

➤ Introduction

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Earthquake disasters are a common experience of most Latin American countries since pre-Columbian times. While in the Andes converging movements of the Nazca and South American plates frequently led to seismic tensions during the last centuries, in Central America and the Caribbean, three tectonic formations, the North American, the Cocos and the Caribbean plates are on a collision course with comparable consequences. The heavy earthquakes of the hemisphere do not only claim countless human lives and cause considerable material damages, in many cases they also shatter the state, economy and society of the affected countries. Since many seismic catastrophes influenced the political, social, cultural, psychological and urban life, these tragic events attracted not only the interest of political scientists, but also of historians, anthropologists and sociologists.¹

During the 20th and at the beginning of the 21st century most Latin American countries were haunted by seismic disasters. Since 1900, Argentina recorded 59 medium size or heavy earthquakes; Central Mexico experienced 13 of such events, Nicaragua recorded 90 and Peru 114. Some earthquakes are regarded as turning points in the history of the affected country. The quake that almost leveled the Argentine city of San Juan in 1944 allowed the ruling military government and above all Juan Perón to show their ability to master a disaster induced crisis. It therefore played an important role in the rise of the Peronist movement (Healey 2011). The seismic catastrophe that shook the Mexican capital in 1985 paralyzed the PRI's government apparatus for a while, revealed the incompetence of its local representatives and provoked a debate on the legitimacy of Mexico's one-party rule (UNAM 1986, Walker 2009). In 1970, the Peruvian city of Yungay was destroyed by an earthquake and a massive landslide caused by it. This event gave the ruling military reform government the opportunity to rebuild an entire city according to its urbanistic ideals (Bode 1990, Zeilinga de Boer/Sanders 2005: 194-220). In 1972, an earthquake disaster leveled large parts of the Nicaraguan capital Managua. The shameless theft of relief funds undermined the ruling Somoza dictatorship and prepared the Sandinista revolution of 1979 (Dosal 2009, Wheelock Román 2000, Zeilinga de Boer/Sanders 2005: 221-241). In 2010, Haiti suffered heavy damages and the loss of more than 200.000 lives during the heaviest earthquakes that this Caribbean republic experienced in its history. The development of this poor country was thrown back for decades (Chaudenson 2010, Denis 2011, Farmer 2012).

The permanent seismic threat represents a serious challenge to the stability of the affected Latin American nations. Above all the poorer countries are forced to reserve an unproportionally high part of their financial means for disaster prevention and relief. Natural disasters are thereby among the factors that prevent these countries from reaching

¹ Buchenau/Johnson 2009, Oliver-Smith/Hoffman 1999, Torrey 1999, Wisner *et al.* 2012. Cf. also the bibliography of Glied (2014).

the millennium goals defined by the United Nations destined to reduce the countries' poverty and dependency.

The omnipresence of the earthquake threat has deeply influenced the affected societies and brought them to define themselves at least partially by the proximity to disasters in the past and the future. They are in some degree *risk societies* who have to come to terms with existential dangers and to make arrangements for the disasters that are yet to come.²

An important category of disaster analysis is *time*. The impact of earthquake disasters changes with the growing temporal distance to the event. Correspondingly, the analytical framework of disasters changes over the time. When an earthquake strikes, the mere physical shock generally does not last longer than several minutes. Hours later, tsunamis, fire blasts and landslides induced by the quake may follow. The long lasting effects become manifest days, weeks and months after the event. Diseases may start to rage due to the breakdown of the existing health system. The destruction of the infrastructure, buildings, factories and stores will disrupt most economic activities. Many inhabitants of the destructed zone will migrate to other places. So, the disaster provokes migration streams that may destabilize the migrants' target region economically. If the disaster relief is failing and the victims' quest for food, healthcare and provisional shelter or appropriate housing remains unheard, social unrest or even insurrections are likely to happen. The reconstruction of the destroyed places and an economic recovery of the affected region will last several years and often only starts a long time after the event. The most important long term consequences of disasters are of cultural and mental nature. Years, decades and even centuries later, artists, writers and filmmakers dedicate their works to natural catastrophes that shaped their countries history. They become an integral part of the public memory and national narratives.³

On every stage of this timeline, disaster analysis has to take into account a series of factors. The first one is the *human dimension*. Heavy earthquakes may claim several hundreds of thousands of victims and leave behind a high number of persons injured or disabled. They destroy the hard-won existence of uncountable numbers of people who were often living under precarious conditions before the disaster struck. They deprive many families of members who are essential for their social and economic survival and leave behind considerable numbers of orphans. The survivors are often traumatized and uprooted by the loss of their traditional social and urban environment. Beyond that, the victims have to face the loss of their social status and a depressing lack of future perspectives.

The *mental and cultural consequences* of disasters are the second factor to be taken into account. Earthquakes have a direct impact on the mentality and religious beliefs of the affected groups (Janku *et al.* 2012, Stephens *et al.* 2013). The sentiment to be delivered to desastrous natural forces may cause lethargy, lead to metaphysical interpretations of the threat and foster the formation of disaster related religious or even messianic movements. The most important earthquakes tend to leave deep traces in the collective memory of the affected country. This integration in the national memory generally serves the purpose to

² The notion of *risk societies* has been introduced by the German sociologist Ulrich Beck (1986/2007) with reference to man-made risks typical for industrial societies. There are good reasons to apply his terminology to societies living under the permanent threat of natural disasters.

³ Bendix 1990, Concha Ramírez/Henríquez Aste 2011, Kirby 1990, Kozák 2010, Valladares Quijano 2011, Zeilinga de Boer/Sanders (2005: XI).

overcome the collective trauma and to give the live of the survivors a new sense. Disasters experienced in the past lead to new “social constructions of the earthquake threat” and different conceptualizations of risk (Luhmann 1991, Stallings 1995).

Earthquakes affect a nation’s *economic life* in many ways and often interact in an explosive manner with the preexisting structures — this is the third factor of disaster analysis. They may provoke or deepen crises, reveal hidden forms of mismanagement and corruption and thereby mobilize the civil society against power abuses. They may paralyze an entire economy or induce unprecedented growth and modernization effects as a result of reconstruction programs. They may deepen the existing poverty and level existing class and income hierarchies by destroying residential areas regardless of status and wealth.

If an economy is already weakened by a crisis in prequake times, it will certainly lack the financial means necessary to cope with the unexpected challenge of natural disasters adequately. A typical example is the dismantling of state institutions charged with disaster precaution and relief as a consequence of austerity programs imposed by international financial institutions like the IMF. This was an experience made by Mexico when it had to request foreign assistance to cope with the debt crisis of 1982. Budget cuts reduced the public disaster precautions in the capital to a minimum. When in 1985 a heavy earthquake struck in Tlatelolco, an important residential area in Mexico city mainly inhabited by the middle classes, the PRI-led local government revealed its inability to intervene. Instructions for earthquake proof building were ignored in prequake times — partly due to the prevailing corruption — and no control instances were left to impose the ruling law. The rescue organized by the state turned out to be a disaster of its own. Foreign rescue forces were prevented by the Mexican customs office from bringing their technical material with them. While the Mexican relief failed due to the destruction of their rescue institutions mentioned above, the local authorities did everything to sabotage the victims self-organization fearing that protests might turn into a new kind of opposition movement against the one-party rule of the PRI (Walker 2009).

The material effects of earthquakes can weaken the affected economy in the long run. The breakdown of the infrastructure, energy supply and communication networks tend to obstruct the reconstruction and economic recovery.

How quickly can the economic consequences of natural disasters be overcome? The answer to this important question depends on several factors. Does the affected state possess the necessary means to finance the reconstruction or does it depend on foreign aid? Can the affected nation count on functioning public institutions or was it already weakened in prequake times by chronic anomy, corruption and the lack of professional public services? If the affected country is ruled by a kleptocracy, the main part of the foreign and national relief funds might be stolen by the ruling oligarchy.

If the disaster relief is mainly lying in the hands of foreign institutions, this might have different effects. It can guarantee a sober administration of the funds and prevent kleptocrats from putting their hand on them. It might as well endanger the national sovereignty of the affected country and introduce new forms of long-lasting dependency. Generally foreign relief organizations tend to work on the basis of a short term agenda and disregard the need for long-term investments that are vital for the postquake economic recovery.

If the country can count on a numerous diaspora in richer countries, this might turn out to be an economic trump. In the Haitian case, about 2 million of its citizens and their

descendants are living in the USA, Canada or France and are therefore able to send money to their relatives stayed at home. The diaspora remittances have the great advantage to reach the affected population immediately and without passing through official channels that might slow up their flow or divert parts of it. In the Haitian case these individual transfers represent the most important source of disaster relief in the long run.

Postquake reconstructions can become a catalyst of growth, lead to the establishment of new industries in the affected regions or at least have the potential to open new growth paths. A typical example are the projects to build a cement factory nearby San Juan, the theatre of a major earthquake in Argentina in 1944. Before the disaster, this region was Argentina's wineyard and had nearly no industry at all. Some enterprises can directly profit from the destruction of the infrastructure. In Haiti, where a wirebased telephone system was already unreliable before the quake of 2010, the general use of cell phones was an adequate answer to the destruction of soil-based communication networks. The foreign enterprise Digicel took advantage of the situation, invested a considerable amount of money, while other capital owners remained reluctant, and managed to conquer a strong position on the Haitian communication market.

Demography, migration and urbanistics frame the forth field of disaster analysis. During the 20th century, most Latin American countries experienced a more or less strong demographic growth. The formation of megacities in regions of high seismic activity always tends to increase the destructive potential of earthquakes. An increasing population density exposes more individuals to disaster threats. The uncontrolled urban growth is often accompanied by mushrooming suburbs where buildings of poor quality prevail. Therefore, uncontrolled urbanization increases the number of houses whose construction does not fit to earthquake proof building standards. In the affected countries urban decentralization should be one of the government priorities and is certainly one of the main means of disaster precaution. Though this is evident, such measures are rarely taken into consideration. An uncontrollable megacity like Port-au-Prince (Haiti) is actually entirely rebuilt at the same site and no initiatives are taken to strengthen other urban centers, mainly due to the lack of economic perspectives outside the capital. When a Latin American megacity is struck by disaster, the number of victims tends to explode — as this was the case in Haiti in 2010. As mentioned before, major natural disasters can produce important migration streams, which — above all in poorer countries — tend to destabilize the target regions that were spared by the disaster.

The *social dimension* is the fifth field of disaster analysis. Heavy earthquakes have the potential to induce major social changes. In regions, that are immediately affected, the destruction of residential areas can — at least for a limited time — level most of the social differences between the inhabitants. In many cases the barrier separating the ordinary people and the state officials is removed for the time of rescue activities. State officials show their presence in the disaster zone to demonstrate that they care for the people's distress or even try to gain the political support of the victims. The sentiment of togetherness is often strengthened within victim communities. A disaster can therefore create new ties of solidarity, but it can also weaken a society, when for example permanent food shortages encourage brutal Darwinist survival strategies in the daily struggle for provisions.

One of the central analytical notions in use is certainly the "vulnerability" — meant in an economic or social sense, identifying specific victim groups or regions that are likely to suffer from earthquake induced crises because they were already living under precarious

conditions in prequake times (Wisner/Luce 1993). Poverty often implies a higher vulnerability to man-made consequences of natural disasters. Provisional houses of often poor quality and built with materials unfit to withstand natural disasters tend to collapse quicker than reinforced constructions in wealthier residential areas. Victims who were already poor in prequake times are likely to live for a much longer term in provisional shelters built after the disaster. This is especially true when the national state fails to intervene and to satisfy the victims' demands for housing, water and electricity. The poor are less likely to find an accommodation outside the destroyed area, and if they are sheltered by relatives living outside the disaster zone they are likely to burden them with costly additional expenses that might drive their hosts into ruin.

In recent times internet-based social media took over important functions within the disaster relief. The voluntary supporters of the nonprofit organization OpenStreetMap — to take an example — managed to provide an exact city map of Port-au-Prince marking the different degrees of destruction of houses and infrastructure shortly after the earthquake disaster of 2010.

Last but not least, disasters can have important *political consequences*. In the past, heavy earthquakes have changed the power structures in several Latin American countries. A successful crisis management can be the basis of a promising political career or a new source of political legitimacy (Murphy 2009). If the crisis management fails, this may unmantle a regime's credibility and lead to its breakdown. Like in the economy, a natural disaster could trigger modernization in specific political sectors — the most visible symbols were the modernist urban blueprints of the city planners who had the task to rebuild destroyed urban centers like San Juan or the Peruvian Yungay. A failed crisis management can have the opposite effect by aggravating the structural backwardness of prequake times.

The experience of heavy earthquakes and the remaining seismic threats require precautions for the future. What conclusions are drawn from major seismic events depends on the factors outlined above. With good reason, Latin America has the reputation to be a continent where abstract norms, laws and formal rules are foiled by considerable parts of the society and political elites. If it is, for example, reasonable to impose general rules for earthquake proof building, the prevailing anomy will certainly render their implementation almost impossible.

The following dossier of the *Iberoamericana* dedicated to earthquakes in Latin America contains five studies of specific aspects of this question that will in one or another way refer to the analytical framework outlined above.

The Mexican historian Marialba Pastor provides a detailed panorama of the debates on the origins of earthquakes led in pre-modern New Spain, showing that despite all efforts to confront the observations of concrete disasters with the findings of the nascent natural sciences, the seismic threat was mainly conceptualized within a religious framework inherited from the Middle Ages.

In his paper, the Argentine historian Pablo Buchbinder analyzes the consequences of the earthquake that devastated San Juan in 1944, advancing on several levels: he describes the interplay of the military government and the public to mobilize funds for the victims, the debate on the best way to reconstruct the destroyed city, the rise of a new social policy and specially the reform of orphan care policies as an immediate result of the disaster.

The economists Vicente Albornoz and Daniela Anda use the earthquake, that hit Ecuador in 1987, to exemplify the social and economic consequences of a disaster of this kind in the Andean region. By touching an oil-pipeline of major importance, the quake unveiled once again the fragility of an economy unilaterally based upon oil revenues.

In her article, the Argentine sociologist Liliana Mayer studies the complex interplay of disaster relief, decentralization and neoliberal reforms of the education system on the example of the Chilean school system after the earthquake of 2010. She underlines, that the decentralization of prevention policies and disaster relief under neoliberal auspices led to an aggravation of the existing inequalities and the reduction of local autonomy in the affected regions.

In her paper, the Chilean historian Marisol Palma Behnke analyses how destructive seismic events shaped the public memory of her country. Located in the region with the highest earthquake frequency, Chile is regularly touched by seismic disasters which have deeply influences the collective imagination since pre-conquest times. Earthquakes and the tsunamis caused by them constitute a kind of “anti-lieu de mémoire” around which some basic narratives of the Chilean nation are arranged.

The five articles, that make up this dossier, have been presented at a conference on “Earthquakes in Latin America — their social, political and cultural consequences” held at the Institute of Latin American Studies (Freie Universität Berlin) in October 2013 and funded by the Deutscher Akademischer Austauschdienst, which tied up with the fruitful debate initiated by Buchenau, Johnson, Sanders, Zeilinga de Boer and other scientists specialized in the topic.

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