



# Multi-causal pathways of public opposition to dam projects in Asia: A fuzzy set qualitative comparative analysis (fsQCA)



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## ABSTRACT

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.

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## 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, 2016; Sneddon and Fox, 2008). Approximately 3700 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 and Oliver, 1999; Swain and Chee, 2004; Xie and 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 and Warren, 1998; Jain, 2000) or a lack of social safeguards (Biswas, 2012; Dwivedi, 1997; Hirsch, 1998; Jain, 2000; Scudder, 2005) 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

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studies to the social sciences (Gibbert and Ruigrok, 2010; p. 711 ff.) and this approach is particularly praised for theory development (George and 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 and 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 and 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 and 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 and Wagemann (2012) or Legewie (2013) provide additional information and explanations regarding this terminology.

## 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 and 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 and 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 and 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 and Oliver (1999), Swain and Chee (2004), Foran (2006), Xie and 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 and Zald (1977), proposes a resource mobilization perspective, “the oldest genuine sociological approach to social movements [...] that is still widely applied” (Opp, 2009; 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

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