

# PRACTICAL LESSONS OF PAST EUROPEAN DISASTERS

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**Abstract:** The subject of the paper is the necessity of paying attention to practical lessons of the past European disasters in order to improve adequate responses of today. The main goal is to show possible ways of improving resilience of the countries and regions by implementing the principle of “build it better”, not only to domain of construction building, but also to societal relations. The method is critical analysis of the past disasters, e.g. the European tsunami that happened about eight thousand years ago, the Little Ice Age that occurred at the end of the 13<sup>th</sup> and beginning of the 14<sup>th</sup> century, the hurricane of 1674 in Northwestern Europe, and the Great Storm of 1703. There are presented relevant recent international documents which advocate the strengthening of preventative measures and the development of communities and nations resilience, in relation to the consequences of disasters, combined with the current gender theory demands. The most significant result of the paper is raising risk awareness that disasters do not always hit “others and other continents”, but could happen in Europe too. As the paper’s implication, there is also stressed the necessity of different societal organization, based on gender equality and inclusion of all citizens as actors in risk management efforts.

**Keywords:** disaster prevention, resistance strengthening, practical lessons from past European disasters, “build it better” principle

## INTRODUCTION

Almost fifteen years have passed since a double disaster (earthquake and tsunami) devastated many communities in Southeast and South Asia in 2004. The catastrophe overwhelmed the capacities of governments, NGOs and communities in the affected countries at that time. However, it also gave them a great opportunity to improve ways in which to help the affected populations, strengthen

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their capacities and learn many practical lessons to enhance their organizational capacity to prepare for, respond to, and to recover from the devastating impact of the disaster. The affected countries have launched a large number of institutional structures to achieve technical monitoring, capacity building, preparedness and response to disaster risk reduction (South Asia Disaster, 2014).

The principle of “build it better” first attracted global attention during the reconstruction of Aceh in Indonesia following the 2004 Indian Ocean earthquake and tsunami. Efficient recovery and reconstruction are now globally recognized as imperative to sustainable development. The principle was incorporated into international documents signifying an attempt to strengthen the resilience of communities, societies and states in relation to the consequences of disasters by correcting past deficiencies. To be successful, recovery and reconstruction programs require a high degree of political will, strong institutional frameworks and intensified international cooperation, all together providing greater opportunities for reducing risks and building resistance, as well as greater recovery and reconstruction capacities that will be implemented in an efficient and effective way, in order to avoid negative consequences (UN World Conference on Disaster Risk Reduction, 2015).

Resistance is defined as the ability of a system, community or society at risk, to resist, absorb, adapt, transform, recover from and adapt to the effects of hazards in a timely and effective manner, including through the preservation and restoration of its basic structures and functions by means of risk management (United Nations, 2016). It is important to understand that the strengthening of resilience is not only considered to include coastal defenses and similar physical and organizational environmental improvements, but also changes in discriminatory social relations, especially gender inequalities (Mršević and Janković, 2018: 401-411). Namely, in agrarian societies – those most often affected by disasters – women are significantly underrepresented in politics, institutions, social organizations and all forms of activism (Đurašinović, 2019). Countries that are most prominent in women’s leadership and in general implementation of the concept of gender equality, i.e. the Nordic states (Norway, Sweden, Finland) (Đurašinović, 2019) and other western-located post-industrial countries, have rarely been affected in recent decades by disasters with catastrophic consequences, which clearly indicates that such phenomena are not only conditioned by nature but also by discriminative social relations.

Recovery is much more than just a simple return to the pre-event state. The recovery of communities affected by disasters should not only reduce the risk of the same or similar hazardous events recurring, but also improve the capacities for identifying other hazards and conditions that have had no impact on a recent event, but which could jeopardize a given community in the future. Recovery must be addressed in a cyclical manner – in which action is taken to strengthen resilience both before and after future catastrophes – instead of a linear approach

that limits recovery actions to the consequences of a disaster as an event that has already happened (UN World Conference on Disaster Risk Reduction, 2015).

Disasters are not only painful lessons of people's struggle to survive, they also change the world as evidenced by the Black Death that came to Europe in the middle of the 14<sup>th</sup> century. It was the one that changed the development of the European civilization and the entire world, in spite of killing a third of the European population of that time — about 25 million people. There was a rise in the development of medicine and the appearance of the concept of “quarantine”. The church started to lose its power, and there happened development of cities and industrialization grew more rapidly. Women started doing men's jobs because there was a terrible lack of people who could work (Brightside, 2019).

The global disaster risk growth, including the increased exposure of people and property, combined with lessons learned from past disasters, point to the need to further strengthen disaster preparedness in the form of a pre-arranged response. The development of the analytical perspective of disasters can eliminate some of their harmful consequences or even eliminate them (Öcal, 2018). This includes taking action to anticipate events, increasing the physical and social aspects of community resilience, integrating various types of disaster risk reduction into the preparation of responses, and also ensuring sufficient capacity for effective response, and recovery of the existing forms of response, at all levels of the affected society. In this sense, not only are recent disasters and the lessons learned from them useful, but likewise similar events that occurred long ago, the awareness of which is an increasing trend in Europe. The reason is that earthquakes, hurricanes, landslides and similar events cannot be induced in laboratories for investigations regarding the mechanisms of their functioning, intersectional cause-effect correlation between different risk factors, or, in particular, the mapping of possible places of events and the significance of warning signs. The reason for this is that in modern times such events do not affect Europe as strongly as some other continents, and therefore it is necessary to examine such events from our continent's past in order to discover the specificities of European disasters.

## EUROPEAN TSUNAMI

This event was chosen to illustrate the necessity of raising disasters' risk awareness even of tsunamis, mostly (wrongly) perceived as something which could never happen in Europe, as being allegedly only typical “Asian disaster”. Although the general public does not know much about the European tsunami from the far past (Ruggeri, 2016), experts today pay much attention to this ancient event and its causes. In fact, it is little known that Europe was in the past been affected by numerous tsunamis, but studies of their characteristics today warn that similar events could be repeated because their underlying causes continue to exist. Some 8000 years ago, waves up to 25m in height devastated the Scottish islands and the coast of Great Britain. This European tsunami turned Great Britain into an

island, and, as the current analysis suggests, it was triggered by the Storegga Slide, a landslide off the coast of present-day Norway. Geologists, paleontologists and archaeologists are today working together to reconstruct precisely what had happened, what the effects of the tsunami were, and how likely it would be that a similar event would recur, because, as history proves, tsunamis are a more frequent European event than people would tend to believe. However, while the landslide is now considered to be the primary cause of this separation, the increase in volume of water could also have played a role in the destabilization of the continental ridge. Alternatively, this could have been the result of an earthquake, or the sudden release of large quantities of methane gas trapped underground, or a combination of several causes. Some of these factors are still in play today: oceanic warming can destabilize sediments, and the melting of ice sheets can increase the frequency of large earthquakes. In the 21<sup>st</sup> century, a combination of all these changes could lead to submarine landslides, triggering tsunamis, and so the frequencies and timing of these factors are important avenues of research.

## EUROPEAN LITTLE ICE AGE

The European Little Ice Age (Black, 2012) at the end of the 13<sup>th</sup> and the beginning of the 14<sup>th</sup> century was most likely caused by the effects of global cooling due to large volcanic eruptions, leading to the changes in Arctic ice cover. The event is presented here as an illustration of adaptation manifested in the construction of barriers to protect from sea level rises and the breeding of crops capable of survival in low temperature conditions, wet and shorter summers, and conditions of frequent droughts. This Little Ice Age is characterized by a global temperature decline during this period, although there are indications that cooling in the Arctic and sub-Arctic began several centuries earlier. It is not known exactly what led to it, but our modern fear of possible repeated, similar climate changes has led to studies of the impacts of the Little Ice Age across Europe. Thanks to such research, its occurrence can be associated with a series of four explosive volcanic eruptions between around 1250 and 1300 in tropical areas, which caused huge clouds of sulfate particles in the upper atmosphere. When researchers processed a series of eruptions and model of the climate, they discovered that a short-but-intense burst was enough to trigger the growth of summer ice sheets around the Arctic Ocean and the glaciers. Ice mirrored more sunlight into space, thereby weakening the Gulf Stream in the Atlantic Ocean. The proliferation of sea ice in the North Atlantic established this self-sustaining reversal process, and proved how mid-term changes, for example sea ice penetration into the North Atlantic, can lead to climate change; a process that has been going on for centuries. The lesson of this event, is necessity of *adaptation* – in contrast to mitigation of the consequences of disasters – i. e. an action that helps in dealing with the long lasting effects of climate change.

## EUROPEAN HURRICANE

Disasters are sometimes caused by very quick and short events. That is why this event is mentioned here, with the intention to illustrate the necessity of building architectural and urbanistic resilience capable to face strong and intensive, although short lasting, hits. Understanding exactly how the hurricane developed in 1674 and the careful study of the documentation of the damage caused has proved useful for designing and constructing buildings that are robust enough to withstand similar hurricanes, by implementing the “build it better” principle. This hurricane lasted only a few minutes, but it caused enormous damage to the city of Utrecht (Barras, 2017). An intensive and powerful – but short-lived – hurricane crossed Northwestern Europe one summer afternoon in 1674. It left social and architectural consequences upon the city of Utrecht that are still felt to this day. The problem is that this hurricane was too localized and too time-limited to cause such damage to Utrecht. Several hotspots of strong activity in the wider region of Northwestern Europe cannot be explained, but what is known today, based on the study of this past event, is that a special form of stormy system called the ‘bow echo’ occurred. Coincidentally, this hurricane is one of those rare events that was well-documented. The images of destruction show that the cathedral and a number of church bell towers collapsed in a northerly direction – the path the weather front took – but others fell westward, vertically towards the front. Only the impact of hurricanes that produce strong gusts to the west could have torn these down. The implementation of the “build it better” was thus shown as urgent necessity for the future constructions of the town.

## THE GREAT STORM OF 1703

This past event was picked up also to illustrate the necessity of risk awareness. Namely, before a disaster many individuals, as well as whole nations and inhabitants of the whole regions, perceive their own risk as sufficiently low, reflecting an ‘it will not happen to me’ set of beliefs. Or, if it happens, it happens as unpredictable God’s will. The development of meteorology help eliminate God’s will as a cause of disasters and promotes scientific approach to weather phenomena. Disastrous storms may happen in present time, as happened in the past centuries. On December 7, 1703, England and Wales were hit by an extreme weather event (Jones, 2018). After a few weeks of wind and rain, a cyclone stormed through the country, from the Welsh shores through the Midlands and South of England in the middle of the night, hitting Bristol and London particularly hard. It was considered to be the worst storm Britain has ever witnessed, and as such it has remained in the collective memory. The consequences were particularly difficult because they hit the south of England, where large settlements, cities and ports with frequent traffic were situated. The storm uprooted thousands of trees, ripped tiles from roofs, smashed and tore windows from their frames, and

sunk ships in their berths along the River Thames. It is believed that a total of between 8,000 and 15,000 people were killed. Thousands of sailors died; around 6,000 in total. Thirteen warships and many merchant ships, along with their sailors, were lost in the Channel. Atmospheric sciences barely existed in 1703, and most people had a profoundly religious view of increment weather events as being 'God's will' or 'God's punishment'. The Great Storm, according to the records of that time, prompted early scientific curiosity about extreme weather events, eventually leading to the development of meteorology as we know it today, which includes atmospheric chemistry and atmospheric physics, with a strong focus on weather forecasting. Thanks to the detailed descriptions of the Great Storm of contemporaries who did not accept 'God's will' as a simple explanation, seeking to build a scientific approach, in the 19<sup>th</sup> century meteorologists realized what had happened: it was the fact that winds that caused the Great Storm were circular systems, as opposed to the usual linear flows, that made the storm so devastating. Awareness that such phenomena can occasionally occur arose, and that the attention should be also paid to wind flow type, not only to its direction.

## SOCIETAL ASPECTS OF DISASTERS

The key lessons of the above-mentioned historical European catastrophic events are, if it is not possible to avoid them, it is necessary to learn how they functioned in order to predict at least some of them since all is never possible, and to make it possible to live with them and to recover in their wake. Disasters bring with them sociological, psychological, economic, as well as legal and other effects. It is impossible to realistically manage a catastrophe or disaster without considering its social causes and consequences. Social sciences must therefore be capable of dealing with their consequences and impacts (Öcal, 2018).

At the global level two parallel processes are considered: the inclusion of a gender perspective in the process of implementing the concept of sustainable development (realization of the Millennium Development Goals) and efforts to build a framework for reducing the risk of disasters in the world (Čović, 2015).

All people (potentially) play a role in leading and participating in humanitarian preparedness and response to disasters. Due to gender traditions within the family and community, women often find themselves, both as individuals and together as a group, obstructed from changing the existing situation (Kasymova, 2008). Therefore, it is necessary to emphasize, bearing in mind the lessons of past disasters, that the roles of women, besides those of men, are part of building a common resistance that must be organized in an effort to adequately respond to challenges ahead (Tanner, Markek and Komuhangi, 2018). Gender analysis is vital in all phases, from defining the problem to implementation and, furthermore, in the field of building resistance. It should be borne in mind that resistance is a dynamic rather than a fixed state, and should not only mean survival, but also advancement (Gender and Disaster Network GDN, RUET and UCL, 2017). Pro-

gress is also needed in terms of changing the existing discriminative social relationships into those that enable women and men to have equal social treatment. If women are obstructed from having managerial positions in disaster response management, and their possible roles in the community and participatory development processes of building resistance are neglected, gender-based violence would increase during disasters. This increased vulnerability of women during disasters is not caused by nature, but is rather socially conditioned (Ocampo, 2016), because the disaster is not only a 'natural' inevitability of its causes, but rather the synergy of factors combining natural risks and human vulnerability, in which gender-based inequalities are an important cause of increased female vulnerability in disasters (Mršević and Janković, 2018: 209-216).

Therefore, gender perspectives should be included into mechanisms and processes of governance and creation of policies for building resistance to disasters. The application of a gender perspective will provide a focus for the voices of women and marginalized female subgroups, further revealing intersectional dimensions of vulnerability, including, but not limited to, age and disability. Monitoring processes should also examine unexplored spaces within the given socio-cultural context, judging the significant participation of women and their right to make decisions (Chaman, 2019). Empowerment helps women to recognize the fact that, although they may be individually weak, they can be collectively strong. Through this process, they can also recognize that their problems are not only a consequence of individual weaknesses, but of the social circumstances in which they are born and live. Furthermore, the empowerment of social communities aims to ensure that their subgroups (e.g. women) who do not have sufficient social power, in cooperation with other actors, participate in actions to achieve change. This not only reinforces this subgroup, but also increases the capacity of the entire community to use all available resources in the social environment through cooperation and competent involvement of all in social relations without exclusion, discrimination or marginalization (Petrović, 2013).

Women have specific needs during disasters, and women's involvement in decision-making is crucial to ensuring that these needs are met. As men and women view the world differently, it follows that they also perceive risks differently. Being housekeepers and child caretakers, make them more likely to be more sensitive to environmental threats. Gender roles within the household and community may have direct implications to the successful prevention, mitigation, and management of hazard situations. Moreover, women displayed a deeper understanding of disastrous events and demonstrated more household-caring attitudes and behaviours and were more prone to report a willingness to help flood victims at reception centers (Cvetković, 2018: 3). Women are more realistic in evaluating personal and household preparedness. Family and children related responsibilities may lead to a focus that allows them less time to consider the additional responsibility of being prepared for a possible natural hazard event. Higher percentage of women, compared to men, reported having water storage and a higher proportion of food supplies. Significantly more women compared to men reporting that they

had secured copies of important personal, financial, and insurance documents in a safe place women demonstrated more sensitivity in taking care of aspects of household organization and safety. Females (55.2%), when compared to males (51.5%), displayed higher sensitivity to the evacuation procedures of the elderly, the disabled, and infants. Women (6.1%) demonstrated significantly more proactive attitudes about effective assistance at reception centers compared to men (Cvetković, 2018: 11). It is therefore not surprising that those in disaster-affected communities are increasingly leading and facilitating intervention activities, such as nutrition, shelter building, development of standard operational procedures for communicating with affected communities, dissemination of early warning information, and similar. Women contribute to rescue efforts, participate in advocacy for the protection of women during disasters, undertake the implementation of needs assessment, and provide better support to families through responsibility for financial decisions.

However, it is not enough to engage women and assume that they will address all specific needs of women, because it is not certain that they will have an understanding of and knowledge/experience pertinent to a particular context. Instead, it is necessary to create and abide by policies that advocate the participation of women affected by disasters in the development of programs. Women affected by catastrophes must be involved in making decisions that affect their lives. Research highlights the need to fund programs that specifically promote gender equality (Tanner, Markek and Komuhangi, 2018).

All of this requires deep commitment in combination with strong political will, adequate allocation of funding for the address of gender disparities, and continuous engagement in exploring methods and strategies to promote women's leadership and authority in disaster risk reduction processes at all levels. These voices will ultimately bridge the currently existing gap between women's capacities and the policy-making process (Chaman, 2019).

Managing the risks and effects of natural disasters to as great an extent as possible is an urgent global priority (Al Jazeera Balkans, 2017). Learning the lessons of past disasters, among other things, significantly reduces the phenomenon of so-called 'black swans'. 'Black swan' is a metaphor that describes a surprising event: such 'black swans' are unexpected events, they have significant consequences that endure, and they are retrospectively explainable so as to be expected again in the future (Papić, 2018). The recent sudden increase in precipitation in Serbia, causing floods and significant damage to property, may be interpreted as an unexpected, "black swan" type of event. Although spring floods in Serbia were announced and expected this year, surprises (black swans) have nevertheless occurred. Namely, the meteorologists explain that in one night in June, between Sunday 2<sup>nd</sup> and Monday 3<sup>rd</sup>, as much rain fell as normally falls during the whole month, due to the movement of a strong cloud system, which was moved from Bulgaria and Greece to Serbia on that night (Tanjug, 2019). Taking both the possibility of black swan events into consideration together with the lessons learned



from the past is necessary to prepare an adequate response to today's disaster challenges.

One contemporary reaction is the growing need for national and international cooperation in terms of readiness and disaster relief. This is because the events that cause disasters pay no respect to political and administrative boundaries. Even countries in conflict with one another (even fighting wars) may have to cooperate in the fight against catastrophes (Öcal, 2018).

Today, given the lessons of past disasters and the need for their study and analysis, an emphasis must be placed on inclusion of disaster education in contemporary education. For example, an earthquake is essentially a geological event, but its effects are studied within disciplines as diverse as Economics, Sociology, Psychology, Geography, History, Law, International Relations, and Gender Studies. Poor knowledge on the history of occurrences of such events in certain places might lead to loss of life and property in such disasters in the present day. Geophysical events such as volcanoes and earthquakes are difficult to predict in terms of the time and intensity of their next occurrence, but at least their most likely locations are relatively well known (Öcal, 2018: 52).

The recommendations stemming from disasters in the recent past for public administration are complex, although the most important among these are as follows: support for the implementation of scientific research in smaller areas on disaster risk exposure and readiness to respond; support for the preparation and implementation of information campaigns to familiarize the population with the law, the obligations of public administration, the obligations of citizens relating to the work of the Civil Protection Department and others; support for the organization of the first aid exercises (Djukić and Petronijević, 2019: 54). At both national and local levels, it is necessary to define measures for achieving gender equality during the rehabilitation processes in the wake of natural disasters and to define indicators to monitor the vulnerability and the effects of rehabilitation and reconstruction measures on women and men. It is necessary to work more efficiently on inclusion, information and motivation of the population, especially the involvement of women in decision-making and management of natural resources, environmental protection and risk prevention from natural hazards (Baćanović, 2015: 32). Finally, as such disasters cannot be studied in laboratories, it is necessary to investigate and analyse all their known elements in order to learn lessons which might be useful today.

## CONCLUSION

The last word is that should always be borne in mind that disasters do not discriminate, but people do so when adhering to traditional gender prejudices and stereotypes. In summarizing the authors' thoughts it should be mentioned that policies, instruments, mechanisms, and tools used to respond to disasters

and climate change must not be neutral in relation to gender, and should not be formulated and applied without considering specific gender differences.

The larger significance of our study is warning on the consequences of wrong assumption that the disaster risk is gender neutral. These are incorrect identification and risk assessments, keeping women excluded in all phases of risk management, treating women as victims only, neglecting or reduction of the risk of gender-based violence, inadequately conceived policy response, gender discriminative prioritization and risk financing at the national and community level.

A gap in the literature has been addressed by stressing the necessity of gender sensitive approach in reducing the risk of disasters and promoting the culture of disaster relief, while bearing in mind that the starting point lies in the knowledge of the dangers of physical, social, economic and environmental disaster vulnerabilities that most societies face.

In introducing possible new or expanded ways of thinking about the research problem we consider that it is still necessary to learn more about emphasized role of women and men in emergency management planning. Necessary are more in-depth research on gender roles in the dynamics of their changes, including more in-depth qualitative or mixed methods research that uses interviewing and/or focus group methodologies on gathering more in-depth information. The data obtained by the research is to be helpful in developing strategies to empower women, educate men, and promote both genders working together synergistically to prepare effectively while also perhaps, at the same time, overcoming gender stereotypes.

As the result, gender-sensitive preparedness will be promoted by using networks that appeal to and advocate for women, including those that have a long history of assessing and addressing public health issues (e.g. women's social and health care providers). For all mentioned it is necessary to use a range of communication channels for increasing hazard knowledge and preparedness, including gender-related scenarios or case studies that appeal to people and promote empowerment and working cooperatively together within households and communities.

At last but not the least, the early age education which includes flood hazard education should be introduced in children's school curricula (e.g., education on gender empowerment and cooperation in the context of creating a current and future population that has resilience and risk management knowledge and skills) with the purpose to prepare for and solve problems linked to a range of risk scenarios in life such as flooding and other natural hazards.

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