

DISASTERS, COMMUNITY SPONTANEOUS ACTIONS, AND COMMUNITY RESILIENCE

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Abstract

This work aims to analyze how the spontaneous actions implemented by members of the community in a post-disaster situation help to promote community resilience and prepares the community to deal with new disasters. The field study was done after the disaster in the Mãe Luiza community, due to heavy rains that hit the city of Natal, in June 2014. The disaster was a landslide that culminated in a huge crater that affected more than 180 families. The field research uses ethnographic methods based on ergonomics Community Ergonomics framework. The researches facilitate the meetings held by community members after the disaster. These meetings were an important space for the disaster victims obtain guidance; identify and organize their real demands; discuss and decide on the strategies to be adopted; bring government officials and technicians for the community to clarify, discuss and solve problems; involve community leaders; to schedule a public hearing in the municipal parliament; experience the collective participation, reflect and learn from their own experiences, and; monitor the decisions and measures taken by the authorities. We conclude that the meeting space enhance the community resilience, empowering the community to take collective actions to solve problems based on their knowledge of the situation, instead of waiting for top down solutions coming from authorities.

1 INTRODUCTION

The community of Mãe Luiza, located in the east of the city of Natal, northeast of Brazil, suffer with a landslide caused by heavy rains that hit the city in June 2014. The slide occurred in a region formed by high altitude dunes and culminated in the formation of a crater that has 10,000 m² and 30 m deep, as shown in Figure 1. According to the information provided by the Municipal Labor and Social Welfare authority – SEMTAS, the disaster affected more than 180 families, of which 28 had their homes completely destroyed.

Aware of the impact those disasters can cause the United Nations Office for Disaster Risk Reduction - UNISDR has developed and implemented actions to reduce the risks of disasters and promote community resilience in the cities, based in an ethic of prevention (UNISDR, 2015). The actions planned by the UNISDR (2012) are based on the Hyogo Framework for Action - MAH (2005-2015), which defines the conditions for a safer world by 2015.

Based on this Marco, Brazil enacted in 2012 the Law No. 12,608, made the federal government, the states and municipalities responsible for the implementation of actions to reduce the risks of disasters and promote community resilience. The law also encourages community participation in risk management to ensure the effectiveness of actions. Nevertheless, many cities in Brazil do not yet have their own strategies, plans and programs for disaster risk reduction, such as the city of Natal. Natal does not have a contingency plan, although it has many areas considered at high disaster risk like Mãe Luiza neighborhood itself.

The objective of this field study in Mãe Luiza, based on Community Ergonomics framework, is to show how the collective knowledge and spontaneous actions developed by members of this community in a post-disaster situation contribute to promote community resilience and prepares community to deal with events of major proportions.



Figure 1. Crater in Mãe Luíza. source: Project Viva Mãe Luíza.
Available in: <https://projetoivamaeluiza.wordpress.com/2014/06/>

2 THEORETICAL BACKGROUND

2.1 Disasters

As described in the report by the International Strategy for Disaster Risk Reduction - ISDR (2002), disasters can be understood as a serious disruption of the functioning of a community / society causing loss of life, material, economic and environmental, exceeding community capacity / affected society to cope with the situation using their own resources. "The disaster is a function of the risk process" and "results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential consequences of risk" (ISDR, 2002, p. 38).

Quarantelli (1988b) proposes that the current paradigm of research on disasters is guided by two main ideas: 1) disasters are an inherently social phenomena and natural events such as hurricanes or storms are not the disaster itself, but the source of the damage; 2) the disaster is rooted in the social structure and reflects social change processes. It is understood from this view that the disaster "is not a physical event (...), is a social occasion."

Therefore, it seems inappropriate to allocate to disasters the term "natural" as if they could happen out of human actions and decisions and their communities (Quarantelli, 1988). Therefore, one can understand that the location in risk areas and even the way of life of the poorest communities, such as Mãe Luíza, serve to exacerbate the negative effects of disasters. Quarantelli (1988) also explains that humans are, in a way, "those responsible for vulnerability" and that "if there are no negative social consequences, there is no disaster." However, according to resilience engineering principles, success and failure is the flip side of same coin (Hollnagel, 2010) and, if the society was not able to provide better living solutions for poor people, there is a need to discover and enhance ways in which people actions can improve resilience in their communities.

2.2 Community Resilience

Hollnagel and Woods (2006) define Resilience Engineering (RE) as "a paradigm for safety management that focuses on how to help people cope with the complexity under pressure to succeed." The RE approach has been focused on safety critical industry applications. However, more recently, the Resilient Cities framework appeared as a strategy to manage risk in cities ISDR (2002), considering that hazards that can cause accidents and disasters, understood often unpredictable, dynamic, and complex events. Even considering the these two views of resilience came from different basic concepts, it is important to note that both aim to improve the adaptive capacity of systems when face major disruptions.

A system should only be called resilient "when it is tuned such that it can use their potential abilities, engineering resources acquired or adaptive skills, the maximum length and in a controlled way, both expected

and unexpected situations. A measure of resilience is therefore the ability to create forecast - to anticipate the shape change or risk of failures and before damage occurs” (Hollnagel and Woods, 2006).

Hollnagel (2010) defines resilience as the intrinsic ability of a system to set their operation before, during or after changes and disturbances.

According to Kulig et al. (2008) Community Resilience can be understood as a theoretical framework and social process able to explain how communities develop resilient responses to external forces, as well as economic crises, disasters and other threats to sustainability. Therefore, developing community resilience requires that communities become involved and develop a set of best practices that enable them to resist, adapt and recover from a disaster situation. Thus, it is believed that the responsibility for disaster risk reduction is a mission that involves everyone, and ethics and humanism principles and solidarity, should be part of daily life, from the way the young are educated to way we plan our cities (Carvalho et al, 2013).

2.3 Community participation

According to Rodrigues (2010) the actions proposed by the UNISDR are essential tools for reducing disaster risks and promoting global community resilience. However, this concern does not translate in practice in most countries, whose actions that contribute to the UNISDR objectives are neglected.

In Brazil, it is known that the official system for disaster risk management in cities has shown flaws in all phases, and that the populations of vulnerable communities are not involved and properly prepared on how to act resiliently in a disaster situation. Also, the top-down approach for developing contingency plans are based on forced action of civil defense and policy agents, where people from the communities are viewed as passive element to be removed, instead of active actors in the process. This situation enhances the distrust that already exists among people and agents – due the violent background of many communities – minimizing the possibilities of success of disaster response actions.

The top-down approach and non-involvement of the community people is rooted in ideas coming from traditional safety paradigm in which there are “best ways” to develop a response plan, that there are specialists to develop the plans, and that the ordinary people are morons and cannot contribute to the plan. Therefore the approach does not encourage early and cooperative participation of communities during the phases of the management of disaster risks. Chan (2013) believes that this top-down approach to disaster risk management has been the reason for failures in many response actions systems, and she claim that a bottom-up action approach, which focus on the opportunity to engage individuals in management actions, can help to increase the resilience of communities.

In the same way ISDR (2002) considers that the measures to reduce disaster risk function better when they involve the direct participation of the community. Although there are indications that the community participation is important, in practice, at least in Brazil, community people is almost completely away from the decision-making process involving their welfare and protection.

There are enough experiences that prove that the participation of residents in actions involving the reduction of disaster risk in their communities can be very effective if given the proper care and have the necessary resources (ISDR, 2002). It is necessary to educate communities about the importance that risk reduction processes and actions have for their well-being. Moreover, it is necessary to define and transmit the knowledge reflecting the practice of risk management, strengthening local capacity to identify threats and local response possibilities, and improving the livelihood of residents (ISDR, 2002).

It can be seen that the actuation of the people from communities is at the heart of an adequate risk management system in all its phases (pre-disaster, disaster and post-disaster). People local knowledge is a crucial factor in ensuring the efficiency of response actions, increasing the community resilience.

3 METHOD

The research was done under the Ergonomic City or Ergopolis project (Carvalho, 2012) based in the Community Ergonomics framework. Tis framework is based on the principles of participation and involvement of community members in the decision-making processes and actions regarding to their community. The Community Ergonomics takes a participatory and grounded approach aiming the creation of spaces and forms of collective dialogue, providing spaces for community members discuss and solve their problems (Schmitz, 2000).

Understanding participation as an important aspect of Ergonomics is already known. According to Darses et al.

(2007) participation "contributes to personal development" (...) "and will only be effective and efficient if the persons involved have individual interest to participate and have their participatory efforts rewarded." For them, only participation is not enough to achieve success, while it needs to take in account social and individual requirements and needs to be a way to develop collective action. In addition, participation also contributes to the "skills development" (Darses et al. 2007) and for improving communication and integration between individuals.

During this research, ergonomists act as facilitators and sometimes moderators of the internal meetings of the members of Mãe Luiza community and meetings of community members with public authorities. These meetings had audiovisual record with the permission of all participants. The aims of these meetings were listen reports and organize demands of the community members, regarding the disaster consequences, discuss them and decide on the strategies and actions. Figures 2 shows one internal meeting in Mãe Luiza and Figure 3 shows a meeting in the town council.

The research subjects are all community members affected by the disaster, i.e. people who had their houses totally destroyed, damaged or interdicted by the Department of Social Protection and Natal Civil Defense and attended the meetings. Some of these individuals witnessed the disaster site and contributed in describing the details involving the pre-disaster phases, disaster response, and post-disaster.



Figure 2. Mãe Luiza internal meeting.



Figure 3. Meeting in the town council.

During the research we also use secondary information sources about the disaster coming from videos from local and national TV stations and social media. Using the records of these meetings, interviews with community members and authorities, and the secondary information sources we were able to identify the problems that occurred during the disaster response and recovery and also the actions taken by community members to address their problems.

4 RESULTS

Problems reported by the community meetings revealed unpreparedness of Civil Defense and the Fire Department during the pre-disaster and response phases. The absence of appropriate and efficient equipment to support basic actions, such as remove garbage from sewer pipes, led people from community to act on its own and without the necessary qualification, as shown in Figure 4, where locals trying to set the water protection canvas at the disaster site, putting their own life at risk. During recovery phase, the problems reported by residents in the meetings were related to water supply, power supply, housing assistance, recovery and reconstruction of housing, transportation, security, health and social care. Besides the problems were identified the strategies undertaken by people in the community for decision-making and problem solving based on the speech of individuals at all stages of disaster management. The detailed description of these strategies and actions falls out of the scope of this paper.

It is noticed that the collective / participatory activities performed by disaster victims and between them and the public and the scientific community, creating a new space to promote resilience in the community because people who participate in these actions may: get information on the real situation in which they are and clarify

conflicting information; get directions; identify and organize their real demands, discuss and decide on the best strategies to be taken; bring the authorities and technicians for the community to clarify, discuss and solve problems; engage community leaders; schedule a public hearing in the town council; being heard by the authorities and the media; understand what a disaster is and what actions need to be taken in the view of this type of event (heavy rain and landslide); establish alliances with sectors of society; experience solidarity, cooperation, consensus, dissent, frustration, hope; reflect and learn from their experiences; stay organized; monitor the decisions and actions of the authorities; seek to know how the civil defense work in other cities and examples of success; start creating knowledge about the national disaster policy and legislation, and national and international guidelines; exercise, along with civil defense agents, perceive the importance in participate in disaster simulations exercises, and; develop collective knowledge.



Figure 4. Locals trying to set the water protection canvas at the disaster site.

Therefore, the meetings and the emergent collective space for decisions and actions performed by residents as allowed the exchange of experience, progressive learning, and contributed to the development of a way to deal with disaster risks being more resilient. The people involved were also able to understand and reflect on the first or weak signals of disaster, enabling more actions possibilities in order to avoid or to be alert about dangerous situations, before the occurrence of the disaster. They could also create collective alliances with other sectors of society, who are capable to help in handling disasters and contribute to the improvement of life in their community. It was also perceived that these actions have provided increased citizenship and result in a gradual improvement in the community resilience to disasters.

4 CONCLUSIONS

The lack of a contingency plan in the city that encourages community participation in disaster risk management may lead to disharmonies in response actions to disasters. In addition, this research pointed out the lack of preparation and organization planning of Civil Defense and other agencies related to civil protection, the inefficiency of town hall and other bodies responsible for disaster management, which led community members to act often on their own and without the qualification required. On the other hand, even without possessing proper qualification, some actions taken by the community before, during and after the disaster showed the initiative of residents to solve problems, and the importance of community collective action. These actions also indicate that there is a certain community resilience potential that can contribute to increased global community resilience if proper treated by the authorities.

The Community Ergonomics frame work stressed the importance of involvement and participation of the actors in actions aimed at promoting the resilience of the community. Within this context of participation it is important to note that the role of the ergonomists as facilitators and moderators at the meetings, in guiding victims about the decisions to be taken, and the in the strategies that need to be taken.

Finally, we concluded that the positive spontaneous actions promoted by the community can be recognized and legitimized by the authorities in the preparation of policies, guidelines and planning actions against risks and disasters. We also conclude that the meetings held by the community has become a collective conversation space in which all participants were able to talk and reflect on their reality, decide on their demands and strategies to ensure their rights, allowing participants to be more aware about this condition in

relation to the possibility of new disasters. They perceived that when acting collectively they are better able to manage the impacts caused by the phenomenon. The creation of a space that provide knowledge and experience sharing and the collective exercise of citizenship, enable some achievements to the community, and an environment that may afford the gradual improvement of the community resilience.

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