailand (25%), Italian Thai Development (ITD) of Thailand (15%) and the Government of Laos (25%) (Power Technology, 2015). No evidence was found regarding Chinese

		involvement. No evidence was found that the dam is close to any major fault lines.
Degree of public protest	0.33	Protests against Nam Theun 2 within the country were limited. Samabuddhi (2005) reports that about 100 dam-affected villagers and international green groups rallied in front of the World Bank's office to protest against the project. Of the 21 experts voicing their views on the project via the online survey, 13 argued that no or only few protest had taken place, 8 reported moderate levels of protest. Not a single expert reported significant or violent protests. Thus, this outcome was coded 0.33.
Environmental impact	0.67	IRN (2002, p. 1) reports that the Nam Theun 2 project has adverse impacts on biodiversity, including endangered birds, mammal and fish species. This is only partially echoed by the online survey conducted. Of those 21 experts recording a view on the environmental impacts of this project, 12 argued these would be significant, 7 stated some environmental impacts. 2 stated no or limited environmental impacts. Because of the report by IRN (2002) highlighting the project's adverse environmental impacts as well as the many expert judgments arguing the project's environmental impacts would be significant, this sub-dimension was eventually coded 0.67.
Consultation	1	Numerous stakeholders were consulted for this project for several years, information on it was disseminated widely and the inputs of various affected groups allegedly shaped the resettlement program (Mirumachi & Torriti, 2012). This evaluation is largely reflected in the expert judgements collected via the online survey. 9 argued that

		feedback was incorporated to the maximum extent feasible, 5 argued it was partially incorporated. Only 5 respondents criticized the Nam Theun 2 public consultations. Due to the scholarly judgement and the majority of expert judgements indicating a benchmark public consultation process, this sub-dimension was coded 1.
Compensation	1	Souksavath & Nakayama (2012, p. 71 ff.) who reviewed the reconstruction of livelihoods of those resettled due to the Nam Theun 2 project find that the project developer provided "superior compensation for the resettlers when compared with other similar projects in Laos". Only land resources provided for agricultural purposes were not always sufficient (Souksavath & Nakayama, 2013). Most of those surveyed that were resettled "indicated similar satisfaction with the place they live before and their current village" (Souksavath & Nakayama, 2013). Of those 21 experts voicing their views on this project via the online survey, 17 also deemed the compensation provided for this project to be sufficient, while only 4 deemed it to be insufficient. Due to the positive scholarly assessment and due to the majority of experts also deeming compensation to have been sufficient and because compensation seems to have been particularly sufficient compared to other projects investigated in this paper, this sub-dimension was eventually coded with 1.
Cultural destruction	0	The residents from the resettled villages indicated that they each had Buddhist temples in their original villages. After the resettlement, these two villages still have village temples, whereas, apparently, these were newly built (Souksavath & Nakayama, 2013). Religious activities had not changed (Souksavath & Nakayama, 2013). This is

	largely reflected by the 15 assessments regarding the project's cultural heritage that we collected via our online survey. 12 indicated that no or only limited cultural heritage was inundated by the project, only 3 argued that that the cultural heritage impact was significant. Thus, this sub-dimension was coded 0.

Case	**Sardar Sarovar Dam**	
Country	India	
Construction time	1987 – 2006	
Brief description	The Sardar Sarovar Dam is the main dam within the master plan of the Narmada Valley Development Project. Upon completion, the dam would irrigate 1.8 million hectares of farming land, supply drinking for 8215 villages and 135 urban areas and would feature a capacity of 1450 MW which would benefit both Indian rural and urban areas (Dwivedi, 1999, p. 47). The idea of damming the Narmada River dates back to the 1950s already (Garikipati, 2005, p. 341). Project appraisal already began in the early 1980s (Dwivedi, 1999). Construction of the dam (with a height of 139 meters) started only in 1987 (Garikipati, 2005). 127,000 people were relocated because of the project (Lerer & Scudder, 1999, p. 118), many of which are indigenous people (Ellison, 2005). No evidence was found regarding any Chinese involvement. The project is the focal point of resistance for the Narmada Bachao Andolan (NBA), a social movement advocating against the dams built on the Narmada River (Maiti, 2001, p. 1). Seismic risks regarding the Sardar Sarovar Dam were pointed out by Singh (n.d.).	
Degree of public protest	1	The massive domestic protest against the dam has been reported by numerous scholars. Examples are Doyle (2005), Routledge (2003) and Dwivedi (1999). The World Bank pulled out of this project due to these protests and Biswas (2012, p. 7) even called this project “the World Bank’s Vietnam”. Of those 4 experts recording their views on the project, 3 reported significant protests, 1 violent protests.

		Particularly due to the World Bank pulling out of this project, this dam was coded 1.
Environmental impact	1	389 wild species of plants are impacted by the project; three of these are listed as rare and possibly endangered (Sabnis, 2001). All four experts that recorded their views on the environmental impacts of the project via the online survey argued these impacts would be significant. Thus, this sub-dimension was coded 1.
Consultation	0	Information of the nature and scope of displacement induced by the Sardar Sarovar Dam was scanty, (Dwivedi, 1999). "The people were largely left in the dark about their losses and rights" (Dwivedi, 1999). This scholarly judgement is largely reflected by the online survey. Two experts stated that no public consultation at all took place in this project, two stated that basic information was provided, but that no feedback was incorporated. Due to the critical scholarly judgement in combination with half of the experts stating that no public consultation took place, this sub-dimension was coded 0 eventually.
Compensation	0.33	Dwivedi (1999, p. 50) argues that compensation provided was insufficient. For instance, no compensation was given for a loss of a job or other livelihoods in the reservoir area; cash compensation was entirely ruled out. Insufficient compensation was also found by Garikipati (2005, p. 340 ff.). These views were also reflected in the online survey. All three experts recording their views regarding this sub-dimension via the survey argued that the compensation provided was largely insufficient. Thus, this sub-dimension was coded 0.33.

Cultural destruction	1	Neuss (2012, p. 12 ff.) devotes an entire chapter in his book on the Narmada valley to the destruction of cultural heritage to the various planned dam projects (including the Sardar Sarovar Dam). He particularly points towards the archaeological importance of the Narmada valley. For instance, the oldest hominid skull ever was found in this region (Neuss, 2012). The expert judgements are ambiguous regarding the project's cultural heritage impact. 2 experts reported significant impacts, 2 only some. Due to the extensive report by Neuss (2012, p. 12 ff.) regarding cultural heritage impacts, this project was eventually coded 1 on this sub-dimension.

Case	**Son La Dam**
Country	Vietnam
Construction time	2005 – 2012
Brief description	The Son La Dam – with a capacity of 2,400 MW and a height of 138 meters – is the largest hydropower project ever built in Vietnam (International Rivers, 2015b; VNCOLD, 2009; WRM, 2015); it is supposed to power Vietnam's economy with no electricity to be exported abroad (vietnamnet.vn, 2015). Construction of the project started in 2005, the project was fully operational in 2012 – two years sooner than originally anticipated by the responsible engineers (Shestopalov & Volynchikov, 2013). The dam required the resettlement of 91,000 people, most of them indigenous – the largest displacement in Vietnam's history (International Rivers, 2015b). The project's costs stand at USD 2.4 billion. The project's construction was funded by the Vietnamese government (with limited support for the resettlement program from the Asian Development Bank); the World Bank funded the feasibility study for the project (EJA, 2015). No evidence regarding Chinese involvement was found. Mekong Utility Watch (2004) reports that it would be feasible that the Son La Dam is hit by an earthquake with the magnitude of 8.0.
Degree of public protest	0.33 No reports were found regarding protests against the project. However, moderate levels of public protest were reported by an expert via the online survey on this project. This expert had indirectly worked on the project via a major dam developer. Thus, the judgement was deemed credible and the project was coded with 0.33.

Environmental impact	0.67	An independent scholar who has conducted a case study on the project and who recorded his views via our online survey indicated that the Son La Dam's environmental impacts would be significant. Since these significant impacts were not further specified, though, this sub-dimension was eventually coded with 0.67.
Consultation	1	Bui & Schreinemachers (2011, p. 773) find that "the local population were allowed to participate in developing the resettlement master plan, and a fund was set aside to pay for the resettlement of affected people". It was only possible to collect one expert judgement on this sub-dimension via the online survey. The expert did not know regarding the level of public consultation. However, the scholarly judgement was deemed credible. Thus, this sub-dimension was coded 1.
Compensation	0.33	Nearly 32% of the project costs were given for compensation and resettlement (Bui & Schreinemachers, 2011). Nevertheless, Bui & Schreinemachers (2011, p. 783) find that resettled households experienced substantial losses in land and livestock resources and as a result a decline in incomes. Compensation was deemed to be insufficient by one expert who had conducted scholarly field research on this dam. Thus, this sub-dimension was coded 0.33.
Cultural destruction	0	No reports were found regarding cultural heritage impacts of the Son La Dam. An expert that had conducted scholarly field research on the dam and recorded his knowledge via our online survey also did not know regarding any cultural heritage impacts.

Case	**Kamchay Dam**
Country	Cambodia
Construction time	2008 – 2011
Brief description	The Kamchay Dam started operations in 2011. The 194 MW project with a height of 110 meters increased Cambodia's total capacity (of back then 600 MW) by almost one-third (Global Energy Observatory, 2015; Hensengerth, 2015). The dam's electricity will power Kampot, Phnom Penh, and Preah Sihanouk province (Xinhua, 2011). It is Cambodia's first-ever large scale hydropower project and "is seen by many as a symbol of the increasingly strong ties between Cambodia and China" (Grimsditch, 2012, p. 4). Constructed by the Chinese state-owned enterprise (SOE) Sinohydro and financed with a loan by China Exim Bank (CEB), it was the largest foreign direct investment (FDI) in Cambodia's history at the time of its approval (Grimsditch, 2012). The project required no resettlement since the dam is located in a sparsely populated national park, the Bokor National Park (Ham et al., 2015, p. 162). It flooded 2,000 hectares within the park which was home to various threatened species (International Rivers, 2015a). No reports were identified regarding earthquake risks.
Degree of public protest	0.33 A semi-structured interview was carried out with a scholar who had conducted field research on this very dam. The expert reported that no street protests were carried out against the project (TA1). This was largely confirmed by an international donor we interviewed (TI4). These assessments contradict a statement by Trandem (2012) claiming that numerous protests had been held against the project by affected people. For instance, more than 70 families apparently

		blocked a local road. Two expert opinions were collected regarding the degree of public protest via the online survey. One indicated that significant public protests had taken place, one indicated moderate levels. Eventually, this outcome was coded 0.33 – assuming that those experts we conducted semi-structured interviews with would have indicated if significant protests had taken place.
Environmental impact	1	10 endangered species (including Asian elephants, leopard cats and tigers) are impacted by the project (Trandem, 2012). One expert recorded some environmental impacts, one significant environmental impacts via the online survey. Due to the report by Trandem (2012) and the input by experts that indicated at least some impacts, this sub-dimension was eventually coded 1.
Consultation	0.33	The anti-dam-NGO *International Rivers* particularly criticized the project because it was negotiated behind closed doors; furthermore, the dam's Environmental Impact Assessment (EIA) was only completed months before the dam started operating (International Rivers, 2015a). Accordingly, Hensengerth (2015, p. 522) finds that the "EIA process was irrelevant to the construction decision or the construction process". The environmental impact assessment was published at a consultation meeting in early 2011. However, no affected communities were invited to join this meeting, according to Trandem (2012). This statement is largely reflected by the online survey. Two experts recorded their views via the survey. Both indicated that basic information on the project was provided, but that no feedback was incorporated. Thus, this sub-dimension was coded 0.33.

Compensation	0.33	Parekh (2010) states that no official information was provided by Sinohydro regarding compensation. Compensation was not discussed by Hensengerth (2015). Ham et al. (2015, p. 162) state that compensation was given "to some affected households whose agricultural lands was affected by the construction of transmission lines and roads to access the dam construction site". This compensation was not sufficient, according to the online survey. Two experts voiced their opinion on this sub-dimension. Both stated that the compensation given was insufficient. Thus, this sub-dimension was coded with 0.33.
Cultural destruction	0	Hensengerth (2015) does not report any cultural heritage impact in his analysis on the Kamchay Dam. A consultant that reported his views on the project via our online survey argued that some cultural heritage was inundated, while some was preserved. No additional details were provided. Due to the detailed scholarly account of the project by Hensengerth (2015) with no mentions of cultural impacts, this causal condition was eventually coded 0.

Case	**Bakun Dam**
Country	Malaysia
Construction time	1996 – 2011
Brief description	The Bakun Dam started operating in 2011 – "after […] decades of delay" (Mang & Lee, 2015); it was constructed by the Chinese stated-owned enterprise Sinohydro (Mang & Lee, 2015). The project was first proposed in the early 1980s to exploit the potential of the Sarawak River (Lee, Viswanathan, & Ali, 2014, p. 65). With a height of 2015 meters and a capacity of 2400 MW, it is the largest dam in Asia outside of China (Mang & Lee, 2015); its estimated construction costs stand at USD 3.6 billion (Swain & Chee, 2004). Originally, 90% of the dam's electricity was supposed to be sent to peninsular Malaysia via undersea cables (Mang & Lee, 2015; Swain & Chee, 2004). However, this plan was cancelled due to cost and feasibility considerations. The dam now only powers Sarawak which only has a demand of approximately 1,000 MW – 1,400 MW less than the project's capacity (Mang & Lee, 2015). The dam submerged an area of the size of Singapore requiring the resettlement of 10,000 indigenous people (Gabungan, 1999, p. 1). No reports were identified on earthquake risks regarding the Bakun Dam.
Degree of public protest	0.67 Koswanage (2011) argue that the project would be "by far the nation's most controversial project with more than 100 cases still pending in Malaysia's courts". Eight experts voiced their views regarding the degree of public protest via the online survey. 4 stated that significant and/or violent protests had taken place; 3 stated moderate levels of protest, 1 limited protests. We also conducted a

		semi-structured interview with a researcher who had carried out a case study on the project. The scholar argued that there was significantly more protests against the Bakun Dam than against the Kamchay Dam (TA1). Thus, the project was coded with 0.67.
Environmental impact	1	All 8 experts that recorded their views regarding environmental impacts of this project argued that the dam had significant environmental impacts.
Consultation	0	Lee et al. (2014, p. 66) state a lack of consultation regarding impacted indigenous communities as well as the absence of public participation in the environmental impact assessment (EIA). This was also stated by Swain & Chee (2004, p. 103). The Malaysian High Court even declared the project to be invalid because it did not comply with the country's public participation guidelines (Lee et al., 2014, p. 66). 7 experts provided views on this project sub-dimension via the survey. 6 stated that only basic information was provided, 1 also claimed that feedback was collected. One of these experts, an international donor, also started that the project was "particularly shady". Thus, this sub-dimension was eventually coded 0.
Compensation	0.33	Already in the beginning of resettlement process, "many had little confidence that any resettlement would be to the benefit of indigenous peoples", Gabungan (1999, p. 1) reports. These fears were proven to hold true by Lee et al. (2014, p. 64 ff.) finding that those resettled are severely dissatisfied with the resettlement process because more compensation was promised than eventually given (with an average compensation gap of 20 acres per studied household). Compensation was disastrous in the case of the Bakun

		Dam. Mang & Lee (2015) from the anti-dam-NGO *International Rivers* report that "when the communities were resettled, the government told the people they must pay for their own housing, which forced many families into debt". This overall evaluation is shared by scholars. Lee et al. (2014, p. 379 ff.) who surveyed 379 families displaced by the construction of the dam find high levels of dissatisfaction with the compensation provided. All eight experts voicing their opinion on this sub-dimension also stated that compensation was insufficient.
Cultural destruction	1	Indigenous property and culture was destroyed due to the project, Lee et al. (2014, p. 65) report. These include hunting and burial grounds (Lee et al., 2014, p. 71). This is largely reflected in the results of our online survey. 2 experts indicate that significant cultural heritage is inundated due to the project, 2 indicate that some is destroyed. Due to emphasis of cultural heritage impacts in the scholarly account and all experts indicating at least some cultural heritage impacts, this sub-dimension was eventually coded 1.

Case	**Upper Kotmale Dam**
Country	Sri Lanka
Construction time	2006 – ongoing
Brief description	The Upper Kotmale Dam was conceived with the preparation of a master plan for hydroelectric development in Sri Lanka's Mahaweli Basin in 1968 already (Ceylon Electricity Board, 2015b). Project construction commenced in 2006 (Daily News, 2010); project completion currently stands at 98% according to the Ceylon Electricity Board (2015); particularly permanent facilities for the resettles are not yet complete. The Upper Kotmale Dam has a capacity of 150 MW (Withanage, 1999) which is supposed to power Sri Lanka. The project is particularly noteworthy because it is the last large hydropower scheme to be developed in Sri Lanka because the country's potential for large dams is almost fully exploited already (Ceylon Electricity Board, 2015a). The key purpose of the project is electricity generation (Ceylon Electricity Board, 2015a). 470 families (a total of 1880 people, assuming an average household size of 4) were replaced due to the project (TamilNet, 2005). No evidence was found that these were indigenous people. The dam's height is 35.5 meters (Daily News, 2010). The project was partly financed by the Japan International Cooperation Agency (JICA) (Ministry of Power and Renewable Energy (Sri Lanka), 2015). No evidence regarding Chinese involvement was found.
Degree of public protest	0.33 A grassroots organization against the project exists, the People's Campaign Against Upper Kotmale Project (PCAUKP) (TamilNet, 2005). However, it impacts seems to be limited. Seven experts voiced their views on the degree of public protest regarding this dam

		via the online survey. 6 stated that no public protests had taken place, 1 argued limited public protests had taken place. Hence, this outcome was coded 0.33.
Environmental impact	0	No evidence was found regarding any significant adverse impacts on biodiversity due to the project. However, seven waterfalls will be destroyed by the project (Withanage, 1999). Two experts recorded their views regarding the project's environmental impacts via the online survey and stated that it had some environmental impacts. Due to this lack of evidence regarding significant environmental impacts, this sub-dimension was eventually coded 0.
Consultation	0.67	UNEP (n.d.) reports that the project was attempted to be carried out according to World Commission of Dams (WCD) guidelines; various public consultation measures took place. Two expert opinions were collected on the project. One stated that only basic information was provided, one deemed to consultation process to be sufficient. Due to the report by UNEP (n.d.) and the eventual expert judgement, this sub-dimension was eventually coded 0.67.
Compensation	0.67	Ramanayake (2007) reports that full compensation was paid to those displaced by the project. 495 housing units were handed over to those displaced. One expert voiced his views on compensation via the online survey and stated that it was insufficient. The expert had only conducted a field visit regarding the project during his undergraduate studies, though. Thus, the judgement by Ramanayake (2007) was deemed more credible and the sub-dimension was coded 0.67.

Cultural destruction	0	No reports were found mentioning cultural heritage impacts of this project. An expert that had carried out a field visit regarding the project and recorded his knowledge via our online survey also argued that the project had no cultural heritage impacts.

Case	**Xayaburi Dam**
Country	Laos
Construction time	2012 – ongoing
Brief description	Construction of the project started in 2012 (Yasuda, 2015, p. 2); the dam is constructed by the Thai construction company CH. Karnchang (Oxfam, 2015). No evidence regarding Chinese involvement was found. It is the first mainstream dam under construction in the four Lower Mekong countries and one of 11 dams proposed for the Lower Mekong mainstream (Boer et al., 2015, Chapter 1). The dam's height will stand at 32.6 meters; it will be the largest power project in Laos with an envisaged capacity of 1,260 MW (Boer et al., 2015, Chapter 1). Thailand's electricity utility, the Electricity Generating Authority of Thailand (EGAT), has agreed to purchase 95% of the electricity generated by the hydroelectric power station (Deetes & Trandem, 2015). 2,100 people must be resettled because of the project (Deetes & Trandem, 2015). No evidence was found that these are indigenous people. Herbertson (2012) reports earthquake risks regarding the Xayaburi Dam.
Degree of public protest	0.67 Yasuda (2015) analyzes the advocacy strategies chosen by the Rivers Coalition in Cambodia and the Vietnam Rivers Network to combat the construction of the Xayaburi Dam. International Rivers is also advocating against the project (Deetes & Trandem, 2015). Particularly the analysis by Yasuda (2015) suggests significant public protests against the project – which is also why the outcome was coded with 0.67 eventually. We also coded this project with 0.67 since significant legal action is undertaken against it, outlined

		as a criterion in the paper justifying a coding of 0.67. For instance, 37 Thai villages have filed against it (Deetes, 2015). Meanwhile, the Finnish consulting and engineering company Pöyry faces complaints regarding its involvement in the project by civil society groups in Finland (DW, 2012). Nevertheless, it must be noted that the data collected via the online survey is ambiguous. 6 experts recorded their views regarding the degree of public protest faced by this project. 2 states significant and/or violent protest, 2 moderate protests, and 2 limited protests. The recent scholarly analysis by Yasuda (2015) in combination with the legal action undertaken against it is the reason why this project was coded 0.67 eventually. An anonymous reviewers of this paper contested that the protests against the Xayaburi Dam are significant. Yet the reviewer acknowledged that protests would be greater than those against Nam Theun 2 for two reasons. First, regional activist linkages would have developed since Nam Theun 2 which was undertaken years prior to the construction of the the Xayaburi Dam. These linkages, in turn, would have intensified protests. Second, the Xayaburi Dam – as a mainstream dam – would have much more significant impacts for downstream communities and countries resulting in more regional activism.
Environmental impact	1	The dam will block fish migration routes for 23 to 100 species (including the migration route of the Mekong Giant Catfish) (Deetes & Trandem, 2015). Nine experts recorded their views regarding the environmental impacts of the Xayaburi Dam via the online survey.

		All argued that the impacts would be significant. Thus, this sub-dimension was coded 1.
Consultation	0.33	A public consultation was carried out according to the Mekong River Commission (2011). This was acknowledged by 6 of the 7 experts that submitted their views on this sub-dimension via the online survey. Three also stated that feedback was collected, three stated that only basic information was provided. One expert criticized that impact evaluations did not include downstream impacts. Since none of the 7 experts stated that the consultation was sufficient, this sub-dimension was eventually coded 0.33.
Compensation	0.33	According to media reports, those villagers resettled because of the project will receive financial assistance for only one year (Radio Free Asia, 2013). 6 expert opinions were recorded via the online survey. 5 of these experts stated that compensation was insufficient, one stated that compensation was sufficient. One of the experts was a consultant involved in the environmental and social impact assessment in the project. Due to the majority of experts stating that compensation was sufficient, this sub-dimension was coded 0.33 eventually.
Cultural destruction	0	No reports mentioning cultural heritage impacts of the Xayaburi Dam were found. Six experts recorded their views on this project via the online survey. 2 did not know regarding any cultural impacts, 2 explicitly stated that the project had no cultural impacts and 2 argued there would be some cultural impacts. Due to this lack of evidence regarding significant cultural impacts, this sub-dimension was coded 0 eventually.

Case	**San Roque Dam**
Country	The Philippines
Construction time	1998 – 2003
Brief description	Commissioned in 2003 with a height of 200 meters the San Roque Dam is the third largest dam in Asia and the 12th largest dam in the world (NPC, 2015). The dam has a total capacity of 411 MW which would primarily be used to power various industrial activities and the burgeoning mining industry in Luzon, the Philippines (WRM, 2001); it also provides year-round irrigation to 21,000 hectares of farmlands (SRPC, 2015). Project costs are estimated to stand at USD 1.2 billion (WRM, 2001). The project was funded by a consortium of Japanese lenders (including JEXIM, the Export-Import Bank of Japan) and Filipino players (WRM, 2001). No evidence regarding Chinese involvement was found. 20,000 people were displaced because of the project, according to conservative estimates (McKee, 2008, p. 25). McKee (2008, p. 3) reports that social safeguards were in place only superficially. Apparently, "over 160 families at the dam site in Pangasinan were forcibly displaced in early 1998 and for almost a year were living in desperate conditions at a temporary site" (WRM, 2001). Many of those displaced were indigenous people (McKee, 2008). The dam is only seven kilometers away from a fault line, the San Manuel segment (Legaspi, 2009).
Degree of public protest	0.67 No expert recorded views regarding the degree of public protest in this project. Press research and a review of scholarly articles suggests, though, that significant protests against the project took place. For instance, McKee (2008, p. 24) argues that the project is

		"ranked among some of the most politically contentious development projects in the world". WRM (2001) reports a rally against the project with more than 4,000 participants. BULATLAT.COM (2002) also reports massive protest against the dam with hundreds of participants.
Environmental impact	0.67	No scholarly account on the project's environmental impact was identified. Overall, reports on the project are limited. However, the environmental impact assessment (EIA) consultant who worked on the project and recorded his views on the project via the online survey reported significant environmental impacts. Yet these impacts were not further specified. Thus, this sub-dimension was coded 0.67.
Consultation	0.33	Between the years 2000 and 2002, twelve consultations took place between a consultancy group and indigenous people (McKee, 2008). A Memorandum Of Agreement between the National Commission on Indigenous Peoples (NCIP), the National Power Corporation (NPC), the San Roque Power Corporation (SRPC), the local government units and indigenous people was signed regarding the resettlement action plan (McKee, 2008). However, promises were apparently not implemented (see next section on *Compensation).* Thus, this sub-dimension was eventually coded 0. No expert judgements could be recorded on this sub-dimension.
Compensation	0	Kurita (2007, p. 4) reports that a compensation program was in place. However, this was apparently insufficient. "Many impacted people who participated in the compensation program could not overcome the damage" (Kurita, 2007). This negative assessment was

		echoed by WRM (2001): “"Over 160 families at the dam site in Pangasinan were forcibly displaced in early 1998 and for almost a year were living in desperate conditions at a temporary site”. Apparently, the dam developer promised them land and houses, but eventually only minimal compensation was allocated. Thus, this sub-dimension was coded 0. No information regarding compensation was collected via the online survey.
Cultural destruction	0	McKee (2008) does not report any cultural heritage impacts of the project. No other reports mentioning cultural heritage impacts were found. The environmental impact assessment (EIA) consultant who worked on the project and recorded his views on the project via the online survey also did not mention any cultural heritage impacts.

Case	**Kaeng Suea Ten Dam**
Country	Thailand
Construction time	N/A
Brief description	The Kaeng Suea Ten Dam is still at the planning and design stage. The original plan for the Kaeng Suea Ten Dam was outlined in 1980. (Apichitchat & Jung, 2015, p. 2325). Its construction was supposed to start parallel to the Pak Mun Dam in the late 1980s (Mekong Watch, 2015). Originally, the project was sponsored by the World Bank, according to the field research we carried out. No evidence regarding Chinese involvement was found. The dam is supposed to hold up as much as 1,200 million cubic meters of water in order to prevent flooding within Sukhothai Province and lower northern regions (Sarnsama, 2012) and would feature a capacity of 49 MW (Mwehseng, 2013) – the smallest capacity of all dams investigated. There is no indication that this power would be exported. Its envisaged height is 72 meters, according to our field research. Supposedly, implementing the project would cost 3.5 billion Thai baht (100 million USD) (Mwehseng, 2013). However, massive protests of the four villages, Don Chai, Don Chai Sak Thong, Don Kaew und Mae Ten, with an estimated total population of approximately 5,000 people (none of which are indigenous people), have delayed the project until today, according to our field research. Supposedly, several key decision-makers within Thailand's Royal Irrigation Department are currently pushing again for the construction of the Kaeng Suea Ten Dam. A report was identified arguing that the dam was close to the Phrae fault line (AC, 2016). This information

		could not be verified during field research, though, and is thus not reflected in the raw data matrix.
Degree of public protest	0.67	We have carried out an in-depth case study on this project and have documented the sophisticated and massive system of protest in place against this dam. We note that this is the only dam in this sample (besides the Myitsone Dam) that faced a campaign featuring violence as a tactic; villagers smashed cars of World Bank officials attempting to survey the village. Since this violence was only low level violence, though, the outcome condition was coded 0,67, not 1.
Environmental impact	0	The authors of this paper have carried out an in-depth case study on this project. No considerable environmental impacts (beyond the flooding of teak forest) were identified during this research.
Consultation	0	No public consultation took place for this project, the field research carried out by the authors of this paper indicates. Rather, the government marked forests that would be inundated due to the dam construction with the assistance of affected villagers without telling the villagers the intention of these markings.
Compensation	0.33	The field research carried out by the authors of this paper indicates that compensation was offered. This was judged entirely insufficient by the villagers, though. Compensation had to be negotiated by each impacted household individually. This intransparency was also criticized by the villagers.
Cultural destruction	1	Significant cultural heritage impacts would incur if the project was carried out, according to our field research. These include, for instance, the destruction of a major Buddhist temple.

9.3 APPENDIX (CHAPTER 5)

9.3.1 Overview of relevant interviewees

Table 1: Interviewees

Interviewee	Association	Code
Pastor	Myitsone Dam relocation camp	FAA1
Resettlees	Myitsone Dam relocation camp	FAA2 – FAA5
Villagers	Don Chai/Don Chai Sak Thong	FAA7 – FAA45
Government official	Thai ministry	TG5
Senior official	Kachin Independence Organization	FG7
Senior official	International donor	TI7
Senior official	International donor	FI8
Activist	International NGO	TNI15
Leading activist	Burmese NGO	FNL3
Managing director	Thai NGO	TNL10
Activist	Involved in anti-Myitsone Dam protests, now working for an international NGO	FNL6
Leading activist	Major Burmese NGO	FNL12
Leading activist	Burmese NGO	TNL13
Leading activist	Kachin NGO	TNL17
Activist	Thai NGO	FNL18
Managing director	Major Burmese environmental NGO	FNL20
Managing director	Kachin NGO	FNL21
Activist	Kachin NGO	FNL23
Staff	Thai NGO	TNL26
Senior staff	European dam developer	TP6
Manager	Consulting firm in Myanmar	FP19
Former employee	Chinese dam developer	TP24

9.3.2 Approach description regarding literature review on anti-dam-movements

This appendix contains additional information on the systematic literature review I undertook on anti-dam-movements.

The first step of such a systematic review is the systematic creation of a sample. I generated my initial sample of articles on anti-dam-movements via a three-step-process.

Firstly, keyword searches were undertaken in four databases: Thomson Reuters' Web of Science, the University of Oxford Search Oxford Libraries Online (SOLO), Elsevier's Scopus and ProQuest. Searches included any scholarly journal articles, grey literature, book chapters and books that featured combinations of the keywords *anti-dam-movement, conflict, resistance* and *dam* as well as various plural forms of the keywords at hand. No starting date was set. Searches were not restricted to any particular discipline.

Secondly, I asked an expert in the field who had recently completed a doctoral dissertation on hydro-politcs regarding the alleged key pieces of literature on this topic and also added these pieces to the initial sample.

Thirdly, I added the bibliographies of several key pieces of literature (according to my initial understanding of the field and the views of the expert consulted) to the sample, namely the bibliographies of Evren (2015), Khatun (2013), McCormick (2006), Simpson (2013), Sneddon & Fox (2008), Swain & Chee (2004), Tilt (2014) and Yasuda (2015).

My initial sample based upon this three-step-process comprised 1070 articles.
I then refined this sample, removing any article from the sample if at least one of the six criteria below was met:

- *Repetition*: Pieces appearing more than once in the initial list;
- *Focus:* Pieces unrelated to anti-dam-movements[19];

[19] Whenever I was not entirely certain – based upon reading the abstract and skimming the body of the article – if the article in question was truly unrelated to anti-dam-movements, we chose to include it in the sample. We would then only exclude it based upon an in-depth-review of the article during the coding process.

- *Language:* Pieces not published in English or German;
- *Popular press:* Pieces on the topic published in the popular press, e. g. Wall Street Journal, the New York Times; or,
- *Conference reports*: Pieces related to anti-dam-movements, but only summarizing the outcomes of conferences;

My refined sample based upon these criteria comprised 60 articles, 6% of my initial sample. 26 of these articles focused on the root causes of anti-dam-movements, 33 articles investigated the tactical repertoire of anti-dam-movements and 10 articles impacts of anti-dam-campaigns (articles could analyze and discuss more than one of these three categories). Additional articles on the tactical repertoire of anti-dam-movements were identified based upon comments from the reviewers at *Society & Natural Resources.* The full list articles on the tactical repertoire of anti-dam-movements considered for this piece of work is available upon request.

I do not presume to have considered all articles on anti-dam-movements for this piece of work. However, I believe, given the systematic approach adopted, that I have identified a set of articles that is fairly representative of the work carried out by the research community.

9.4 APPENDIX (CHAPTER 6)

9.4.1 Clarifications

#	Issue	Clarification
1	The assessors have asked for clarifications regarding the specific case studies, i. e. dam projects, considered for this paper.	It is noted that a variety of case studies/dam projects considered are mentioned throughout the paper/chapter, e. g. Myanmar's Myitsone Dam, Laos' Nam Mang 3 Dam or Cambodia's Kamchay Dam. Yet no overview regarding all case studies/dam projects which informed this paper/chapter is provided since providing more information regarding dam projects considered could reveal the identity of interviewees. Furthermore, no complete overview regarding all case studies/dam projects which informed this paper/chapter could even be created by me since several interviewees refused to name dam projects they described during the respective interview to ensure that they could not be accused of badmouthing specific dam developers.
2	The assessors have noted regarding the theoretical framing section of this paper that there are international norms that are legally binding, such as the World Bank norms and that the question key question is to what extent these are adhered to in practice.	It is noted that the paper/chapter does not state that international norms are never legally binding. Rather, it is stated that "international norms are usually non-binding from a legal perspective with dam developers voluntarily adopting them". It is acknowledged that international norms can be legally binding and that a key question regarding norms is their implementation. This is also raised in the paper/chapter, e. g. it is stated in section 6.5 that Chinese dam developers may generally commit to international social safeguard norms, but only implement them in large and very visible projects, while "Chinese dam developers allegedly believed they could get away with limited social safeguards in [smaller] projects".
3	The assessors have noted that the sentence "These are succeeded by Chinese norms in our point of view with International Rivers	This sentence is meant to state that international social safeguard norms entail significant requirements for the dam

	(2012, p. 25) finding that China has relatively strong laws governing resettlement, for instance" is unclear, i. e. the word "succeeded" has stirred confusion.	developer, while Chinese social safeguard norms imply intermediate requirements. The table in the paper (revised after comments from the anonymous reviewers of the paper/chapter) in Kirchherr, Matthews, Charles, & Walton (2017, p. 532) may further clarify.
4	The assessors have asked which ministries supervise China Exim Bank (CEB) and Chinese state-owned dam developers.	Chinese state-owned dam developers are supervised by (i) the State Administration of Foreign Exchange which, in turn, is supervised by the Ministry of Finance which, in turn, is supervised by the State Council, and (ii) the State-Owned Asset Supervision & Administration Commission which, in turn, is supervised by the State Council. CEB is directly supervised by the State Council. This information is obtained from International Rivers (2012a, p. 9). Excellent information on this can also be found in McDonald et al. (2009).
5	The assessors have asked whether the Environmental Impact Assessment (EIA) for the Myitsone Dam has been conducted prior to its suspension.	The EIA for the Myitsone Dam has been completed in March 2010; the project was suspended in September 2011 (Mang, 2011).
6	The assessors have asked regarding an example for the policy-makers that are mentioned in the sentence "This suggests that policy-makers keen to ensure adoption of international social safeguards in Chinese-led dam projects could usefully provide targeted funding for relevant environmental NGOs."	An example of a policy-maker referred to by this sentence would be a policy-maker within the German Federal Ministry of Economic Cooperation and Development.
7	The assessors have asked regarding a clarification for two sentences in the paper. The first sentence reads: "Chinese dam developers were likely neither familiar with Chinese nor any host country social safeguard norms upon initially expanding abroad since dam developers in China solely have to focus on the engineering aspects of the dam, while social safeguards are the responsibility of the provincial and district level government (TNI1)." The second sentence reads: "The collaboration with various international players was meant to not only to fend off civil society criticism, but also intended to address capacity issues of Chinese dam developers	Chinese state-owned dam developers have to comply with EIA and resettlement legislation in China. Yet these players are neither tasked with carrying out an EIA nor tasked with carrying out the resettlement, according to the interview data collected (with specific sources provided in the paper/chapter) and thus this compliance requirement is of limited relevance to them in their dam projects in China. Carrying out an EIA/the resettlement is the role of the Chinese government, i. e. the government tasks a consultancy to carry out an EIA/conducts the resettlement if a dam project is completed in China. The Chinese state-owned enterprise only constructs the

	regarding social safeguards since these developers are not responsible for social safeguards when implementing projects in China (this is the responsibility of the Chinese government).” The assessors state that Chinese state-owned dam developers must comply with EIA and resettlement laws in China.	dam. The situation in China appears to be like that described by Kirchherr, Disselhoff & Charles (2016) regarding Ghana’s Bui Dam. Sinohydro, a Chinese state-owned dam developer, was solely tasked with the construction of the dam in this project, while the resettlement was carried out by the government (Bui Power Authority, reporting to the Ministry of Energy) and the ESIA was carried out by a consultancy (Coyne et Bellier) which reported to the government (Ghana’s Ministry of Energy).
8	The assessors have noted that Cambodian legislation regarding social safeguards predates 2010.	It is stated in section 6.4 and section 6.7 in the chapter/paper that no codified social safeguards policies were in place in Myanmar and Cambodia in the early 2000s. Indeed, these statements are erroneous since (inter alia) IMF (2002, p. 16 ff.) indicates that codified social safeguards policies were in place in Cambodia in the early 2000s, whereas authors such as Hensengerth (2015) have repeatedly stressed that these safeguards are frequently not implemented in Cambodia. No precise information could be found regarding the first-time adoption of social safeguard policies in Cambodia. I would be grateful if the assessors could share this information with me if they have it. A corrigendum will be issued for this chapter/article regarding this comment after the response of the assessors to this writing.

9.5 APPENDIX (BIBLIOGRAPHY)

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