1.2. INTERPRETING RISK THROUGH THE "GEOGRAPHICAL IDENTITY"
THE IMPORTANCE OF LOCAL PERCEPTION IN DEFINING GLOBAL VULNERABILITY

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Abstract

If the perceived risk does not correspond to the real risk, what is risk? This paper aims to study the concept of perception and how it influences vulnerability to disasters. In particular, the discussion starts with the assumption that risk globalization has amplified the role of perception, reducing emotional distances. This makes it difficult to have a real perception of global risks, and it favours the distortion of their narrative.

As discussed at considerable length in the literature, different cultural groups perceive environmental crises in different ways. This happens because of the weight that these groups' cultural identities have in their level of perception. However, different levels of perception do not just result in low or high capacity to respond to emergencies; rather, they give rise to different ways of interpreting how to deal with risks.

This paper focuses on the case of Madeira Island in particular. During the *"Riscos naturais e comunidade local. Construir a resiliência através da participação"* seminar, data on local perceptions was collected with the aim of understanding the level of disaster resilience on the island. The workshop was a moment of knowledge-sharing between scientists and the community.

The results highlighted a certain lack in community identity as one of the main factors to be considered. Participants recognized that such community identity would be relevant for producing bottom-up changes in disaster management.

Key words: Perception; Resilience; Risk; Madeira Island; Participation.

Introduction

Communities are increasingly exposed to global pressures (e.g. urbanization, climate change, deforestation and globalization) which can increase their level of vulnerability to disasters (see Kelman et al., 2012), where disasters are considered consequences of poor management of the relationship between society and the environment (see Mercer et al., 2012).

Research in disaster studies has underestimated the role of culture in the analysis of the interaction between places and hazards (Mercer et al., 2012). However, according to a considerable part of the disaster literature, the responses which a cultural group makes when faced with a hazard are based on cultural background, which can influence community tolerance to risk as well as participation in the processes of disaster risk management (Gregory at al., 1997).

Accordingly, the purpose of this paper is to understand the importance of improving local knowledge of global environmental questions such as climate change and the impact of culture in risk perception and risk interpretation. The hypothesis is that local perception plays a central role in the mitigation of global vulnerability; for example, improvement in global perception can be useful in the reduction of local risks. People usually consider it a priority to respond to local challenges which can have direct effects on their lives, but they usually neglect the multiscalar dimension of the risks. Today, a high number of disasters have global characteristics, because of global trends. These multiscalar disasters interact differently on a local scale, thus requiring the adoption of place-based risk-reduction strategies. Therefore, the paper aims to study how to improve community and culture resilience on Madeira Island.

Starting with the idea that perception is a form of knowledge, based especially on sensory knowledge (further discussed below), and that it is influenced by local cultures, four questions need to be answered in this paper: Do we have a perception of global risks? Do we perceive their local dimension? What is the role of perception in the reduction of local and global vulnerability? And how can perception be useful in taking climate change adaptation (CCA) plans to a local scale? As assumed by Kates (1971), Burton et al. (1978), and Kelman et al. (2010: 33–34), risk perception can influence the capacity to adapt to climate-related risks, especially because communities act preventively when they have a high level of risk perception.

Today, large-scale environmental changes (Kelman et al., 2010) are increasing challenges to the local capacity to manage disaster risks, which should move communities to adopt integrative policies of climate change adaptation (CCA)[1] and disaster risk reduction (DRR)[2]. Yet disaster risks and climate change are usually addressed by adopting separate (in some aspects, dichotomous) policies of risk management, with the consequence that the measures adopted to answer to climate change challenges might produce negative consequences in disaster management over the long term (this is the case in structural approaches; see Kelman et al., 2010: 35).

Another risk arising from a dichotomous interpretation of CCA and DRR policies is associated with the perception of the multiscalarity of responsibility; climate change adaptation is usually considered a governmental responsibility, while disaster risk reduction is mainly interpreted on a local scale. However, risks and disasters usually cross geopolitical borders, requiring multiscalar actions. As suggested in some studies (e.g. van Aalst, 2006; Bonati, 2014), the potentiality of the local in climate change adaptation should be investigated.

[1]Climate Change Adaptation is defined by IPCC as "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (see: https://www.ipcc.ch/report/ar5/wg2/)..

[2]According to UNISDR, Disaster Risk Reduction is defined as "the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid [prevention] or to limit [mitigation and preparedness] the adverse impacts of hazards, within the broad context of sustainable development" (UNISDR, 2004: 3) and to promote a "culture of prevention".

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Accordingly, new trends in DRR research ask for a local interpretation of the processes which can amplify knowledge and suggest new strategies for the reduction of global challenges and the promotion of local resilience. According to UNISDR, the role of community in building resilience to risks is central, and this suggests the need for a place-based analysis. In particular, resilience is useful in the activation of local resources to fight against global risks, having the capacity to address global problems in local communities (Cutter et al., 2008); therefore, local resilience is now desirable in order to grant global resilience (Bonati, 2014).

Thus, today, the scientific community highlights the importance of an integrative approach between CCA and DRR (Birkmann and Pardoe, 2014; Birkmann and von Teichman, 2010; Schipper and Pelling, 2006), and similar considerations have also been adopted by governments. In 2011, the Intergovernmental Panel on Climate Change adopted a special report, "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)", which was included in the panel's Fifth Assessment Report.

Risk Perception and Geographical Identity

As recognized in the literature, the variability in the responses to disasters depends on both the dimension of the hazard and the social structure which must respond to the hazard. This last aspect is based on individuals' response capacity and depends on many factors which condition the individual differences in risk perception. According to Kasperson et al. (1988: 177), "risk events interact with psychological, social, and cultural processes in ways that can heighten or attenuate public perceptions of risk and related risk behaviour". Thus, people differ in the way they react affectively to disasters, giving weight to personal attitudes in responding to an alarm (Peters et al., 2004).

In the literature, a risk is interpreted as the possibility that a disaster happens and produces damage, and the risk exists only when it is perceived (Douglas and Wildavsky, 1982; Beck, 2007), because it is the mental process of a possibility. Risk perception is divided substantially into two categories: the "dread risk", characterized by a perception of the absence of control, of catastrophic potentiality and of the inequitable distribution of risks and benefits, and the "unknown risk", when a hazard is unknown and new and produces delayed impacts (Peters et al. 2004). Risk is foremost a subjective assessment, a "perception" (Pagneux et al., 2011). Also, according to Beck (2007), all events are always subjective events. Indeed, subjectivity is the tool through which people interpret phenomena and decide how to deal with them. Therefore, the scientific community prefers to speak of "subjective risk", and increasing attention is given to the role this dimension of risk has in disaster risk production and reduction (Lewis and Kelman, 2012). Climate change is classified as a risk; thus, individual perception capacity has a central role in the process of climate change interpretation.
About this, Douglas and Wildavsky (1982) have maintained that risk is a social construction defined by differences in lifestyle, power structures, ethical values and linguistic uses. This means that our perception of what makes us afraid is mediated by our culture (interpreting culture as the sum of beliefs which belong to the cultural group of membership)[3]: "The cultural context may, even in the absence of other factors, increase or reduce the awareness of risk, and condition the range of acceptable responses" (Palm, 1998: np; see also; Wildavsky and Dake, 1990). Individuals make choices within their cultural spaces whicvh affect the availability of the solutions adopted, conditioning the decision-making process.

According to Khan (2012), another factor conditions risk perception; the geographical characteristics of a place play a fundamental role in building risk perception, because of the direct contact and the influences exercised by places on human awareness. Community identity is the result of the collection of (un)structured places, not only of a single place, which

[3]Cultures is "a constantly evolving set of behaviours and understanding incorporating knowledge from both within and outside a community" (Mercer et al., 2012:77).

constitute what Delage (2003) calls "the networked geographical identity". Delage states that the identification of spatialization "should lead to a more comprehensive view of the facts and socio-cultural phenomena studied. […] One major geographical hypothesis would consider the territory as playing in turn a key role by structuring spatial representations and mediating social relationships, by the influence of spatial identity or practice" (Delange, 2003: 2). Therefore, a "geographical" aspect which has weight in risk perception is the individual geographical scale, where we grow, where we study, where we learn, what kind of experiences we live, which is our community of membership. Geographical identity, as adopted in this paper, is the result of cultural and contextual factors which mediate the individual perception of events. It can be interpreted as the unit measure of perception and, consequently, of resilience. Perception is the result of the sum of factors which help create geographical identity; one of these factors is the personal scale of life.

According to this, geographical identity connects people to places and helps build individual and communitarian perceptions. It is composed of experiences and models of interpretation of the local context through which the other contexts are read. Memory is part of this. When people go out of their place of origin and go into other places, they have the opportunity to amplify their knowledge and experience by meeting other local realities. Geographical contexts in which people grow and become adults or of which they have deep experience become fundamental to understanding individual perception. Experience also reduces the level of concern in the face of extreme events and determines sensitivity to risks (see Barnett and Breakwell 2001; Richardson, Sorensen and Soderstrom, 1987).

Accordingly, "distance" (Beck, 2007), as the unit of measure of experience, is the new geographical element for defining the individual processes of event interpretation. However, distance must be interpreted not only in physical terms but also in cultural ones, as seen above. People read global events through their own eyes (see Beck, 2007), which are locally filtered by individual geographical identity and perception. Thus, distance and geographical identity become tools by which to measure knowledge and individual perception.

Accordingly, perception, as a cultural expression of place vision, is considered fundamental to understanding in-depth the resilient potentialities of a community. I am talking about the cultural identity of a place, which derives both from cultural and physical factors, as Khan (2012) states. Therefore, today, research in disaster geography should adopt an interactive approach between physical studies, which analyse the location, frequency and effects of hazards, and human studies, which focus on the role of culture and individuals in defining the events and their peripheral human characteristics.

To summarize, the elements which affect risk perception include the role of community in place planning and management, psychometric factors (Slovic, 1987), social values (Dake, 1991; Wildavsky and Dake, 1990), affections (Slovic and Peters, 2006; Slovic et al., 2007), knowledge (Bird et al., 2009; Dominey-Howes and Minos-Minopoulos, 2004), experience/memory (Bird et al., 2009; Dominey-Howes and Minos-Minopoulos, 2004; Richardson et al., 1987) or information (Kasperson et al., 1988); awareness (Burningham et al., 2008; Gregg et al., 2004; Krasovskaia, 2006; Raaijimakers et al., 2008), cultural context (Palm, 1998; Wildavsky and Dake, 1990), geographical context (Khan, 2012) and geographical identity (Delage, 2003).

The different weights which every component of perception assumes in each person produce different levels of interpretation of the same phenomenon; everyone has a prevailing component which mainly conditions their own personal vision of the world. This can explain the different scales of priority in risk, as Palm states (1998). The actors involved in a disaster also have a different image of the event and perceive benefits and damages (defined by Beck as "goods" and "bads") according to a different range of values which depends on their benefit awareness (Finucane et al., 2000) or perception, as "the product of intuitive biases and economic interests and reflect cultural values more generally" (Kasperson et al., 1988: 178).

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The Role of Perception in Community Resilience

To understand the potentiality of perception in disaster studies, it can be useful to analyse it in relation to the concepts of resilience and of vulnerability to risks. As discussed, local-level resilience, such as vulnerability, appears to be conditioned by personal attitudes, which include interpretative capacity, level of perception, awareness and geographical context (Khan, 2012).

The elements conditioning the conceptual construction of perception and its interaction with resilience are grouped into three macrocategories, represented in Figure 1. In particular, the diagram aims to describe the conceptual formulation of resilience in the process of risk perception.

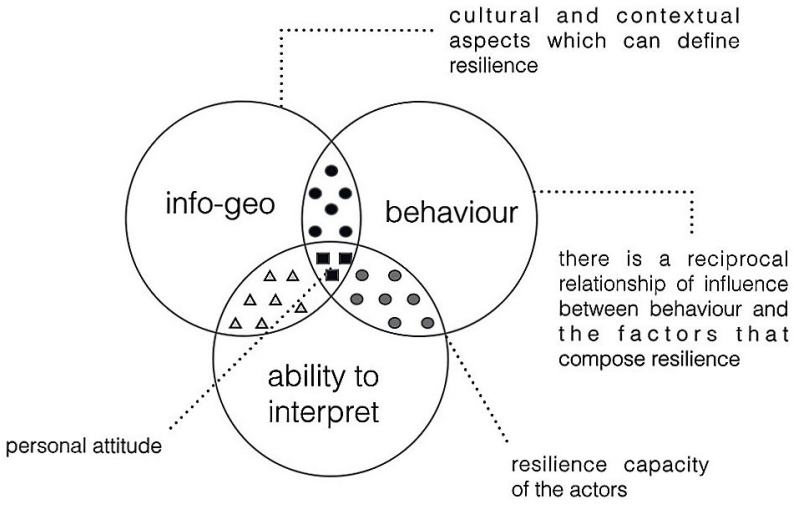

Figure 1: Components of perception that interact with resilience

The first category represented in the diagram, called info-geography, includes those cultural and contextual factors which contribute to building local knowledge and which can help define local resilience. The second category (awareness) includes those elements which create awareness, such as spatial proximity, experience/memory and scientific knowledge. The third category (interpretative capacity) highlights the interpretative ability which determines the process of filtering information and from which every reaction originates.

Going in depth, the first level of knowledge is given by the cultural and contextual aspects which we use to read phenomena (cultural and sensory knowledge). This knowledge influences the second factor, behaviour, which is connected to (in)direct experience of the events and to cultural and individual memory. This means that behaviour is connected to memory, which is associated with the ability to interpret and implies learning from past disasters. According to UNISDR (2004: n.p.), resilience is "the capacity of a system, community, or society potentially exposed to hazards to adapt by resisting or changing in order to reach and maintain an acceptable

level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures", where an important component of resilience is the process of understanding and interpreting risk, which is the result of both perception and experience/memory (Montz and Tobin, 2011). According to Beck, knowing you are at risk is not enough; what is needed is to perceive the risk. Therefore, there is a reciprocal relationship of influence between behaviour and resilience as a result of the role of memory in the learning process. Thanks to perception, communities can reduce their vulnerability.

About the third factor, the ability to interpret, if implemented and promoted, it can be useful in making a better use of cultural and sensory knowledge. This ability can be promoted through the integration of local and scientific knowledge. In particular, scientific knowledge can give a community the tools to better read the local context and make a better interpretation of events, implementing the level of awareness and, accordingly, increasing community resilience.

To summarize, perception can influence the levels of resilience and vulnerability, but it needs to be guided (1) towards a more objective perception, which helps to read the changes in places, anticipating global risks such as climate change and solving looming challenges with foresight and (2) towards a more conscious subjective perception, which promotes the understanding of the phenomena through a more scientific analysis of the role of the senses and experience.

Learning to interpret phenomena belongs to objective perception, which also corresponds to scientific knowledge, while capturing events through the senses belongs to subjective perception or traditional knowledge. Both these strategies of interpretation of the local are fundamental in disaster risk reduction and climate change adaptation, and they can be promoted through the mise-en-scéne of risk (Beck, 2007), the promotion of bottom-up processes, the contextual analysis of risk, the democratization of scientific knowledge, the role of communication and the media, and the multiscalar interpretation of risk. In particular, the integration of scientific and traditional knowledge, such as the adoption of a bottom-up approach in DRR and CCA, makes the process of the democratization of risk easier, extending to all the members of a community the role of actors in hazard management.

Integrating Scientific and Nonscientific Interpretation of Risk

Differences in risk perception between experts and populations have stimulated a new field of risk communication in hazard management (Gough, 1991; Gregory et al., 1997). Understanding community perception helps authorities adopt more effective top-down communication strategies aimed at the population (Pagneux et al., 2011). It also helps promote more democratic processes of community participation in hazard assessment and risk management (Pagneux et al., 2011). The integration of traditional and scientific knowledge is useful in producing climate change adaptation plans, perceived today mainly as governmental priorities, giving people the tools to recognize cause-effect connections between global change and local phenomena.

However, the musealization and devaluation of traditional knowledge engaged in by the academic community in the past has been responsible for the perception that traditional knowledge is inferior with respect to scientific knowledge (Agrawal, 1995; Mercer et al., 2010), and when it comes to the loss of traditional culture, which has been considered outdated, "local knowledge is often disregarded by scientists as part of a romantic past and, therefore, a barrier to current environmental and development problems" (Mercer et al., 2012: 85; Nygren, 1999). In the literature, there are many ways to define traditional knowledge: indigenous knowledge, indigenous technical knowledge, folk knowledge, local knowledge, vernacular knowledge, traditional environmental knowledge and peasants' knowledge (Kelman et al., 2012; Mercer et al., 2010; Sillitoe, 1998). To summarize, traditional knowledge can be defined as a set of

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information acquired by local people, which originates from experience and which is handed down through generations. It is a collection of traditional community practices, rituals, institutions and society–nature relationships (Brokensha et al., 1980; Fernando, 2003; Kelman et al., 2012; Mercer et al., 2010; Sillitoe, 2000). It is locally based and involves more qualitative information than scientific, which requires quantitative, general and synchronic observation (Dekens, 2007a).

Starting from the 1970s, the scientific community has highlighted the role of traditional knowledge in the development and conservation of projects of risk management and environmental conservation, suggesting the adoption of approaches finalizing the integration of traditional knowledge with scientific knowledge (Cronin et al., 2004a, 2004b; Dekens, 2007a, 2007b; Haynes, 2005; Howell, 2003; Jigyasu, 2002; Mitchell, 2006; but see Mercer et al., 2010). Therefore, in disaster studies today, scientists should be able to divide personal knowledge and values and be open to dealing with traditional knowledge without prejudice against nonscientific values. They should also learn how to communicate with the members of local communities and contextualize their scientific knowledge (Rhoads et al., 1999).

The Southeast Asian tsunami is an example of the potentiality of traditional knowledge in disaster risk reduction; the Moken communities in Surin Island, Thailand, and many island populations in the Andaman and Nicobar Islands survived the catastrophe because they were able to recognize the signals of a tsunami before it happened, while other communities, immigrants and tourists did not have the same knowledge and could not anticipate the disaster (e.g., Arunotai, 2008; Baumwoll, 2008; Gaillard et al., 2008; Mercer et al., 2012). The surviving communities were alerted by the ground shaking (earthquake) and the sudden retreat of the ocean which anticipated the first wave. These communities had never experienced governmental warning systems; thus, they used only their orally transmitted knowledge (self-warning and voluntary evacuation) to avoid the disaster. They based their risk warning on their disaster subculture[4] (Mercer et al., 2012). However, this example does not want to support the idea to regret other ways of response. About this, an excessive confidence in traditional knowledge could contrast with governmental strategies of risk management, producing the effect of ignoring the government strategies in favour of the traditional warning signals, which is not always efficient (Mercer et al., 2012). On the other hand, only adopting technological systems of defence could be responsible for an excess of confidence in technological solutions and an underestimation of potential impacts, with consequences for the adoption of strategies of prevention and preparedness.

According to Mercer et al. (2010), despite the ability of traditional communities to cope with environmental changes on time and to modify their relational attitudes according to places, new global challenges such as climate change (Van Aalst, 2006) and sea-level rise (Rodolfo and Siringan, 2006), which add changes in social, economic, political and environmental contexts (Dekens, 2007a), have increased social vulnerability (Pelling and Uitto, 2001). Therefore, it is important to adopt an integrative approach, due to the limits of both kinds of knowledge. Traditional knowledge cannot recognize more recent or more infrequent phenomena which have never or have rarely been experienced (as happens when a community migrates and encounters different, unrecognized place characteristics or has difficulty in handing knowledge down to new generations who might refuse it; see Kelman et al., 2012). On the other hand, scientific knowledge has the limit of being general and not locally based, hence the necessity of a dialogue with locally based knowledge to make it understandable, acceptable and effective. The multiscalarity of the processes of knowledge integration lives in the locality of community knowledge and in the globality of scientific knowledge. In this sense, scientific knowledge allows the integration of local actions of DRR with global actions of CCA, contextualizing them at a global level.

[4]Disaster subculture can be defined as a body of knowledge, norms, and values that originated from the experience of frequent hazards and produces awareness and helps a localised community solve problems.

Thus, the role of scientists should be to sustain and help local communities in the process of identifying vulnerabilities and in analysis to better deal with natural hazards (Mercer et al., 2010). Accordingly, McNeil and Chapman (2005) and Mercer et al. (2012) suggest that scientists must move from the condition of "outsiders" to "insiders", working with local actors and using different research tools such as communication, interviews, workshops, focus groups and participatory actions. The aim of this approach is to empower the community rather than to limit communicating with it. As Rhoads et al. state:

"To effectively situate scientific information within community-based social negotiations, scientists must not only develop an understanding of the value-bound perceptions, forms of discourse, and place-based knowledge of local people, but must also foster interpersonal relationships based on trust and mutual respect. Only by developing such relationships can scientifists hope to have their opinions and the information they offer listened to and considered and, at the same time, understand and appreciate the knowledge and concerns of nonscientists"
(Rhoads et al., 1999: 303).

"Place-sensitive" approaches, which integrate scientific knowledge and information in the local decision-making process, can produce a gradual ethic change in the community towards the conquering of a more conscious and responsible position towards environmental quality (Rhoads et al., 1999).

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Perceiving the Island of Madeira: Results of the Workshop "Riscos Naturais e Comunidade Local. Construir a Resiliência através da Participação"[5]

Madeira is a Macronesian island located in the Atlantic Ocean. It is the largest island of the Madeira archipelago, situated 600 km northwest of the African coast. The landscape characteristics of the island facilitate the risk of hazards, due to climatic and geophysical dynamics as well as bad relationships between society and the landscape. On the other hand, the lack of awareness of the risks and the abandonment of some practices of landscape management have enhanced the level of insecurity of the areas chosen as dwellings. Flash floods, landslides, storms, oil spills, fires and volcanic risks (Prada and Serralheiro, 2001) affect the island, some of them manifesting quite frequently. On 20 February 2010, the island lived through one of the worst hazards in its history (Couto et al., 2012). In the flood, 51 people died, 120 were wounded and 200 were displaced, and 800 houses were damaged.

After the disaster of February 2010, political and academic forces aimed at the promotion of disaster prevention and mitigation. In particular, the research group DMDM (CIERL-UMa and CECC-UCP) worked to promote the memory of disasters on the island of Madeira, considering the central role of memory in stimulating preventive actions. Amongst DMDM initiatives, in October 2013, the group organized the international conference "Dismemory of disasters". In parallel to the conference and in collaboration with the group, the workshop "Riscos naturais e comunidade local. Construir a resiliência através da participação" took place with the aim of discussing the role of community participation in resilience-building on the island of Madeira. The workshop allowed the sharing of scientific and local knowledge, adopting a participatory and bottom-up approach. The workshop aimed to help participants identify and analyse island vulnerability and to empower them to deal with hazards. Therefore, it was organized in four stages:

1. Introduction to the concepts of resilience and participation;
2. Analysis of individual perception of local risks (through surveys and interactive communication);
3. Organization of six focus groups in order to elaborate a map of risks and risk actors in Madeira; and
4. Presentation of possible solutions and discussion of the role of the community in disaster risk reduction and climate change adaptation.

Twenty-eight people between 20 and 50 years old participated in the workshop. The results of the data analysis collected during the workshop showed that the participants had a good perception of climate change challenges on the island. In the survey, the participants answered that they felt at risk mainly because of climate change, followed by the low level of protection and by their previous experience/memory of disasters. At the same time, the participants were able to identify the most frequent hazards on the island; to the question of what the main risks were on the island of Madeira, the participants answered that the first was the risk of floods and storms, followed by fires and drought and concluding with earthquakes and landslides. These answers give a good idea of the disaster risk situation on the island (which also emerged in the participative/perception maps created by the groups; see Figure 2) and indirectly provided information on the connection between climate change challenges and the most frequent local hazards. In fact, the most frequent hazards experienced on the island are mainly associated with the exacerbation of climatic conditions, such as storms and drought, after which follow the risk of floods, landslides and fires.

However, this first interpretation did not consider the human role in disaster production. Therefore, the participants were called upon to identify local stakeholders responsible for contributing to disaster risk production and management. Two pyramids were created. At the

[5]"Environmental risks and local community. Building resilience through participation"

top of the first pyramid, there were the regional and local governments, considered the main stakeholders responsible for risk production, because of low protection plans. Some of the participants also identified climate change as amongst the actors responsible for disaster risk production. This was interesting, considering that it was the only "nonhuman" answer given by the participants. On the second pyramid, at the top, there was the regional civil protection. At the foot of both pyramids was the population of Madeira, considered to have a role in disaster risk production and reduction but also considered less relevant than the other actors identified.

To conclude, the groups were asked to suggest what they could do as individuals to reduce the risk of disasters in the island. First, the participants agreed with the idea that the population must increase its role in disaster reduction and prevention. Then they suggested different actions which belonged to different individual geographical scales: the regional, community and individual scales. On the regional scale, they asked for the adoption of mitigation strategies to reduce the risks linked to climate change and the most frequent hazards. Amongst the mitigation and prevention strategies, the cleaning of riverbeds and of underwood and the need for information and education campaigns were identified. At the community level, they recognized the need to organize the people as a community to collaborate to improve the situation. They also talked of the importance of all people respecting rules and nature and the institutions which act preventively, a condition which can be associated with the identification of the importance to feel and act as community. To conclude, on the individual level, the participants discussed the importance of maintaining their homes safely, staying informed and facing difficulties.

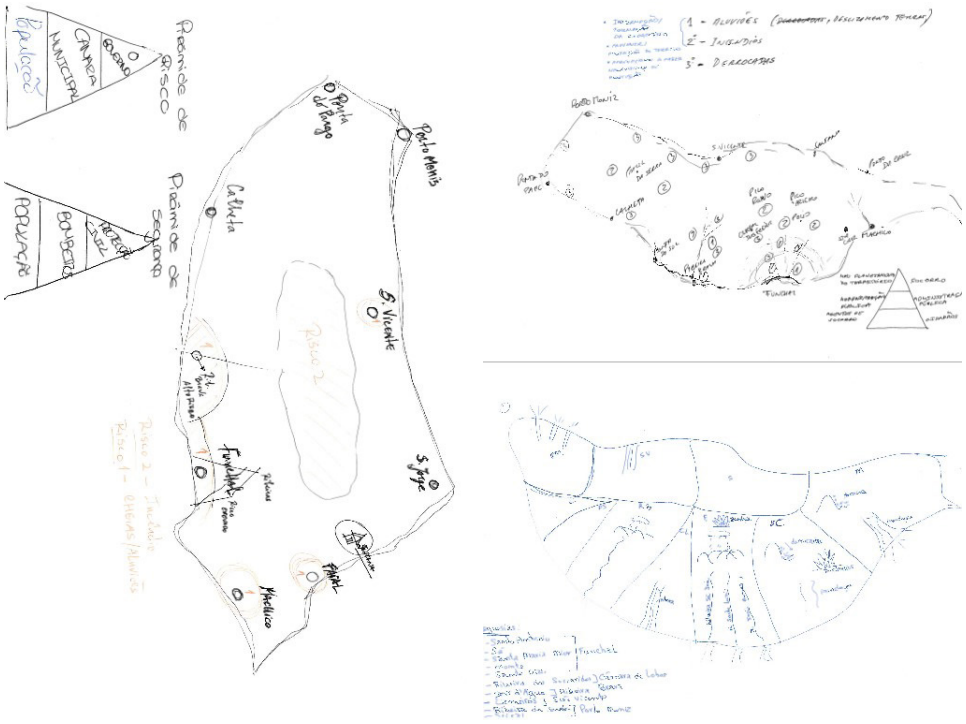

Fig. 2 – Some of the perceptive maps realized during the workshop

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According to the data collected during the workshop and in collaboration with the DMDM group and other institutions[6], an educational project on perception and participation in landscape planning was activated on the island. The project, called *Projeto Pensar Paisagem*, was coordinated by Sara Bonati and Martinho P. Mendes (Bonati and Mendes, 2014). The project aimed both to educate with respect to participation and to provide tools of place change interpretation using the senses, cultural information and a more objective perception.

Conclusion

The workshop and the projects which followed were important moments of analysis of local vulnerability. In particular, the workshop was an interesting moment of knowledge integration, where a foreign researcher (me) could learn about the risk of disasters in Madeira from local people by collecting relevant information. On the other hand, the participants were introduced to their role of actors in the island transformations and to their power to produce changes.

The workshop provided important information on the level of the local perception of risks and directed the research actions which followed. The apparent absence of a community identity emerged as one of the reasons for the lack of a sense of responsibility for the disasters that hit Madeira. Identity globalization seems to have moved to a loss of identification with the local place and a lack of responsibility towards local heritage. A high number of risks on the island can be traced to the loss of maintenance of the cultural heritage.

Three geographical levels of intervention were identified in order to promote DRR and CCA on the island: regional, community and individual. As emerged during the workshop, to promote resilience on Madeira, it is important to regain a sense of local community identity and to hone the ability to perceive the evolution of places.

In conclusion, a bottom-up process is suitable on the island to “democratize” risk and scientific knowledge and to let all the people understand and contextualize it. Every person must be aware of the importance of final actions in reducing the probability that climate change can move out of the realm of risk, and each must know their own role as individuals as well as the role of the community in the reduction of island vulnerability.

[6]The project was realised thanks to MASF, CECC-UCP, CIERL-UMa, and DISSGeA-UNIPD.

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