

# Evacuation ahead of natural disasters: Evidence from cyclone Phailin in India and typhoon Haiyan in the Philippines

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Why do some people evacuate ahead of natural disasters while others do not? This paper explores the conditions under which people are likely to evacuate. It does so by contrasting a success case of evacuation before cyclone Phailin in Orissa (India), with a failed case in Tacloban, before typhoon Haiyan (the Philippines). This paper examines this striking variation by examining the importance of two main factors suggested by previous research: experience and trust. The paper argues that prior experience of natural disaster increases individual perception of risk and may lead to institutional learning, but only where the experienced disaster was traumatic. Trust between citizens and public officials is held to further increase the likelihood people will evacuate in advance of natural disasters. Evidence of these causal mechanisms is found in the empirical analysis, which is based on 41 interviews and six focused group discussions in India and the Philippines between August and November 2014.

## KEYWORDS

disaster risk reduction, evacuation, India, resilience, the Philippines, tropical storms

## 1 | INTRODUCTION

What factors make people more likely to follow evacuation orders ahead of a natural disaster? The question is crucial for effective disaster risk reduction and management, as an effective response to early warnings and evacuation orders greatly reduces casualties and loss of life. A good example was the prompt compliance with early warning and evacuation orders before cyclone Phailin in India, which led to a minimal death toll, even though the region was struck by a powerful cyclone that caused hundreds of millions of dollars in damage and affected the livelihoods of 13 million in October 2013 (World Bank, 2013). However, timely evacuations do not always happen ahead of natural disasters (cf. Thomalla & Schmuck, 2004). In November 2013, only a minority of the population followed the early warnings and evacuation orders before typhoon Haiyan, which devastated the regions of Samar, Leyte and Panay in the Philippines, leading to more than 6,000 fatalities. This paper tries to understand variation in people's response to evacuation orders by comparing the cases of India and the Philippines.

To make sense of this variation, the study puts forward two main explanatory factors inspired by previous literature on evacuation (cf. Dombroski, Fischhoff, & Fischbeck, 2006; Drabek, 1986; Huang, Lindell, & Prater, 2016; Kaspersen et al., 1988), risk perception (cf. Douglas & Wildavsky, 1982; Heimer, 1988) and political trust (cf. Knack & Keefer, 1997). While there is a consensus in previous research that experience of natural disaster leads to a higher level of evacuation, this study argues that this effect depends on how traumatic the experience of previous disasters was. Indeed, "non-traumatic"

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experience rather seems to lead to overconfidence and lower levels of disaster evacuation. In contrast, traumatic experience makes people more attentive and responsive to evacuation orders and tends to open a broad window for public officials to transform institutional settings. The second important factor examined in this paper is trust; more specifically trust between citizens and governmental officials. In the absence of a recent traumatic natural disaster that people can relate to, the issue of trust in local officials becomes even more salient. Trust also leads to improved credibility and better collaboration between state officials and the population, which in turn increase the effectiveness of evacuation. Lack of trust, for example due to armed conflict and patronage politics, can therefore hinder disaster evacuation. While some authors have put forward trust and experience as important factors for evacuation, more evidence is needed to understand the causal mechanisms linking these factors together, especially in developing countries.

The arguments made in this paper are explored through a comparative case study between the region of Orissa in India and the region of Tacloban in the Philippines in the wake of cyclone Phailin and typhoon Haiyan in 2013. It compares the population's response to early warning alerts and evacuation orders before both tropical storms and tries to understand the striking variation in the level of evacuation. This paper draws on 41 semi-structured interviews and six focused group discussions with disaster victims, government and NGO representatives involved in disaster management in India and the Philippines.

By examining these thématiques, the article makes four principal contributions to the study of disaster management, both theoretically and empirically. First, it contributes to existing research, which has mainly explored evacuation in economically advanced and peaceful countries (cf. Drabek, 1986; Pagneux, Gísladóttir, & Jónsdóttir, 2011; Rod, Botan, & Holen, 2012; Scolobig, De Marchi, & Borga, 2012) by exploring the factors leading people to evacuate in two developing, mid-income and conflict-affected countries. As noted by Kellens, Terpstra, and De Maeyer (2013, p. 35): “the Southern Hemisphere is strongly underrepresented in the literature”. Second, it refines previous research by showing that it is not the experience of disaster per se that increases evacuation but how traumatic this disaster was and how well the lessons were institutionalised by the government. Third, it provides a comparative study in a field where single-case studies are the most common research methods. Finally, the study provides detailed insights into the successful case of India, highlighting good practices that could be applied to other countries and regions with low socioeconomic development.

The remainder of the paper proceeds as follows. First, it revisits previous theories on disaster evacuation and derives hypotheses most likely to explain variation in the level of disaster evacuation. Second, the paper presents the data and methods used for the analysis. This is followed by a comparative case study between two regions in India and the Philippines. Finally, it concludes with a discussion of the results and their limitations, and suggests the policy implications of the findings.

## 2 | WHAT WE KNOW ABOUT DISASTER EVACUATION

The question of people's behaviours and reactions prior to natural disasters has drawn attention from researchers across various disciplines. The existing literature is extensive and it is beyond the scope of this paper to provide a detailed and complete literature review. Instead, the paper focuses on the factors that seem most significant. People's estimation of risk is at the heart of the problem, as it determines their response to evacuation orders (Kates, 1971). As suggested by Dombroski et al. (2006, p. 1675), “people understand some risk better than others, trust some officials more than others, and have greater freedom to act in some situations than others”. Social context leads people to be risk seeking in certain situations and risk averse in others, therefore challenging the hypothesis that people are risk averse in all cases (cf. Douglas & Wildavsky, 1982; Heimer, 1988; Kasperson et al., 1988). When facing risk, people tend to weigh pros and cons between the various options they are facing. Risk perception is therefore the subjective judgement in assessing the likelihood of personally encountering a hazard (Knuth, Kehl, Hulse, & Schmidt, 2014; T'Hart, 2013, p. 3). Yet it is unlikely that everyone has similar probabilistic reasoning in assessing risk (Gigerenzer, Hoffrage, & Kleinbotling, 1991). The decision to evacuate may indeed be affected not only by whether people think they will encounter the hazard, but also ideas of how the hazard might affect them, whether they could cope. People tend to rank risk differently (Fischhoff, Fischer, Morgan, Nair, & Lave, 1991), and according to their socioeconomic status (Bankoff, 2003; Gaillard, 2015). For example, people will not care about the risk of an earthquake if they struggle to get food on the table (Gaillard, 2015).

There are many factors that condition risk perception and the likelihood people will evacuate before a natural disaster. These may range from having pets at home (cf. Heath, Kass, Beck, & Glickman, 2001) to gender dimensions (Kung & Chen, 2012) and socioeconomic status (Bankoff, 2003; Elliott & Pais, 2006; Gaillard, 2015). For example, lack of transport, fear of looting, all very location specific, are driven by poverty, development and planning (Schipper, 2006). Level of

education (Heath et al., 2001), clarity of evacuation messages (Whitehead et al., 2001), the type of accommodation (Baker, 1991), and lack of belief in the hazard (Lindell & Perry, 1992) are other factors that have been suggested to influence the likelihood people will evacuate before a natural disaster. In a meta-analysis, Huang et al. (2016) found official warnings, type of residence, observation of environmental and social cues and expectations of severe personal impacts to have significant effect on household evacuation before a hurricane. Social capital has also been suggested as an important factor, especially in terms of recovery and evacuation (Aldrich, 2012). Inside this extensive list of factors, experience and trust are suggested to be among the most important factors explaining evacuation (cf. Bubeck, Botzen, & Aerts, 2012; Huang et al., 2016; Knuth et al., 2014; Slovic, 1999), even though researchers vary in the ways they measure “experience”.

### 3 | TRAUMATIC EXPERIENCE

There is a vast amount of existing research indicating that disaster experience is positively associated with higher risk perception (cf. Bubeck et al., 2012; Huang et al., 2016; Kasperson et al., 1988; Knuth et al., 2014). When people have direct experience of a natural disaster, they tend to perceive risk more accurately (and be better prepared) than people with no experience or memory of natural disasters (Drabek, 1986; Sattler, Kaiser, & Hittner, 2000; Tversky & Kahneman, 1973). Kasperson et al. (1988) suggest that the perception of risk increases because personal experience makes future disaster easier to imagine, to prepare for and to manage. Experience, or in other words the availability bias, is extremely complex, as it may refer to multiple aspects of the experience (e.g., whether the evacuation itself was traumatic, or whether the shelters were horrible). According to Kates (1971), it is the closeness, frequency and intensity of the experience of a natural disaster that is most critical to the perception of risk. More recently, Viglione et al. (2014, p. 79) have argued that it is “emotional reactions and memory of past events, rather than cognitive assessments of risk” which drive risk behaviour. Experience helps to better interpret risk and provide feedback and “manageability of the hazard, affording better perspective and enhanced capability for avoiding risk” (Kasperson et al., 1988).

While experience of previous natural disasters is arguably one of the most important factors in explaining the likelihood people will evacuate, as it tends to increase the perception of risk (cf. Knuth et al., 2014), it can also create a certain sense of confidence (Whitehead et al., 2001). Bankoff (2003) argues that natural disasters have become normalised in some societies. “Soft” disaster experience may paradoxically create an optimistic bias and “a collective illusion of invulnerability” (T’Hart, 2013, p. 3), leading people to minimise the need to get prepared before a disaster. The conditions under which experience can serve as a risk amplifier or create a sense of overconfidence are not clear (Kasperson et al., 1988). Confidence in dealing with “normal” natural disaster may lead people to underestimate the risk of exceptionally strong natural disasters and may decrease their willingness to evacuate. Empirically, Gladwin and Peacock (1997) have found that the duration of residence in regions often affected by hurricanes decreases the likelihood of evacuation. As argued by Whitehead et al. (2001, p. 135), “no consistent relationship has been documented for whether or not individuals who have had a ‘hurricane experience’ are more likely to evacuate”. For example, it is not clear whether experience in one type of natural disaster (e.g., an earthquake) increases evacuation following another type of disaster (e.g., a hurricane), especially as that “experience” is operationalised differently by researchers (Huang et al., 2016). Prior research thus remains unclear on how experience matters for disaster evacuation, particularly in the context of developing countries, where the level of exposure to risk is higher than average. There is therefore a need to explore the conditions in which experience increases or decreases disaster evacuation.

### 4 | TRUST

In addition to experience, previous research has demonstrated that higher-trust societies tend to have better performing governments (cf. Knack, 2002; Knack & Keefer, 1997) and that trust is one of the most fundamental factors for explaining risk perception (cf. Seeger, 2006; Slovic, 1999). High levels of representativeness and trust lead citizens to view the government as a provider of necessary public goods from which everyone benefits, while lower levels of trust lead citizens to see the government as a source of private goods (Knack, 2002). “To trust a politician is to believe that they will look after our interest and values when it comes to making political decisions and taking political actions” (Newton, 2007, p. 242). Many studies have found a link between people’s trust in the government and their willingness to comply with evacuation orders (cf. Rod et al., 2012; T’Hart, 2013; West & Orr, 2007). Burton and Silver (2006) found that trust in government increased the likelihood of evacuation, especially trust in local and state government. In their review, Wachinger, Renn, Begg, and

Kuhlicke (2013) suggest that trust in authorities and experts is one of the most important factors that impact risk perception. It is important that the warning is issued by an authority that the people see as trustworthy and credible, as this will improve communication with the citizens (Villagrán de León, 2012, p. 486). Once the people are engaged and once the emergency services have established trust and credibility, local people will be more responsive to preparedness, warning and evacuation arrangements (Buckle, 2012, p. 501).

However, in many countries trust towards local officials is missing. Trust in local officials tend to be very low in countries affected by armed conflict. Indeed, many conflict researchers argue that armed conflict erodes trust and social cohesion, contributing to underdevelopment and instability “traps” (Cassar, Grosjean, & Whitt, 2013; Collier et al., 2003). In many new democracies state officials tend to exercise powers to fulfil their private interests, or those of their families, cronies and other patrons (Keefer, 2007). In such a system, the competence of the political leader is only partially based on his or her successes in delivering public goods, such as economic growth and employment. Instead, political leaders’ survival depends on their ability to sustain their clientelistic linkages. This may undermine citizens’ trust in the government, and lead them to be cynical and feel disaffected with government policies. “Distrust may produce alienation and withdrawal from political process, leaving behind a shallow, fragile state that cannot mobilize national resources or shape a collective vision for national development” (Diamond, 2007, p. 1). Lack of trust and credibility is problematic for disaster evacuation and can lead to “self-reinforcing cycles of government miscommunication and citizen ‘irrationality’” (T’Hart, 2013, p. 6). Disaster evacuation depends on smooth communication within the organisation and with citizens (Slovic, 1993, p. 697), but lack of trust and consequent lack of pre-existing communication channels between state officials and citizens greatly reduce preparedness and disaster evacuation. This said, some researchers have also argued that too much trust toward local officials in western countries can reduce the likelihood people will evacuate (cf. Terpstra, 2011).

In sum, both experience and trust may sometimes lead to higher levels of evacuation, other times not. These two factors are most likely to be shaped by the specific context in which the disaster occurs. Therefore, exploring how memory and trust play out in India and the Philippines may provide new insights into existing literature.

## 5 | METHODS AND DATA

This study uses the method of process tracing to investigate whether traumatic experience and trust towards officials explain pre-disaster evacuation. The focus of this paper is therefore on studying causal mechanisms using in-depth comparative case studies. Given that this paper attempts to establish sequential steps from cause to effect, process tracing is a very useful method. It is a well suited method because it “attempts to identify the intervening causal process – the causal chain and causal mechanism – between an independent variable (or variables) and the outcome of the dependent variable” (George & Bennett, 2005, pp. 206–207).

The main part of the empirical content consists of primary interview data of local officials involved in disaster management, disaster victims and local and international NGOs involved directly or indirectly in preparedness efforts before the two tropical storm efforts. While interviews with state representatives and international NGOs staff were done in English, interviews with local communities and NGOs were often conducted in the respective local language (Oriya in Odisha and Warai in Tacloban). One research assistant from Berhampur college in India and one at the University of the Philippines helped me to get access to communities and translate during the interviews. The translations were checked for reliability by a professor at Uppsala University who is from Orissa and a professor at the University of the Philippines who is fluent in Warai.

Access to informants was made possible through the author’s network, following a “snowball sampling” (Biernacki & Waldorf, 1981). This recruitment method uses informants’ social networks to access other respondents. One of the downsides of this method is that it can limit generalizability and bias the sample because access to informants is contingent on existing networks. Yet, personal referrals often are the only way to access respondents, especially in developing countries (Cammett, 2006). My research assistants played an important role introducing me to coastal communities that were heavily affected by both typhoons. In order to reduce the potential bias from “snowballing”, the paper attempts to capture a wide sample of informants with different backgrounds and views to get a holistic picture of the context.

For the sake of clarity and transparency, the backgrounds and affiliations of the informants are presented below, as well as the interview locations. As such, these interviews provide critical insights into the factors that prevented people from evacuating before the tropical storms. The interviews were semi-structured, meaning that while some essential questions were asked, interviewees had the freedom to guide the discussion in the desired direction. Some of the recurrent questions asked were:

**TABLE 1** List of people interviewed in India and the Philippines

<b>Government officials in India and Philippines</b>
High-level official (retired), Odisha State Disaster Management (OSDMA), Odisha State Government, November 2014, Bhubaneswar, India
High-level official in district of Ganjam, Odisha State Government, November 2014, Bhubaneswar, India
Emergency responder at Odisha Disaster Rapid Action Force (ODRAF), Odisha State Government, October 2014, Bhubaneswar, India
High-level official, Odisha State Government, October 2014, Bhubaneswar, India
High-level official, OSDMA, Odisha State Government, November 2014, Bhubaneswar, India
Secretary, Panchayati Raj, Government of Odisha, November 2014, Bhubaneswar
Block development officer of Aryapalli, Government of Odisha, November 2014, Aryapalli, India
High-level official, National Disaster Risk Reduction and Management Council, September 2014, Manila, the Philippines
Senior analyst, Office of the President Assistant for Rehabilitation and Recovery (OPARR), September 2014, Manila, the Philippines
Civil defence officer II, National Disaster Risk Reduction and Management Council, September 2014, Manila, the Philippines
High-level official, City Disaster Risk Reduction Management Council, Tacloban City Government, August 2014, Tacloban, the Philippines
Project leader, OPARR, September 2014, Manila, the Philippines
High-level official, Tacloban City Government, January 2015, Tacloban, the Philippines
Camp manager, City of Tacloban, August 2014, Tacloban, the Philippines
Social welfare officer, Tacloban City Government, August 2014, Tacloban, the Philippines
<b>International organisations and non-governmental organisations (INGOs) in India and the Philippines</b>
High-level official, UNDP Odisha, November 2014, Bhubaneswar, India
Consultant, World Bank, November 2014, Bhubaneswar, India
High-level official, UN Office for Disaster Risk Reduction, September 2014, UNISDR, Geneva, Switzerland
Social development specialist, World Bank, November 2014, Bhubaneswar, India
High-level official, the International Federation of the Red Cross (IFRC), October 2014, Bhubaneswar, India
Humanitarian officer, UNOCHA, November 2014, Bhubaneswar, India
High-level official, Oxfam India, November 2014, Bhubaneswar, India
High-level official, UNOCHA, August 2014, Manila, the Philippines
Shelter delegate, IFRC, August 2014, Tacloban, the Philippines
Program coordinator, Oxfam international, August 2014, Manila, the Philippines
High-level official, IOM, August 2014, Tacloban, the Philippines
Humanitarian affairs officer, UNOCHA, August 2014, Tacloban, the Philippines
Program coordinator, UNDP crisis prevention and recovery, August 2014, Manila, the Philippines
Project manager, Catholic Relief Services, December 2014, Tacloban, the Philippines
Project manager, Social Weather Survey, August 2014, Manila, the Philippines
Senior researcher, Center for Disaster Preparedness, November 2014, Manila, the Philippines
Consultant in disaster risk reduction, Save the Children, August 2014, Manila, the Philippines
Leader of peasant and fisher folks group, August 2014, Tacloban, the Philippines
Catholic priest, Congregation of the Immaculate Mary Missionaries (CICM), August 2014, Tacloban, the Philippines
High-level official, Nationwide Operational Assessment of Hazards (NOAH), University of the Philippines, September 2014, Manila, the Philippines
Executive member, Bayan Muna, August 2014, Manila, the Philippines
<b>Focus group discussions</b>
Disaster evacuees and victims (seven persons), October 2014, Podampetta, India
Disaster evacuees and victims (three persons), October 2014, Aryapalli, India
Disaster evacuees and victims (13 persons), October 2014, Badaputi, India
Disaster evacuees and victims (eight persons), August 2014, Tacloban, the Philippines

*(Continues)*

TABLE 1. (Continued)

Disaster evacuees and victims (10 persons), August 2014, Tacloban, the Philippines

Disaster evacuees and victims (five persons), August 2014, Masbaras, the Philippines

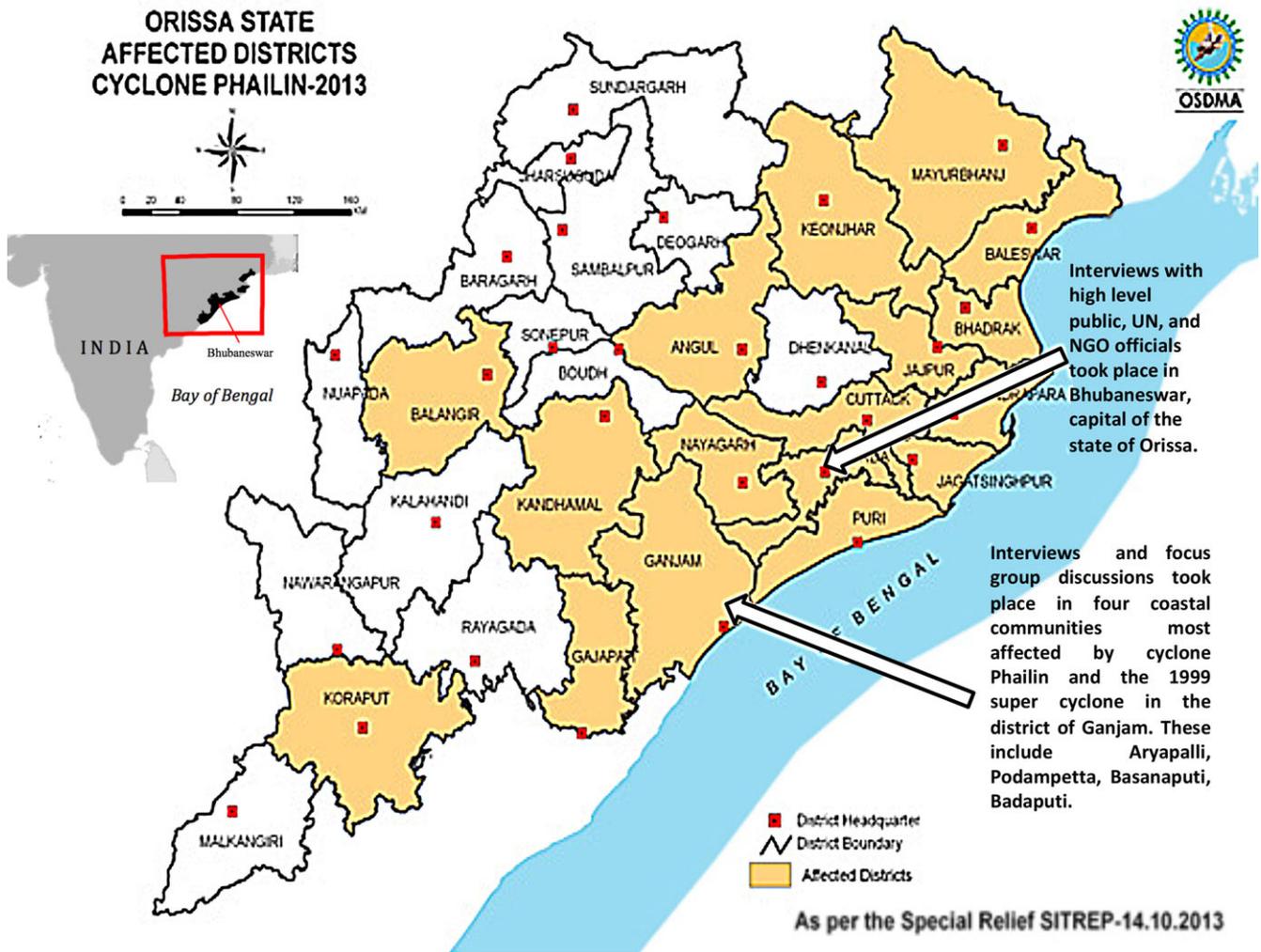
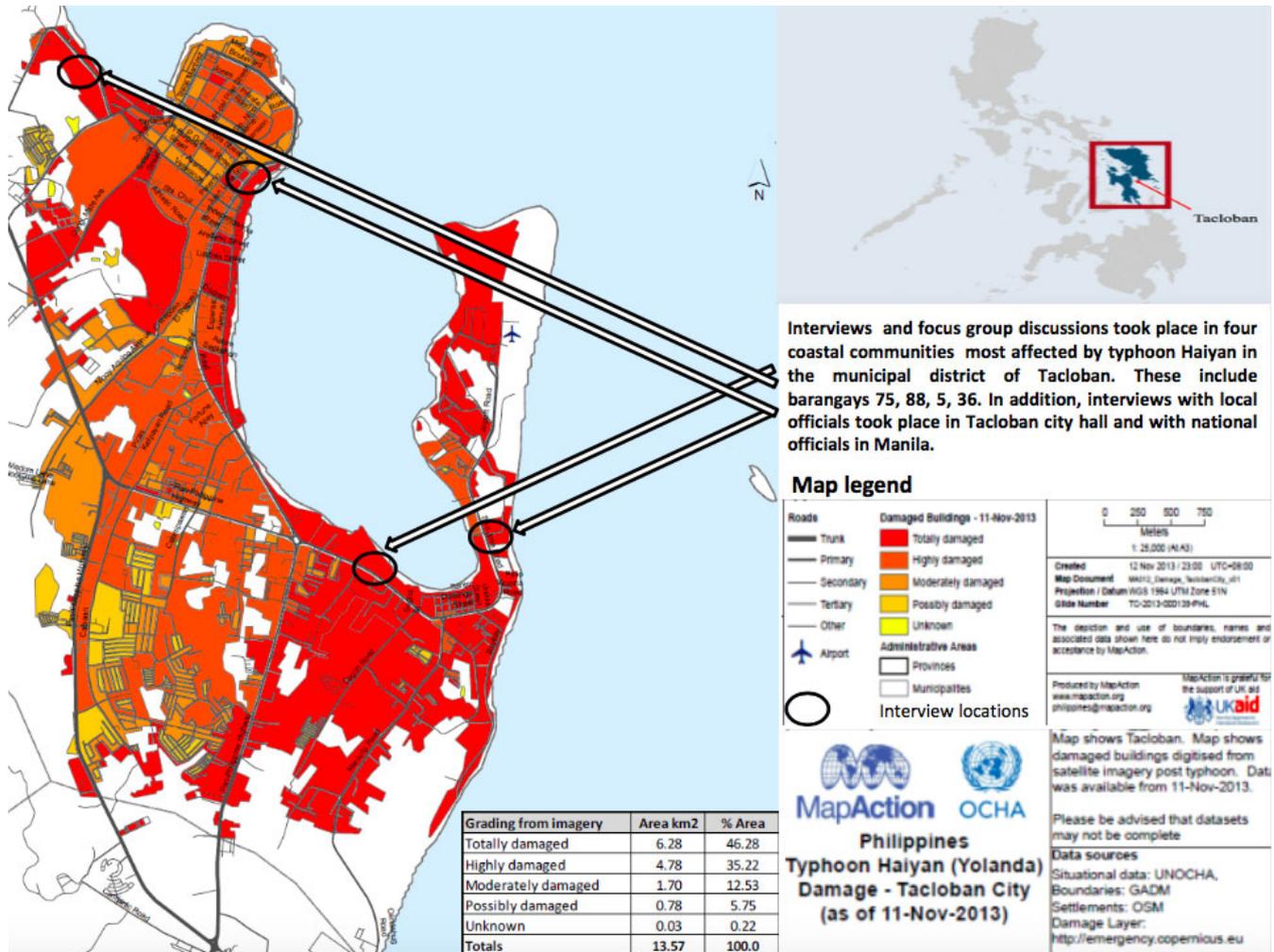


FIGURE 1 Interview location in Orissa State

Source: Based on OSDMA

1. How traumatic was the 1999 cyclone/previous disaster and to what extent and how did it lead to a change of behaviour?
2. How would you describe your experience of natural disasters?
3. Why did you evacuate before cyclone Phailin/Typhoon Haiyan?
4. Why did you not evacuate before cyclone Phailin/Typhoon Haiyan?
5. Do you trust your government? Can you explain why?
6. Does the government listen to your concerns and adopt measures accordingly?

While interviews were not audio-recorded as many respondents felt uncomfortable with this, notes were taken during the interviews with respondents' consent. On average, interviews lasted from 1 to 3 hrs. The four focus group discussions lasted for 2 hours each. At the request of the respondents, they are kept anonymous in this paper. These interviews took place between August and November 2014 in Manila and the region of Tacloban. In India, interviews took place in



**FIGURE 2** Interview location in the municipality of Tacloban  
 Source: Based on OCHA/ReliefWeb

Bhubaneswar and in various locations in the region of Ganjam in October/November 2014 (Table 1). The region of Tacloban was heavily affected by typhoon Haiyan and the region of Ganjam by cyclone Phailin. Figures 1 and 2 indicate the interview locations in both countries.

## 6 | CYCLONE PHAILIN

On 12 October 2013, Cyclone Phailin, a very severe cyclonic storm with winds of 220 km/hr made its landfall on the coast of Ganjam district and heavily affected more than 30,000 villages in the state of Orissa (or Odisha), one of the poorest and most disaster-prone regions in India. The damage, estimated at more than US\$4.5 billion (Swiss Re, 2013) was created by strong winds, a 3.5 m storm surge, and torrential rainfall following the cyclone. Despite heavy damage to houses, agricultural lands, infrastructure (telecommunication towers, roads, bridges, government buildings, etc.), which affected 11 million people, only 22 people were killed by the cyclone (UNISDR, 2013). The low level of fatalities in comparison to the strength of the cyclone is attributed to the timely and effective evacuation of the population. Indeed, the government was able to evacuate almost a million people in less than two days, one of the largest pre-emptive evacuations in the world. These successful efforts were praised by the World Bank, the United Nations and many international non-governmental organisations (World Bank, 2013). According to the United Nations International Strategy Disaster Reduction (UNISDR, 2013): “The effective evacuation of almost one million people in Odisha ahead of Cyclone Phailin will be highlighted as a global example in the lead-up to the 3rd World Conference on Disaster Risk Reduction, in 2015”.

## 6.1 | Traumatic experience

In October 1999, Orissa was affected by an extremely strong cyclone that claimed the lives of more than 10,000 people. This “super” cyclone with wind speeds reaching 250 km/hr, and a storm surge of 6 m, wreaked havoc on livelihoods, destroyed thousands of houses and other infrastructure, and displaced millions of people. The high fatality toll was explained mostly by the lack of preparedness and low level of evacuation (interview with high-level official [retired] at OSDMA, November 2014, Bhubaneswar).

Following this traumatic experience, the state of Orissa and its population made the decision to invest in disaster risk reduction. As a local official said: “things that hurt, instruct!” [interview with high-level official (retired) at OSDMA, Bhubaneswar, November 2014]. The 1999 cyclone led to the establishment of a more effective institutional setting at the state level and national level. At the national level, it led to the creation of the National Disaster Management Act in 2005 and at the local level to the creation of a new autonomous agency called the Odisha State Disaster Management Authority (OSDMA) (Thomalla & Schmuck, 2004). It also led to the construction of cyclone shelters, the Odisha Disaster Rapid Action Force (ODRAF) and to the implementation of various disaster reduction programmes in collaboration with international agencies (interview with high-level official at OSDMA, Bhubaneswar, November 2014). For example, the state of Orissa in collaboration with many INGOs, the government of India, the World Bank, and the Red Cross has been involved in constructing disaster-resistant shelter building, as part of its long-term disaster risk reduction initiatives (interview with social development specialist at the World Bank, Bhubaneswar, November 2014).

People interviewed in India all agreed that this change of risk perception was created as a result of the traumatic experience of the 1999 cyclone. This cyclone was a turning point for the state of Orissa and the government of India in terms of taking disaster risk reduction more seriously. It was humiliating for the local government and bad publicity for the state of Orissa (interview with high-level official at OSDMA, Bhubaneswar, November 2014). In 2013, the government wanted to prevent such a disaster a second time and put a lot of effort into preparing and evacuating communities:

Zero casualty became the war cry of the state government. We took cyclone 1999 as a benchmark to develop policies to reduce risk, and the reference to 1999 was used to persuade people to evacuate. We knew from 1999 that one of the main reasons the cyclone killed so many people was that few people evacuated. (Interview with high-level official in charge of district of Ganjam, Bhubaneswar, November 2014)

From that experience, preparing local communities to evacuate became a priority in the disaster risk reduction and management plan of the state. Bitter lessons were learnt from the 1999 cyclone when people ignored the few warnings to evacuate that were provided by the authorities. This traumatic experience led to an important learning process for the state of Odisha (interview with high-level official at OSDMA, Bhubaneswar, November 2014).

Sustainability and local ownership of disaster risk reduction programmes were ensured by the people, who were deeply traumatised by the cyclone. The 1999 cyclone was a huge trauma for many people in Orissa (interview with high-level official at the IFRC, Bhubaneswar, November 2014). In 1999, communities underestimated the risk and did not evacuate to safer locations, leading to such a high fatality rate. Such a low level of evacuation was related to the fact that people did not have experience of very severe natural disasters before the one in 1999. They thought they could manage it (interview with emergency responder at ODRAF, Bhubaneswar, October 2014). Therefore, it seems that it is not the experience of natural disaster per se that makes people more likely to evacuate, but how traumatic their experience was of previous disasters (focus group discussion with disaster evacuees and victims, Badaputi, October 2014). The traumatic experience of the 1999 cyclone created strong social mobilisation around disaster risk reduction. In order to remember the deaths of so many people, the state of Orissa has set up an annual “disaster management day” to remember the victims and the importance of being prepared to respond to disaster (interview with high-level official at UNDP, Bhubaneswar, October 2014).

Following the experience of 1999, many self-help and voluntary groups were created on a very local level, which led to strong local ownership and good communication within the community: “It was very easy to find volunteers to maintain the shelter and organise mock evacuation drills”, a local official said (interview with block development officer of Aryapalli, November 2014). One example is the creation of the cyclone Shelter Management Committee, which is made up of volunteers from the communities who take charge of the maintenance of the shelters, and in the case of disaster, partly organise the evacuation. Every year and in coordination with the authorities, and local NGOs, the volunteers organise mock drills, search and rescue operations, and first aid training to test their preparedness (interview with project manager at Oxfam, Bhubaneswar, November 2014). During focus group discussions in Badaputi in the district of Ganjam (one of the regions most affected by the cyclone in 1999), most respondents mentioned the cyclone as a traumatic experience, which

motivated their decision to evacuate in 2013 (focus group discussion with disaster evacuees and victims, Podampetta, October 2014). Local officials used the memory of the cyclone to persuade people to evacuate to shelters and other safer places. The trauma also led also to an important memorisation process in Odisha (interview with block level panchayat, Bhubaneswar, November 2014).

## 6.2 | Trust in government

“To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness” (Chief Minister of the State of Orissa during the disaster preparedness day, November 2014). While India is far from immune to patronage politics and corruption, the state of Orissa has gradually won the trust of the communities, partially due to its social and poverty reduction programmes (interview with project manager at Oxfam, Bhubaneswar, November 2014). Trust between the citizens and the government has also improved through effective partnerships among NGOs, UN agencies and government officials in developing Orissa’s disaster management capacity (interview with humanitarian officer at UNOCHA, Bhubaneswar, November 2014). While NGOs tend to have an antagonistic relationship with the state in many countries, there is a good relationship in Orissa between these actors. “Through our work we have tried to create dialogue between the government and the communities to break the barrier of distrust” (interview with project manager at Oxfam, Bhubaneswar, November 2014). Many international and local NGOs have worked together with the government to raise awareness about disaster risk reduction. For example, the Red Cross and the government have both been involved in building cyclone shelters, in creating disaster volunteer groups and in organising evacuation drills (interview with high-level official at the IFRC, Bhubaneswar, November 2014). NGOs also raised awareness in communities about local government efforts to improve disaster preparedness (interview with fisherman groups, Bhubaneswar, November 2014). The fact that many NGOs have worked hand in hand with the government for the last decade has indirectly built the legitimacy of the state, and improved trust between local officials and the citizens. In addition to creating trust between different organisations, it created communication channels and routines that could be efficiently used for disaster preparedness and evacuation (interview with coordinator at the Inter-Agency Group, Bhubaneswar, November 2014).

Focus group discussions with local communities echo similar mechanisms: people noted the government’s efforts to improve socioeconomic development more often than before. Despite the fact that many communities believe that the state is not doing enough in terms of poverty alleviation, they do agree that the government has been increasingly present over the last decade (focus group discussion with disaster evacuees and victims, Aryapalli, October 2014). Over the years, the trust between officials and the population has improved due to the higher investment in various welfare policies; from transport infrastructure to food security programmes, and from health infrastructures to anti-corruption mechanisms and disaster risk reduction programmes (interview with manager at the Indian Society for Rural Development, Gopalpur, November 2014). NGOs have worked hand in hand with the government to improve many of its programmes, thereby increasing the legitimacy of the state. Improved governance and trust since the cyclone of 1999 have led to more smooth and consistent communication across the range of actors involved in disaster preparedness and evacuation (interview with consultant at the World Bank, Bhubaneswar, November 2014). In addition, the warning came from many sources, such as the Chief Minister, district collectors, local officials and the media (focus group discussion with disaster evacuees and victims, Podampetta, October 2014). The Chief Minister through a TV speech urged local communities to leave, and the district collector of Ganjam personally came to many communities to ask them to evacuate. The direct involvement of these two high-ranking and trusted officials signalled how important it was to evacuate (focus group discussion with disaster evacuees and victims, Badaputi, October 2014). During interviews, the commitment of these officials was palpable:

In a welfare state like ours, the responsibility to limit casualty and to provide relief to the people affected by a natural calamity only rests with the government. As district collector, it was my highest mission to avoid any casualties. (Interview with high-level official in charge of district of Ganjam, Bhubaneswar, November 2014)

While most interviewees agree that preparedness and disaster evacuation were done efficiently by the government, participants of focus group discussions were more negative regarding the government’s recovery efforts (focus group discussion with disaster evacuees and victims, Badaputi, October 2014). According to interviewees, the distribution of goods and construction materials created some tensions in the community as some local officials favoured their friends and families (focus group discussion with disaster evacuees and victims, Podampetta, October 2014). Some community groups have raised the issue to the state government with the help of local NGOs, and the government has agreed to improve their disaster recovery efforts (focus group discussion with disaster evacuees and victims, Basanaputi, October 2014). The World

Bank also provided its technical assistance to help Odisha in its recovery activities (social development specialist, World Bank, Bhubaneswar, November 2014).

## 7 | TYPHOON HAIYAN

Typhoon Haiyan made its landfall in Tacloban on 11 November 2013. While this typhoon was the most powerful typhoon ever recorded in the Philippines, the lack of pre-emptive evacuation is directly linked to the high number of fatalities, estimated at 6,000. Compared with Typhoon Phailin in India, only 20,000 people evacuated from the region of Tacloban. Many people also died in evacuation centres, as most of them were not purpose-built structures but schoolhouses, unoccupied public buildings and barracks. Many communities were taken by surprise by the typhoon, and particularly by the storm surge (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). Early warning and evacuation orders did not trigger a proper response from either the local government in Tacloban or the people.

### 7.1 | Experience

Before typhoon Haiyan, the region of Tacloban had never experienced such a powerful typhoon and storm surge. Instead, the region is often affected by frequent and not particularly severe natural disasters. This has created a certain sense of confidence in managing “normal” natural disasters, which has led the population to underestimate the risks posed by more severe ones (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). The frequent experience of typhoons has created a sense of confidence among many individuals in Tacloban. A fisherman from Tacloban today living in a displaced camp said that, “We thought we were able to manage typhoons, you know, storms and typhoons are part of the fisherman life” (interview with leader of peasant and fisher folks group, Tacloban, August 2014). Although natural disasters are a constant reality in this region of the Philippines, there was no memory of traumatic disasters, and in particular no memory of a storm surge (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). People’s perception of storm risk was very similar to those in Orissa before the 1999 cyclone, where people did little to prepare themselves before the storm (Thomalla & Schmuck, 2004). It seems that it is not the experience of the typhoon per se that makes people more likely to evacuate, but how traumatic that specific experience was. The population of Orissa, traumatised by 1999, were less confident and more likely to evacuate than people in Tacloban. During focus group discussions with disaster victims in India, the reference to the 1999 cyclone was omnipresent (focus group discussion with disaster evacuees and victims, Podampetta, October 2014). By contrast, there was no traumatic memory of a natural disaster in the region of Tacloban. It was therefore hard to convince the people to evacuate, especially since the weather was good 24 hours before the typhoon (interview with senior researcher at the Center for Disaster Preparedness, Manila, November 2014). “Filipinos are matigas ang ulo (hard-headed/stubborn) and they tend to rely on their own judgment to make decision” (interview with manager at the Nationwide Operational Assessment of Hazards, Manila, September 2014). A local official explained that had they told the population that a storm surge – the creation of a wave due to the strong wind of the typhoon – would have similar effects to a tsunami, many more people would have evacuated (interview with high-level official at the Disaster Risk Reduction Management Council, Tacloban, August 2014). Indeed, a tsunami evokes in the collective memory something more deadly than a typhoon, a very common disaster for many Filipinos (focus group discussion with disaster evacuees and victims, Tacloban, August 2014).

The experience of a tragic natural disaster was also absent in the memory of local government officials (interview with civil defence officer, National Disaster Risk Reduction and Management Council, Manila, September 2014). This was epitomised by the behaviour of high-level officials in Tacloban, who stayed at their beach houses the night of the typhoon despite the evacuation orders given by their own local government (interview with manager at the Nationwide Operational Assessment of Hazards, Manila, September 2014). In stark contrast to India, the region of Tacloban did not have any proper contingency plan, and the natural disaster Republic Act, which stipulates the creation of specific local authorities for disaster risk reduction and management, was not yet fully implemented (interview with project leader at the Office of the President Assistant for Rehabilitation and Recovery, Manila, September 2014). While in India, the cyclone in 1999 had triggered a series of laws that were quickly implemented at the local level, the absence of a past traumatic event in Tacloban led disaster management to be a secondary priority at the local level (interview with senior researcher at the Center for Disaster Preparedness, Manila, November 2014). Indeed, local governments did not invest in the construction of storm shelters and the level of preparedness was rather low (interview with project leader at the Office of the President Assistant for Rehabilitation and Recovery, Manila, September 2014).

The higher level of preparedness and evacuation during the most recent typhoon in the Philippines (Hagupit or locally known as Ruby) provides evidence of the importance of traumatic experience for evacuation and preparedness. According to a respected national newspaper (Philippines Daily Inquirer, 2014):

Mass evacuations before it arrived also helped to ensure there was no repeat of the mass casualties in the areas devastated by Yolanda . . . The initial assessment is that there are no casualties. We were better prepared . . . up to 50,000 people were packed in evacuation centers.

The memory of Haiyan was so strong that many people evacuated spontaneously. The Philippines Star declared in a similar vein:

. . . it is clear that lessons learned from Haiyan (Yolanda) have been applied. People have moved out of harm's way, local governments have taken the lead and all state agencies have played a key role particularly PAGASA and the National Disaster Risk Reduction and Management Council.

In sum, traumatic experience was an important factor explaining evacuation, and the lack of it before typhoon Haiyan partially explains the low level of evacuation. Experience with disaster, when not traumatic, may by contrast create a certain feeling of confidence.

## 7.2 | Trust

The lack of trust between the state and the citizens in the Philippines has received some attention from researchers. According to Bankoff (2003, p. 99):

the nature of the political system in the Philippines with its emphasis on patronage, regionalism and lack of strong central government only intensifies partisan rivalry and factional infighting with regard to disaster management and relief.

Decades of dictatorship under Marcos have further eroded trust in the state and its officials, and there are still today a large number of politicians who have held office for extensive periods, winning re-election every time (interview with senior researcher at the Center for Disaster Preparedness, Manila, November 2014). These long-entrenched political families have developed a strong clientelistic network, helped by their access to power and economic pre-eminence within their region of influence. Leyte in general, but even more so the city of Tacloban, has been under the influence and control of the Romualdez family, which has developed over the years a patron–client network with a significant part of the population (interview with executive at Bayan Muna, Manila, August 2014). Electoral politics are therefore based on this system of patron–client relationships, and trust towards state officials is greatly reduced. While trust and reciprocity are strong between the patron and its clients, people who are not part of this relationship do not expect any help. As a result, when local officials came to ask people to evacuate, few believed the warnings. In addition, many illegal settlers did not evacuate because they feared the government would use it as a way to relocate them by force. In fact, few people fully trusted the government (focus group discussion with disaster evacuees and victims, Tacloban, August 2014).

The issue of trust was also typified in the conflict between the central and local government during the preparedness and relief efforts of typhoon Haiyan. Communication between central government and local government in Tacloban was marred by distrust, political competition and blame games, slowing down preparedness efforts (interview with director of operations at National Disaster Risk Reduction and Management Council, September 2014, Manila). Indeed, the mayor of Tacloban belongs to a rival political family, supposedly involved in the assassination of the current president's father (Hodal, 2013). This distrust and rivalry led to a cumbersome collaboration and inconsistencies in communication, which further hampered preparedness and relief efforts (interview with project leader at the Office of the President Assistant for Rehabilitation and Recovery, Manila, September 2014). While the mayor issued evacuation orders, this was not confirmed by the central government, who later decided to investigate the mayor of Tacloban for allegedly failing to adequately prepare his city ahead of the disaster. This distrust between the national and local level translated into communication inconsistencies, creating confusion among citizens and communities (interview with programme director at Social Weather Survey, August 2014, Manila).

Decades of low-intensity civil conflict have also affected trust between Filipinos and local officials in the country more generally. In some regions of the Philippines, there is still no functioning presence of the state. The quality of governance, level of development and conflict intensity vary from area to area and create challenges for managing disasters. Some communities therefore rely on local knowledge, the influence of the rebel groups and tend to distrust local officials and the army. The presence of the New People's Army (NPA) in some regions around Tacloban has created reluctance among the municipality officials to actively engage with the communities under the influence of the rebel group (interview with high-level official at the Disaster Risk Reduction Management Council, Tacloban, August 2014). There is much distrust towards local officials in regions affected by violence, where the lack of institutions and welfare services has led the population to be self-reliant (interview with programme coordinator at Oxfam international, Manila, August 2014). In addition, the communist insurgency has been active in blaming the government for its lack of prevention and unequal relief, trying to further erode the trust and legitimacy of the government (Walch, 2014). The armed conflict in neighbouring regions has led many people to move to Tacloban in search of a safer life. However, these internally displaced people live in marginalised neighbourhoods and illegal settlements highly prone to disaster (interview with Shelter delegate at International Federation of the Red Cross, Tacloban, August 2014). Very few are registered with the municipality and therefore do not have the right to vote at local elections (interview with camp manager for the City of Tacloban, Tacloban, August 2014). As a result, there is much distrust towards local officials, and evacuation orders were perceived by the migrants as a way to evict them from their settlements (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). Unlike in India, where there is a trustful cooperation between NGOs and the state, the local government in the Philippines worked independently, especially in the pre-disaster period. There is indeed tension between NGOs – often accused of being too “lefty” and close to NPA – and the government in the Philippines. This has damaged the trust between the civil society, the population and the government (interview with high-level official at IOM, Tacloban, August 2014).

In the absence of clear and credible information, citizens turned to other sources providing quicker and more accessible information. Most of the people relied on mass media, on their communities and families, and on virtual networks, such as Facebook, to make the decision to evacuate or not. According to focus group discussions with disaster victims, television and radio were the major sources of information for the people. People did not believe local officials that the cyclone would be so strong (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). Equally important, the main television and radio channels failed to explain what a storm surge was. The inconsistencies in the message and lack of understanding of the storm surge made people reluctant to evacuate. Many victims argued that if they had known a storm surge would have the same effect as a tsunami, they would have evacuated (focus group discussion with disaster evacuees and victims, Tacloban, August 2014).

Most of the people interviewed were not aware of the extraordinary strength of the typhoon, believing it was a typhoon like any other. Many people interviewed did not trust local officials that the typhoon would be so powerful, and believed they were sufficiently prepared. Finally, trust in the safety of the evacuation centres was another important factor in encouraging people to stay at home. “We know and we want to protect what we have, going to the evacuation centre increases the risk of losing our belongings” (focus group discussion with disaster evacuees and victims, Tacloban, August 2014). Natural hazards are perceived to present a lower level of risk than having to stay in insecure and overcrowded evacuation centres, and risking losing one's belongings. In sum, the lack of trust in the case of the Philippines seems to have complicated pre-disaster evacuation. While the lack of traumatic experience and trust were recurrent factors during the interviews, they are not the only ones. Trust and traumatic experience were mentioned by all the interviewees, regardless of whether they are local officials or disasters victims. Other factors have also played an influence in conjunction with trust and traumatic experience, and some of the reasons were suggested by some groups but not others. Table 2 summarises the reasons and mentions which group proposed them and how often they were mentioned.

## 8 | CONCLUSION

There are many reasons that explain why people stay in their homes and do not evacuate before a natural disaster. The results of this study suggest that in the case of typhoon Haiyan in the Philippines, the lack of traumatic disaster experience, coupled with a low trust in local officials, explain particularly well why people did not evacuate before typhoon Haiyan. Lack of both institutional and individual experience of a traumatic disaster and daily exposure to “normal” natural disasters created a certain sense of confidence among the population and public officials, which led to a generally low level of preparedness. As a result, previous experience of disaster per se did not create a greater willingness to evacuate, as suggested by previous research. Instead, the interviews and focus group discussions suggest that experience led to a higher level of

**TABLE 2** Summary of reasons for not evacuating by interviewed groups

Reasons for not evacuating in the Philippines	Groups
Overconfidence and lack of traumatic past disaster	Most often mentioned by all groups interviewed
Distrust towards officials	Most often mentioned by all groups interviewed
Unclear evacuation message from the national government and its authority PAGASA	Often mentioned by local officials
Lack of understanding of the hazard	Often mentioned by local officials and disaster victims
Fear of looting when evacuated	Very often by disaster victims
Fear of insecurity in cyclone shelter	Often mentioned by disaster victims
Fear of not being able to come back to their land	Very often mentioned by disaster victims, especially illegal settlers, and NGOs
Reasons for evacuating in India	Groups
Traumatic past cyclone fresh in the memory of people and state official	Most often mentioned by all groups interviewed
Improving trust and social contract between the state and its population	Most often mentioned by all groups interviewed
Warning came from multiples sources	Often mentioned by local officials and communities
Evacuation drills and already established routes to shelter	Often mentioned by local officials and communities
Awareness of the hazard and proactive local officials	Often mentioned by local officials
Possibility to bring cattle to the shelters	Often mentioned by communities
Shelters seen as a secured and community space	Often mentioned by communities

confidence in their ability to manage the disaster. The lack of trust in local officials, due to the civil war and strong patronage politics, further limited the level of evacuation and hindered communication between citizens and public officials.

The situation was different in India where the traumatic 1999 cyclone was still vivid in the memory of the population and public officials, which helped in convincing people of the importance of evacuating before the storm. Not only did the traumatic experience of the 1999 cyclone lead people to be more easily persuaded to evacuate, but it also triggered a cycle of institutional learning, making the early warning and evacuation policies more efficient. The increase in trust in public officials and the traumatic experience of 1999 led the local population to take the evacuation orders more seriously. Local officials were the main trusted sources of information regarding disaster evacuation in Orissa. Trust made communication between local officials and the citizens more credible.

Trust may however not be the most important factor leading to evacuation when exploring the variation over time in the Philippines. More people evacuated during the recent typhoon Hagupit in December 2014, even though the level of trust was still the same as before typhoon Haiyan. Indeed, most of the public officials remained in office following typhoon Haiyan and it was therefore unlikely that the trust in these officials had changed in 2014 when typhoon Hagupit took place. While trust may not in itself be the most important factor, it tends to further limit evacuation in the absence of traumatic memory. Situations where both traumatic memory and lack of trust coincide will create many challenges in terms of evacuation, as citizens will primarily rely on the expertise of local officials when they have not themselves experienced a traumatic disaster. However, when the population has experienced a traumatic disaster before, trust may not play such an important role.

While this study has refined previously established factors behind disaster evacuation and explored them in new contexts, it has some limitations. Indeed, nothing is ever fully comparable and other factors may explain the variation in evacuation between the Philippines and India. For example, the strength of typhoon Haiyan was superior to typhoon Phailin and the government of Orissa has a bigger budget and financial resources to invest in disaster management than the government of Tacloban. Another important factor that is not sufficiently explored in this study is the importance of good governance and political commitment in pushing for a zero casualty outcome before the cyclone in Orissa. The fact that many supporters of the Chief Minister of Orissa are in the district of Ganjam led him to take all the necessary steps to prevent the disaster negatively impacting his voting base. It was also a way for the Chief Minister to display to the national government the quality of his administration, which hails from a different and competing political party. In addition, the readiness to use force to evacuate people in India may be another factor influencing the outcome, which is not fully explored in this study.

While political trust was examined in this study, other components of social capital – which have been highlighted as important factors for post-disaster recovery (Aldrich, 2012) – could have been explored in more detail.

Despite the inevitable presence of uncontrollable confounding variables that could not be captured by the design of the case selection, the article has unpacked interesting dynamics that merit further research. For example, the impact of land tenure on disaster evacuation and on recovery should be explored in future research. Many landless peasants and fisherman did not evacuate because they were afraid of not being able to come back to their “illegal” settlement. They also became marginalised in the recovery process because they did not have the necessary documentation to demonstrate what they had lost. The effect of exposure to violence on risk perception is another fruitful avenue for future research. Finally, further research should explore trust and experience over longer periods of time and across more countries, as the sample for this study is rather limited. Indeed, this study was more interested in examining causal mechanisms to refine existing theories, instead of testing hypotheses through cross-national comparisons (George & Bennett, 2005, pp. 19–22; Gerring, 2004).

This study provides detailed insights into a case of successful disaster evacuation. It documents how the state of Orissa, one of the poorest in India, learned from its failure in 1999 to efficiently mitigate the effect of cyclone Phailin in 2013. By doing so, the article provides valuable lessons that could be applied to other countries and regions characterised by low socioeconomic development, thereby responding to a need in previous research to explore cases of success and not simply failure. This study provides a good case for South–South cooperation. Understanding risk perception is not an easy task and it requires a broad interdisciplinary perspective. Countries affected by civil conflict and patronage politics face a different set of challenges for disaster evacuation than consolidated democracies. While disaster risk reduction is often considered as a technical issue that mainly requires legal frameworks, capacity and institution building, this article shows that other, less tangible factors such as trust and experience play important roles in evacuation and preparedness. Although harder to address through usual development programmes, they should be taken into consideration for disaster risk reduction and management.

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