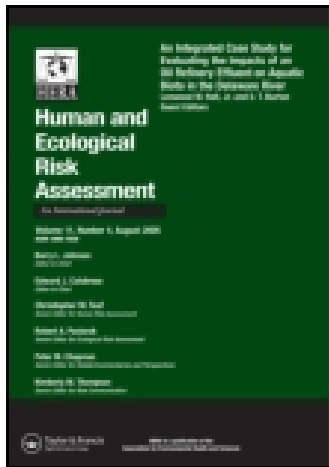


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## Human and Ecological Risk Assessment: An International Journal

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/bher20>

### Culture of Risk in Vulnerable Communities: The Case of Barranquilla, Colombia, in the Context of Globalized (In)Security

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Accepted author version posted online: 07 Dec 2012. Published online: 08 Feb 2013.

To cite this article: Gabriel Orozco Restrepo & Eliana Sanandres Campis (2013) Culture of Risk in Vulnerable Communities: The Case of Barranquilla, Colombia, in the Context of Globalized (In)Security, Human and Ecological Risk Assessment: An International Journal, 19:2, 423-442, DOI: [10.1080/10807039.2012.755097](https://doi.org/10.1080/10807039.2012.755097)

To link to this article: <http://dx.doi.org/10.1080/10807039.2012.755097>

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## HAZARD ASSESSMENT ARTICLES

# Culture of Risk in Vulnerable Communities: The Case of Barranquilla, Colombia, in the Context of Globalized (In)Security

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### ABSTRACT

This article addresses both the culture of risk as an analytical and intervention category in vulnerable communities. The main objective is to show that risk analysis and intervention is only viable when the cultural values of the communities that face a particular kind of vulnerability are taken into account. We present the results from a study of a representative sample of vulnerable communities in Barranquilla, Colombia, in which various techniques of data collection were applied to identify the perception of risk and its relationship with the cultural typologies developed by Cultural Theory. We explain the causes and effects of perception and response when faced with risk in different contexts.

**Key Words:** risk, culture, security, threat, vulnerability.

### INTRODUCTION

Recent disasters produced by both natural phenomena<sup>1</sup> and humanitarian crises arising from political revolts and social conflicts<sup>2</sup> make it necessary to assume that

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<sup>1</sup>Extreme climatic events associated with climatic variability have materialized in the form of disasters that have halted economic growth and poverty alleviation. According to the *Global Assessment Report on Disaster Risk Reduction by the United Nations*, “risk is highly concentrated in middle- and low-income countries, and is felt most acutely by people living in poor rural areas and slums. But of course, wealthier countries are not immune, as bush fires in Australia reminded us so tragically at the start of this year. The risk of disaster touches every woman, man and child on Earth” (UNISDR 2009a, p. 3). In the past year in Latin America and the Caribbean alone, these risks manifested as natural disasters in the form of earthquakes in Chile and Haiti; floods in Brazil, Colombia, Mexico, and Venezuela; and hurricanes in the Caribbean and Central America, leaving, according to the disaster unit of CEPAL, approximately 13,868,359 people affected by natural disasters and an economic cost of \$49,188 millions of dollars.

<sup>2</sup>The World Bank’s Development report, *Conflict, Security, and Development 2011*, indicates that “insecurity not only remains, it has become a primary development challenge of our

disaster risk is linked to the development processes of communities, regions, and countries as well as the use, planning, and demarcation of the land that these communities occupy. Various fields of knowledge have dedicated considerable effort to analyzing risk.

The majority of the literature in the “hard” sciences and engineering addresses the implications of risk using systems theories and mathematical models to measure the availability and response capacity of social units faced with risk.<sup>3</sup> These studies generally overlook the social character of risk and the cultural perspective, which considers risk to be a constructed value (Briones 2005, p. 10). When approached as a constructed value, the dynamics of risk can be understood in a comprehensive way and corrective measures can be taken to alleviate the human suffering produced by catastrophes.

Keeping in mind that disaster risk is neither unpredictable nor inevitable, this article uses the cultural theory approach to delve into the causes that lead to the perceptions, choices, and responses of those facing risks in vulnerable communities. Thus, the main purpose of this article is to understand the role of culture in the risk perception of vulnerable communities. To achieve this goal, we identified the level of risk perception in a representative sample of vulnerable communities in Barranquilla, Colombia based on the work of Visión Mundial, a nongovernmental organization (NGO)<sup>4</sup> that conducted a randomized risk perception analysis of the city. In the current study, we describe and analyze the results of this sample. Moreover, we interpret the impact of culture on risk perception.

This article is structured in five parts. The first clarifies the fundamental concepts that constitute the central axis of a risk analysis model. Next, a theoretical framework is developed around the culture of risk and its meaning as a category of analysis and intervention in vulnerable communities. The third and fourth parts present the population and context of the research and methodology. Next, the analysis of the results is developed. Finally, the conclusions are presented.

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time. One-and-a-half billion people live in areas affected by fragility, conflict, or large-scale, organized criminal violence, and no low-income fragile or conflict-affected country has yet to achieve a single United Nations Millennium Development Goal. New threats—organized crime and trafficking, civil unrest due to global economic shocks, terrorism— have supplemented continued preoccupations with conventional war between and within countries. While much of the world has made rapid progress in reducing poverty in the past 60 years, areas characterized by repeated cycles of political and criminal violence are being left far behind, their human indicators stagnant” (World Bank 2011, p. 1).

<sup>3</sup>An exemplary case of this is the risk analysis by Terje Aven (2010) and Yacov Y. Haimes, for whom “risk analysis is similar to the systems engineering/systems analysis approach, which is predicated on the centrality of the *states of the system* and their roles in determining for each input (threat) the resulting outputs (consequences)” (Haimes 2009, p. 1650).

<sup>4</sup>A nongovernmental organization (NGO) that works on development and humanitarian assistance programs worldwide, especially with children, families, and communities. Their objective is to reduce poverty and injustice at an international level. For this, efforts are focused on strategic programs for disaster prevention and attention in a vulnerable population. Specifically, in Barranquilla where World Vision has been working with community groups for the purposes of disaster prevention, relieving suffering, and promoting peace for populations affected by armed violence and natural disasters.

## THREATS, VULNERABILITY, AND THE CULTURE OF RISK: DEFINING THE VARIABLES

Since the last decade of the 20th century, many authors and institutions have contributed to the construction of models for the understanding of challenges associated with risk and disasters. We broaden these contributions with a synthesis of the fundamental elements contained in the concept of risk.

### Risk

Etymologically, there is no certainty regarding the origin of the term *risk*. However, authors such as Briones (2005, p. 10) recognize the existence of three main origins: from the Latin *resecum*, “that which cuts” (Peretti-Watel 2000 p. 10); from the Greek *rhiza*, which “makes allusion to the dangers of navigating along a reef” (Cardona 2001, p. 6); and from the Italian *risico* or *rischio*, which refers to “danger” (Aneas 2000). The *Real Academia Española* (online) dictionary defines risk as “1. Contingency or proximity to harm; 2. Each one of the contingencies that may be the object of an insurance contract.” The *Cambridge Online Dictionary* defines risk as simply “the possibility of something bad happening.”

According to Ulrich Beck, “the semantics of risk are related to future risk, which is a theme of the present and often results from the successes of civilization” (Beck 1998, p. 20). For this author, risk derives from threats and insecurity and has two sides: opportunity and danger. Accordingly, the Chinese word for “crisis” is *wei ji*, which is generalized as a combination of danger and opportunity (Zimmer 2007). Risk is an opportunity to the extent that it becomes the pattern that mobilizes a society confronted with the construction of an open future. Yet, it is also a danger, as this future is filled with insecurities and obstacles.

Keeping this in mind, and based on the contributions of other authors, we can assert that risk contains the following elements for analysis: the multiplicity of *threats* that manifest themselves in economic, geopolitical, environmental, societal, and technological dimensions (World Economic Forum 2010); *vulnerability*, which is represented by the exposure of societal units to manifest and potential dangers including natural disasters, nuclear proliferation, forced displacements, and terrorist attacks (Warner 2007); and the *culture* and incidence of the availability of individuals and social units to face the risk (Douglas 1978; Douglas and Wildavsky 1982; Douglas 1988).

### Threats

Generally, threats are thought of in terms of potentially harmful physical events. There are various phenomena of natural or anthropogenic origin under this classification that may place in danger one’s life, the environment, and general well-being and development. These phenomena are classified according to different parameters, but mainly by their origin. To promote a common language and use the terminology employed by the United Nations, it is convenient to refer to the classification proposed by the International Strategy for Disaster Reduction (UNISDR 2009b, p. 5). This classification proposes that “threats emerge from a large variety

of geological, meteorological, hydrological, oceanographic, biological, and technological sources, which often act in combination.” Given the above, it is possible to observe two categories of threats:

- **Natural threats:** those of biological, geological, or hydrometeorological origin.
- **Anthropogenic threats:** those exclusively derived from human activity, especially geopolitics, technologies, and environmental degradation.

This division is key to locating cultural preferences in relation to the perception of risk, as it is assumed that some threats are perceived with a greater degree of acceptability depending on the cultural position of the individuals (Table 1).

### Vulnerability

The term *vulnerability* has generally been associated with poverty and is understood to refer to a lack of the resources necessary to satisfy basic needs.<sup>5</sup> However, being vulnerable implies clear identification with a phenomenon that causes a state of inability. Therefore, to speak of vulnerability necessarily leads to the delineation of the phenomenon through which one is vulnerable and not only the lack of economic resources.

Kasperson *et al.* (1995) initially defined vulnerability as the “propensity of social and ecological systems to suffer harm due to external aggression and disturbances” (Kasperson 1995, cited in Defur *et al.* 2007, p. 817). Subsequently, some authors have considered it useful to reduce the complexity of the concept of vulnerability arising from the multiple characteristics and conditions associated with the term. Wilches-Chaux (1989) proposes 11 types of vulnerability: natural, physical, economic, social, political, technical, ideological, cultural, educational, ecological, and institutional (Wilches-Chaux 1989, cited in Bankoff *et al.* 2004, p. 11).

According to Cardona, vulnerability can be understood as the sum of the factors that are correlated with and underlie exposure to potentially dangerous physical events and that make an event (persons, infrastructure, environment, livelihoods) susceptible to causing harm or loss (Cardona 2001, p. 11). Oliver-Smith broadens these definitions and presents vulnerability as a political–ecological concept referring to the relationship between individuals and nature. He focuses especially on the political forces and economic characteristics of society and takes into account the institutions and sociocultural values that make up society (Oliver 2004 cited in Bankoff *et al.* 2004, p. 10). In addition to these definitions, the U.S. Environmental Protection Agency (USEPA) has defined four properties of vulnerability for

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<sup>5</sup>In various international agencies, vulnerability is seen mainly in economic terms, without incorporating other variables. A recent report by the World Bank argues, “That many measures do not work well together in poor countries explains why they have more disasters. The poor may know the risks they face but depend more on public services that are often inadequate. They live near work on cheaper land exposed to hazards if buses are unreliable, while the rich with cars have better alternatives. The poor would willingly move to safer locations if their incomes rose or if public transport became more reliable. Many governments in poor countries struggle to provide such services, and until they do, the poor will remain vulnerable” (World Bank 2010, p. 2).

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**Table 1.** Natural threats vs. anthropogenic threats.

Natural threats		Anthropogenic threats	
Biological threats	<ul style="list-style-type: none"> <li>- Epidemic diseases</li> <li>- Contagious diseases of animal or plant origin</li> <li>- Insect plagues</li> <li>- Massive infestations</li> </ul>	Environmental degradation	<ul style="list-style-type: none"> <li>- Degradation of the soil</li> <li>- Deforestation</li> <li>- Desertification</li> <li>- Forest fires</li> <li>- Loss of biodiversity</li> <li>- Contamination</li> <li>- Climatic change</li> <li>- Rising sea level</li> <li>- Loss of ozone layer</li> </ul>
Hydrometeorological threats	<ul style="list-style-type: none"> <li>- Floods</li> <li>- Tropical cyclones</li> <li>- Strong storms</li> <li>- Lightning/thunder</li> <li>- Drought</li> <li>- Desertification</li> <li>- Forest fires</li> <li>- Extreme temperatures</li> </ul>	Technological threats	<ul style="list-style-type: none"> <li>- Industrial contamination</li> <li>- Nuclear activities and radioactivity</li> <li>- Toxic waste</li> <li>- Rupture of dams</li> <li>- Transportation, industrial, or technological accidents</li> <li>- Corruption</li> <li>- Fragile states</li> <li>- Geopolitical conflict</li> <li>- Failures of governance</li> <li>- Illicit trade</li> <li>- Organized crime</li> <li>- Terrorism</li> <li>- Weapons of mass destruction</li> </ul>
Geological threats	<ul style="list-style-type: none"> <li>- Earthquakes</li> <li>- Tsunamis</li> <li>- Volcanic emissions</li> <li>- Geological faults</li> <li>- Landslides and avalanches</li> <li>- Falling rocks</li> <li>- Expanding soils</li> <li>- Liquefaction</li> </ul>	Socioeconomic threats	<ul style="list-style-type: none"> <li>- Volatility of food prices</li> <li>- Poor infrastructure</li> <li>- Collapse of asset prices</li> <li>- Costs of regulations</li> <li>- Fiscal crises</li> <li>- High unemployment rates</li> <li>- World recessions</li> <li>- Increase in poverty</li> </ul>

Source: Prepared by author based on the World Report on Initiatives for Disaster Reduction (2004) and the World Economic Forum "Global Risks 2011."

the purposes of identifying and minimizing vulnerabilities: susceptibility, exposure, preparation, and response capacity (USEPA 2003, cited in Defur *et al.* 2007, p. 817).

Furthermore, Narváez and Pérez (2009) proposed a broader concept of vulnerability as the result of social, political, and economic conditions. This approach to vulnerability assigns different levels to the weakness or lack of resistance observed in certain social groups (Narváez and Pérez 2009, p. 17). It identifies (based on the work of Cannon 2007) a series of preconditions and circumstances as cases of vulnerability:

1. The degree of *resistance* of people, infrastructure, the environment, and livelihoods.
2. The degree of *resilience* of people, infrastructure, the environment, and livelihoods.
3. The socioeconomic conditions and welfare conditions.
4. The degree of social protection and individual self-protection.
5. The level of governability of a society.

With the objective of promoting a common language, the United Nations (UN) has defined vulnerability as the “set of conditions determined by factors or physical, social, economic, and environmental processes that increase the susceptibility of a community to the impact of threats” (EIRD 2004a). From this perspective, *vulnerable communities* are those that have less opportunity to respond to adverse phenomena due to their physical, environmental, social, political, economic, and institutional conditions.

### Culture of Risk

It is complicated to give a precise definition of a term that is as controversial and oft-debated as *culture*. However, the majority of definitions consider culture to be a product of learning emanating from the common core of a community. Initially, the concept of culture “emerges from the need to adopt a term that characterizes the common aspects of certain forms of sharing that are inherent to the human being” (Martínez and Ojeda 2010, p. 13). This need is based on the premise that the majority of animals demonstrate the same behavioral patterns, while humans act differently. One of the most successful explanations for the cause of this variety provided by the field of anthropology is that human behavior is, in large part, the product of learning. Therefore, despite the multiplicity of positions related to the concept of culture, this definition is identified with behaviors that “have in common the fact that they are learned” (Martínez and Ojeda 2010, p. 14).

According to Taylor, culture is “an entire set, which includes knowledge, beliefs, art, morals, rights, customs, and abilities acquired by man as a member of society” (Taylor 1925, cited in Martínez and Ojeda 2010, p. 16). Hoebel continues this line of thought, defining culture as the integrated system of learned behavioral patterns that are not the result of biological inheritance but rather the result of social intervention. According to Hoebel, culture is transmitted and expressed only through communication and language (Hoebel and Weaver 1985 cited in Martínez and Ojeda 2010, pp. 16–17).

These authors' definitions share a materialistic sense of culture, associating it with observable and easily identifiable elements. However, according to Martínez and Ojeda (2010), such approaches have come to be questioned by researchers for whom no member of society possesses culture or represents it in its entirety. According to this new trend, the individual only knows one segment of his/her culture, which is not understood as a learned behavior but rather as an abstraction of this behavior. Thus, according to this line of reasoning, what we observe are behavioral patterns but never the culture in its entirety; culture only exists in the minds of the individuals.

In general terms, to the degree that it is a product of learning, culture helps us to predict human behavior and even to influence it through educational processes (Martínez and Ojeda 2010, p. 21). The more a culture is known, the easier it will be to predict and influence the conduct of its members.

The *culture of risk* is understood as "the entire complex, which includes knowledge, beliefs, art, morals, laws, customs, and all other abilities and habits that man acquires as a member of society to assertively respond to risky situations" (Romero *et al.* 2009, p. 137). In this sense, we can define it as the act through which citizens are mobilized to make decisions in their political community to prevent or minimize the effects of potential catastrophes and to strengthen democratic values around solidarity and access to information to deal with global risks. The process of forming and learning the culture of risk is fundamental; this is how the communities in which we live can develop with autonomy and be prepared to avoid disaster. It is possible to understand humans as agents of change in nature, which allows us to control the human causes that aggravate the effects of natural phenomena through educational programs.

When performing risk studies, it is necessary to keep in mind the subjective variables at play in the social environment, such as perception, individual and collective concepts of risk, and correlated emotions. These are best thought of as products of the sociocultural contexts in which individuals relate to one another and make choices. In such contexts, cultural values are what determine the relationship between humans and the environment. It is culture that allows individuals and collective agents to accept risk and define a particular type of vulnerability in the face of threats.

In this study, the cultural aspects of each context were kept in mind along with the assumption that risks may be culturally unrecognized if threats are overestimated. Even when threats are perceived or even experienced, elements in society that remain are unable to take the necessary measures to mitigate or prevent the occurrence of a disaster can persist.

### CULTURAL THEORY OF RISK

Different theories have been developed in the social sciences related to the acceptability of risk and provisions in the face of risk. However, only Cultural Theory takes culture into account in the calculation of the costs and benefits by individuals while also recognizing the existence of interests in the selection and acceptability of risk.<sup>6</sup> It is in this context that this article analyzes the culture of risk in vulnerable

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<sup>6</sup>In the social sciences, there are traditional theories of the perception of risk. The first is based on the *economics of rational choice* and states that the perception of risk is the result



communities. We base our analysis on the Cultural Theory initially proposed by Douglas (1988, p. 78), using the categories of *grid/group analysis*, and subsequently developed by other researchers (Thompson *et al.* 1990, p. 2).

According to Cultural Theory, individuals are continually trying to create an ideal life in their community. Mamadouh states that Cultural Theory describes the set of personal cultural preferences that are configured according to certain social relationships that all humans express. This allows a limited number of cultural types to be distinguished, which is done by combining patterns of social relationships with patterns of cultural or religious preferences. The resulting typology is one of cultures, lifestyles, or rationalities (Mamadouh 1999, p. 396).

Douglas (1988, p. 79) presents two dimensions of social life. The first is the *grid* dimension, which refers to the social expression of the system of classifications that suggests the rules to which individuals are subject in their interactions with others. This dimension indicates the magnitude and coherence of the structure of norms and values that is manifested in social roles. It can be described as a scale that goes from public to private, beginning with zero, which is the absence of structure. The second dimension is *group*, which refers to the degree of integration of the individual in the group in his/her own social dimension. This can be represented as a scale ranging from strong—where the group exerts pressure according to the type and amount of interactions—to weak—where the individual is free or isolated from group pressure. This scale also begins at zero, where there is no group and the individual is completely autonomous.

Based on these two dimensions, Douglas and Wildavsky (Douglas 1978; Douglas and Wildavsky 1982) developed the Cultural Theory of risk (grid/group Cultural Theory), from which they define a set of cultural types and formulate general rules about the characteristics and relationships in each. The objective is to understand the social circumstances that lead to the different ways of reacting to risk. This typology relates the beliefs of individuals to the social context and emphasizes the way in which groups and individuals interpret the world based on different rationalities and cultural models. The two dimensions (grid/group) are the foundation of a cultural map on which four cultural typologies are located. Douglas suggests that “moving among the different sectors is theoretically easy” (Douglas 1998, p. 61); the sectors characterize the four types of culture and identify the different risks perceived by cultural groups.

### Individualist Perspective

Those who are located in the individualist quadrant define the individual as a strong domain axis and the center of gravity. There is weakness at both the grid level and the group level, and there is a high degree of competitiveness between individuals. In this quadrant, it is assumed that optimal results are generated for the rest of society when personal benefits are maximized. For these communities, the

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of the calculation of costs and benefits made by individuals in response to the following question: What is our society willing to pay for safety? (Starr 1969 cited in Vera *et al.* 2010, p. 243). The second theory is based on *social psychology and behavioral economics* and states that the perceptions of risk of individuals are generally shared and often distorted by heuristics and prejudices (Tversky and Kahneman 1974, p. 1124).

## Culture of Risk in Vulnerable Communities

main risk is the loss of autonomy. Strategies are promoted based on the market to maintain this autonomy and to generate opportunities for one's own benefit. Given the above, it is inferred that threats of economic–social character such as market failures, loss of employment, budget deficits affecting the macroeconomic stability of a country, state weakness, or criminal activities may have the largest impact on risk perception. It can also be recognized that, in this quadrant, vulnerability is manifested in the lack of cooperation among individuals (Mamadouh 1999, p. 400).

### Isolationist Perspective

In this type, the classification system is fixed and experienced as dogmatic and oppressive. The individual feels abandoned and oppressed by the rule structure, but without the support of the group, which is weak. Communities located in this cultural quadrant usually deviate from the race for power and prefer to avoid the oppressive controls of other forms of social life. Although they feel obligated to respect the rules, they prefer to keep their distance from matters of power and dominion. For these communities, the main risk is the abuse of power by other, more dominant sectors. Thus, “immigrants, refugee victims of persecution or war, and other displaced persons would be candidates to occupy the vertex of isolated persons” (Douglas 1998, p. 61). The main source of threat may thus come from geopolitical dynamics and even those natural threats that cause them to continue in their isolation, lack of integration with the grid, and lack of incorporation with other social groups. This form of organization is vulnerable to the lack of planning and negative inertia generated by poor development processes (Mamadouh 1999, p. 400).

### Hierarchical Perspective

This classification system is fixed, oppressive, and not often, if ever, opposed. The individual located in this cultural quadrant inevitably feels controlled by a structure in which everything is decided for the individual and a cohesive group that complies with the structure. This style “adheres to the established traditions and institutions and maintains a defined network of family and old friends” (Douglas 1998, p. 96). These communities mainly fear the risk of social deviation and changes to the status quo; all that may be altered by natural or anthropogenic threats represents a true risk. In any case, it is clear that, for hierarchies, it is preferable to face risks that do not call into question the cohesion of the group. Those risks that can undermine the structure from within and undermine the value system are the most threatening. Issues such as drugs, criminal activities, infectious diseases, and pandemics are considered to be greater risks than those risks resulting from floods, hurricanes, or earthquakes because these natural disasters do not compromise the hierarchy of the group. Mistrust of authority and abuses of power constitute a strong vulnerability for this group (Mamadouh 1999, p. 400).

### Egalitarian Perspective

In this perspective, the classification and hierarchy system is not as strong but is agreed on by its members. The rules are not as accepted or obligatorily complied with, but there is a high degree of compromise on behalf of the individual for

the group. This cultural perspective “goes against formality, pomp, and the artificial, and rejects authoritarian institutions and prefers simplicity, openness, intimate friendships, and spiritual values” (Douglas 1998, p. 96). It is not difficult to intuit that, for those who prioritize spiritual and ethical values, the main risks derive from the abuse of power and corruption of the system. In addition, there may be identification between individual behavior and environmental degradation, such that the alternatives associated with this perspective may be closely related to environmental affiliations. Therefore, environmental degradation produced by the interference of humans is perceived as one of the greatest risks.

## RESEARCH STUDY POPULATION AND CONTEXT

Our study focused on the population of Barranquilla, a Colombian city located on the northeastern limit of the state of Atlántico on the western shore of the Magdalena River. The city has played a foundational role in regional and national development as one of Colombia’s most important and active sea and river ports. Nevertheless, in recent years, the city has undergone unplanned urban expansion that has generated underdeveloped settlements within risk zones. The populations of these settlements are vulnerable to natural and anthropogenic threats, including erosions, floods, lack of services, building atop landfills or garbage dumps, and lack of roadways. They also face forced displacements due to internal conflict and humanitarian crises caused by armed violence (Guardo 2000, p. 121).

We conducted our study in Pinar del Río, El Bosque, and Soledad, all of which are included in the programs of Visión Mundial-Colombia. Pinar del Río is a settlement home to 500 displaced families, of which approximately 70% are children, according to statistics from the Pan-American Foundation for Development in Colombia (*Fundación Panamericana para el Desarrollo en Colombia-FUPAD*). El Bosque is a neighborhood that is located in southwest Barranquilla, which faces high rates of poverty and violence within families, exacerbated by deficient public services and education. Of the total population, 70% are financially sustained through the informal economy (underemployment), according to the statistics of Visión Mundial. Soledad is a municipality that has been annexed to Barranquilla. This city underwent uncontrolled urbanization as a result of population growth and the lack of urban planning. People from the following neighborhoods in these three areas participated in the present study: Villa María, Villa Valentina, Villa Carmen I, Villa Carmen II, Bello Horizonte, Nace La Esperanza, Villa Sol, Villa Paraíso, and Villa San Pedro. All of these neighborhoods are shantytowns, where the majority of the inhabitants migrated from different locations in Colombia’s territory as a consequence of displacement caused by violence and armed conflict. These communities have no roadways and budding public services. The dwellings have no regular electricity or water services, and the sewer and garbage collection service is inefficient. The community has few public and private educational centers and nurseries for children, which prevents women with children younger than 5 years of age from contributing to the household economy and generating income for their families. The illiteracy rate of the adult population in these communities is very high. This region has no state health clinics or private health care centers; therefore, the population is highly vulnerable

at the primary care level for infants, youth, and adults, as well as pregnant and breast-feeding women.

The inhabitants of these neighborhoods are primarily sustained through the informal economy by itinerantly selling vegetables or working in construction. They also work as laborers, security officers, store vendors, and car washers, among other similar occupations. The women, in turn, are housewives, caring for the home and the upbringing of their children. None of the locations described here has an Immediate Care Center for security and vigilance. This explains why the population is vulnerable and unsafe, particularly after dark, given the proliferation of drug-consuming youth and urban delinquents.

### METHODOLOGY

To measure risk perception, we developed a non-experimental transversal research design that features a descriptive/correlational study with a quantitative and qualitative focus (Toro and Parra 2010).<sup>7</sup> One hundred and seventy-one people participated in this study, which is part of Visión Mundial's program for the population. The subjects participated in the study voluntarily. A focus group dynamic was employed,<sup>8</sup> and the distribution of the groups made no distinction for gender or age. We applied the Questionnaire for the Evaluation of Threats, Vulnerabilities and Capacities, which was designed and implemented autonomously by Visión Mundial. The questionnaire comprised nine questions through which the participants offered information on the risks they perceive in their community based on two variables: Identification of Threats and Evaluation of Vulnerabilities and Capacities.

For the Identification of Threats, participants made a list of 10 phenomena that they perceived as threats, for which the following indicators were evaluated on a scale from 1 to 3 (high = 3, medium = 2, low = 1): *complexity* (the possible causes of threatening phenomena), *recurrence* (the frequency with which the aforementioned event occurs), and *proportion* (the severity of the aforementioned event). Based on

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<sup>7</sup>This was non-experimental research in that the variables selected to measure risk perception (threat and vulnerability/capacity) were studied in their natural context, without manipulation. In other words, no specific situation was constructed; rather, the behavior of these variables was observed in previously existing situations. This non-experimental design was transversal given that the data were collected in a single moment to analyze their incidence and level of interrelation. Furthermore, a descriptive study was conducted to detail the nature of these relations and to identify the components of the threat and vulnerability/capacity variables in the communities under analysis, based on their measurement. After the measurement and description of the variables, the study became correlational because it interpreted the relation between variables within the context of the research subjects. The research had a quantitative and qualitative focus given that it was determined numerically at the level of risk perception in the studied communities, whereas the impact of these results was explained based on an analysis framed by Cultural Theory.

<sup>8</sup>The focus groups were brought together in a private environment to be engaged in a guide discussion about risk perception. This dynamic brings out aspects of the topic that may not have been anticipated and that may not have emerged in individual interviews. Convening more than one focus group relying on only one group is generally considered too risky because any one particular group may be atypical (Rubin and Babbie 2011, p. 469).

**Table 2.** Probabilistic analysis of risk perception.

Threats	9	45	54	63	72	81	90	99	108	117	126	135
	8	40	48	56	64	72	80	88	96	104	112	120
	7	35	42	49	56	63	70	77	84	91	98	105
	6	30	36	42	48	54	60	66	72	78	84	90
	5	25	30	35	40	45	50	55	60	65	70	75
	4	20	24	28	32	36	40	44	48	52	56	60
	3	15	18	21	24	27	30	33	36	39	42	45
High	>95 y ≤135	5	6	7	8	9	10	11	12	13	14	15
Medium	>55 y ≤95	Vulnerabilities/Capacities										
Low	≥15 y ≤55											

Source: World Vision.

these indicators, we obtained a valuation scale that ranged from 3 to 9 points, with higher scores indicating higher perceived threat.

To evaluate Vulnerabilities and Capacities, we used the 10 events perceived as threat. The following indicators were evaluated on a scale of 1 to 3 (insufficient = 1, little known = 2, known = 3): *popular perception* (level of recognition of an event or adverse phenomenon), *knowledge* (the existing evidence on the ways of managing the phenomenon and the necessary measures to act in cases of emergency), *available inputs* (the availability of instruments or tools to face the threats), *organization and participation* (the organizational structure developed by the community to face the threats), *cooperation* (the existence of private and/or public organizations competent in dealing with these types of phenomena). Based on these indicators, we obtained a valuation scale that ranged from 5 to 15 points, with 5 points considered a minimum threat (the presence of capacities to face the emergency) and 15 points a maximum threat (absence of capacities to face the emergency).

Combining these two variables, we obtained a risk perception level score as follows: low risk perception = 15 to 55 points; medium = 55 to 95 points; high = 95 to 135 points (see Table 2: Probabilistic Analysis-Visión Mundial).

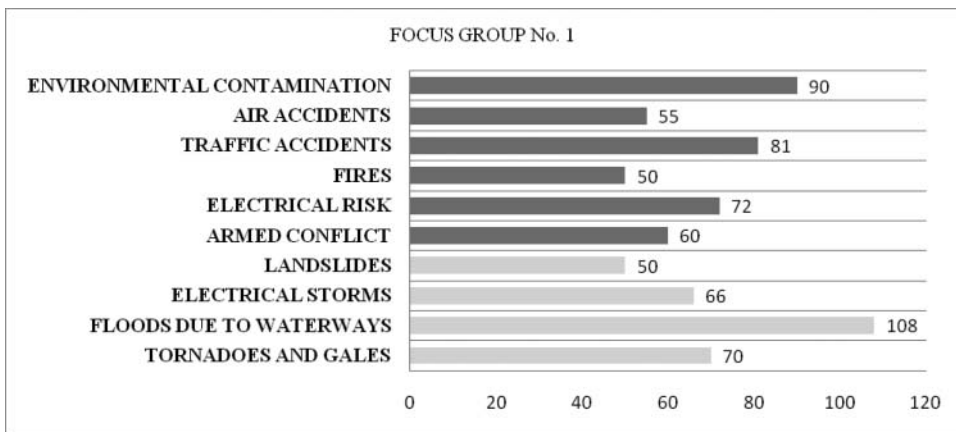
Visión Mundial organized the population into five focus groups, with an average of 34 persons per group. The questionnaires were applied verbally and the participants, all of whom spoke Spanish, granted their informed consent. The obtained results were analyzed and contrasted with the theoretical framework established in this study.

## DATA ANALYSIS

We present the analysis of the perception of risks as a function of the threats and vulnerabilities/capabilities identified in the subjects who participated. The relationship between the perception of risks and the cultural typologies proposed by the theory will be presented for the five focus groups. Each focus group chose some risks, each of which was scored according to the level of priority.

Among the 10 risks chosen by the first focus group (comprising residents from the neighborhoods of Villa Maria, Villa Valentina, Villa Carmen I, Villa Carmen

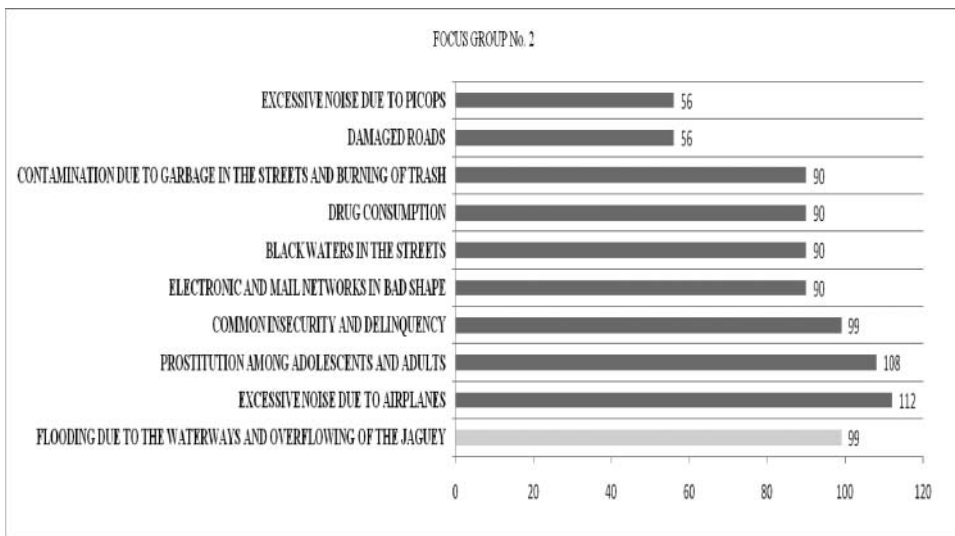
## Culture of Risk in Vulnerable Communities



**Figure 1.** Perception of risks in Focus Group No. 1.

II, and Bello Horizonte located at Soledad; Figure 1), floods are perceived as the threat with the greatest impact, with a score of 108, followed by pollution, with 90 points. Based on this risk perception, this community is located in the egalitarian quadrant, which displays low incorporation but a high level of group assimilation. Another type of risk perceived by this group, which makes this community more prone to being defined as egalitarian, is the risk of traffic accidents, with a score of 80 points, which shows the lack of respect for the rules or the complete absence of respect for traffic signage established by the authorities. Based on the above, it can be observed that this community does not perceive risks derived from anthropogenic threats such as unemployment or the lack of economic opportunities; instead, they tend to refer more to looking for particular jobs and resort to fellowship or solidarity to resolve personal matters, characteristic of egalitarian ways of thinking.

The second group (Figure 2) comprised residents from the neighborhoods of Villa Sol and Ciudad Paraíso located at Soledad, near the main airport of Barranquilla. For this reason, the impact of noise produced by airplane engines is perceived as one of the largest threats, with a score of 112 points. Flooding is also considered a significant threat, with 99 points. The inability to influence urban planning and the lack of collective cohesion to move against these threats places this community in the isolationist quadrant. The fact that the community cannot meet, act collectively, and mobilize decision-makers indicates that the capacity for mobilization and articulation as a group is very weak. What stands out in this community is the priority that anthropogenic threats are given, particularly those associated with prostitution (108 points) and insecurity (99 points). These two risk perceptions are very close to the abuse of power, which constitutes a condition of the isolationist quadrant. It is interesting to note that a representative sample of this group is composed of people who have suffered displacement, uprooting, or armed violence, all of which causes their cohesion to the group to be very low. Although they respect rules, they feel vulnerable in the face of power conflicts. This may indicate, for example, that the



**Figure 2.** The perception of risks in Focus Group No. 2.

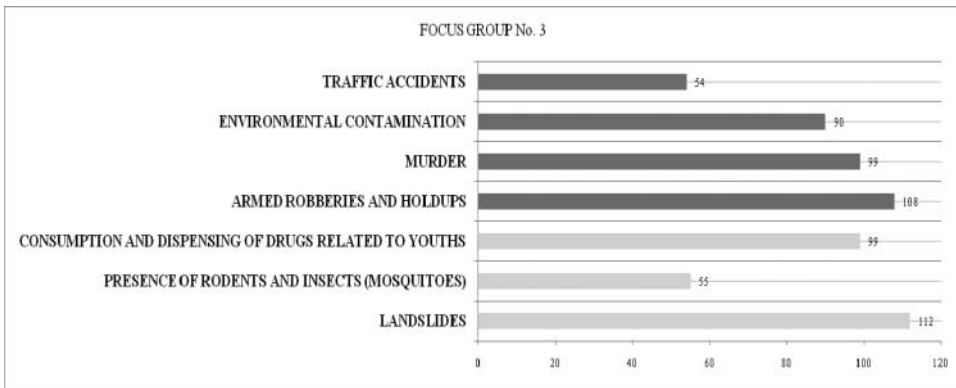
noise of *picops*<sup>9</sup> (56 points) is a considerable threat because it exacerbates rivalries among inhabitants in the community.

The third group (comprising participants from the community of Bosque; Figure 3) displays a range of classifications. Environmental problems (in particular landslides, with a score of 112 points) and the anthropogenic threats produced by organized crime (with special emphasis on armed robbery, with 108 points) constitute the main sources of the perception of risk. It is worth noting that, in this case, we are not dealing with a de-structuring of a group that does not manage to come together to face its problems and free itself from the vulnerability that comes from the inertia of poor planning and the abuse of power. In reality, this group is closer to the egalitarian quadrant because, as with the first group, traffic accidents (54 points), youth drug consumption and drug-dealing (99 points) demonstrate a low degree of incorporation of the rules. In addition, organized crime is a symptom of integration in groups that can give a sense of identity and attachment to the individual.

The fourth group (comprising residents from the neighborhood of Villa San Pedro; Figure 4) displays two perceptions of risk that are associated with anthropogenic threats that stand out from the others: lampposts that are in poor condition (66 points) and kidnappings (54 points). Although they do not have the greatest impact, they stand out for their relevance to the cultural concepts because the appearance of these risks shows the incapacity of group organization or a lack of transparency on the part of the authorities as a result of a lack of pressure from the group. Thus, this community is also located within the realm of the isolationists. Even contamination due to garbage (99 points), which stands out in the second

<sup>9</sup>The word used by the communities that participated in this study to describe the gigantic sound systems around which community members meet to celebrate.

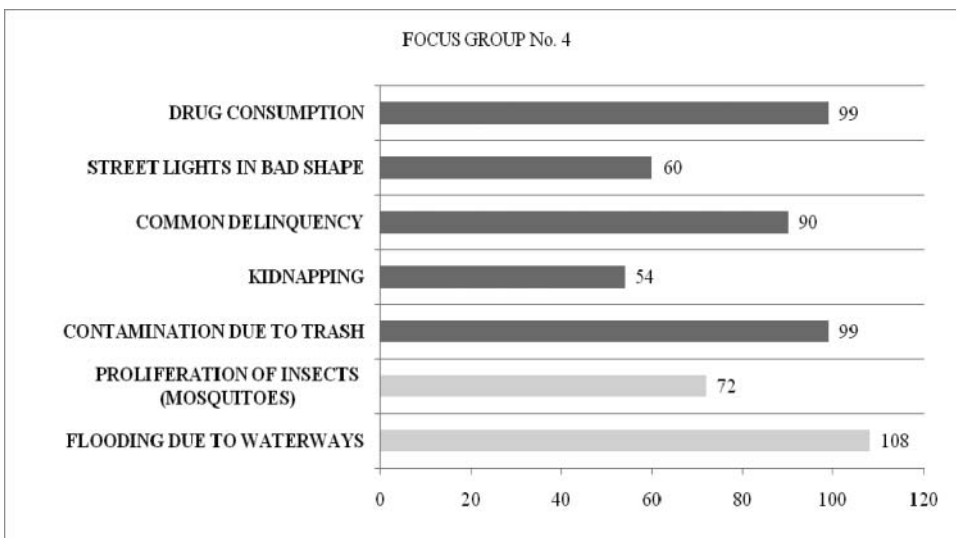
### Culture of Risk in Vulnerable Communities



**Figure 3.** The perception of risks in Focus Group No. 3.

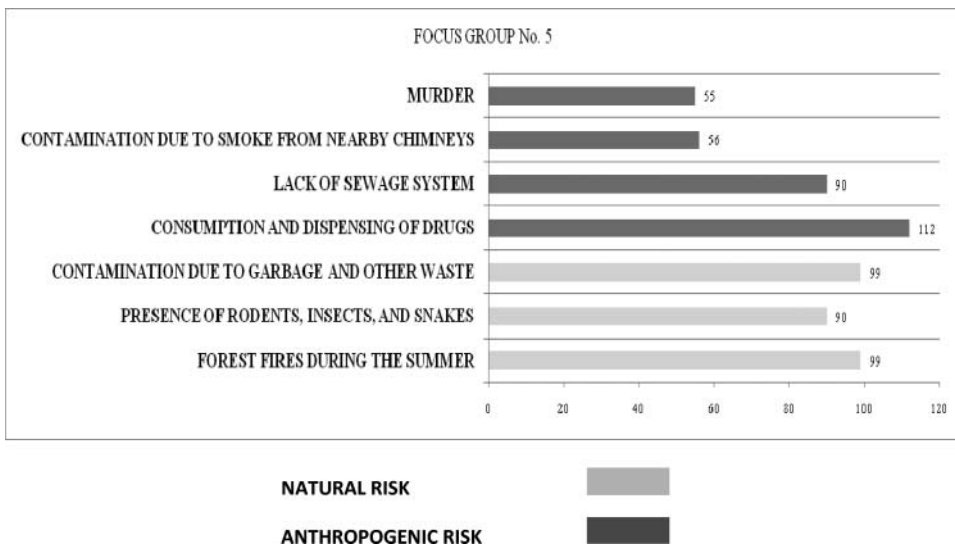
range of priorities, shows the community's incapacity to either self-organize to establish a place and time for collection or to exert pressure on the company that periodically provides garbage collection service in the community.

Finally, the fifth community (comprising participants from the community of Pinar del Río; Figure 5) perceives threats associated with contamination by garbage and other waste (99 points), forest fires during the summer (99 points), and flooding due to waterways (108 points) in the high-priority range. This definition of risk belongs to the egalitarian quadrant because environmental affiliations are a characteristic of this group. Similarly, the consumption and distribution of drugs (129 points) may show behavior linked to social groups that are engaged in this type of criminal activity, which supports the attachment to a group, whether it be a gang, a criminal association, or another type of group that provides the individual with a sense of belonging.



**Figure 4.** The perception of risks in Focus Group No. 4.





**Figure 5.** The perception of risks in Focus Group No. 5.

## CONCLUSIONS

The current article presents the results of a project conducted in 2010–2011 within the framework of a research program at the Universidad del Norte named “A culture of risk in vulnerable communities: the case of Barranquilla, Colombia, in the context of globalized (in) security.” In this project, we sought to identify the factors included in the risk of populations with high exposure to disasters or affected by disasters. In the development of a theoretical framework, we found that a large majority of the previous studies identified threats and vulnerabilities as components of the incidence of disasters and how their effect on the greater probability of situations of risk (Haines 2009; Aven 2010). Nevertheless, other studies found a strong relation between culture and the perception of risk. In other words, the system of cultural values plays a determining role in risk perception, as it locates individuals and communities in a quadrant who are focused on threats and vulnerability (Kermisch and Labeau 2008). This is why “the cultural perspective assumes that cultural patterns structures the mind-set of individuals and social organizations to adopt certain values and reject others. These selected values determine the perception of risks and benefits” (Renn 1992, p. 73).

To confirm this hypothesis, we performed a probabilistic study applied by Visión Mundial in vulnerable populations. Our analysis showed that these vulnerable communities are located mainly in the isolationist and egalitarian quadrants. According to the Cultural Theory of risk, these two quadrants belong to the negative diagonal, defined by Douglas as the diagonal of protest and retreat. No power or influence is exercised, and people must join together to protest against the power of the dominant sectors of society (Douglas 1996, p. 61).

The communities in this study are situated in opposition to the spheres of the dominant society. According to Bourdieu, “these are the people who tend to have scarce economic capital and, although they may not have symbolic capital in the

form of education either, they possess various ways of obtaining legitimacy among themselves" (Bourdieu 1991, cited in Douglas 1996, p. 62), such as by protecting themselves in local networks or in isolated niches against the power of the dominant sectors (Douglas 1996). It is notable that the communities studied did not perceive problems such as unemployment, lack of social services, and low education levels as risks. Based on this observation, we infer that these communities generally do not participate in decision-making processes. They are not included in measures to reduce disaster risk either, which not only causes them to remain within this state of vulnerability, but also perpetuates the conditions that threaten their very existence.

The present results demonstrate the need to identify the system of values and beliefs inherent to the culture of each community. Cultural Theory dictates that there are quadrants that are more willing to face certain risks and to resist them when confronted with possible catastrophic impacts. This research supports the notion that the *culture of risk* plays a central role in the ways in which people accept the reality of their environment and the possibility of appropriating strategies in the face of situations of risk.

It is important to note that the probabilistic analysis of the five focus groups identified a high valuing of natural risks, with greater weight on floods, landslides, and fires, all of which are anthropic. The anthropogenic risks were greater in number but displayed less weighting, indicating that there is a joint perceived risk that is not yet resolved. This risk likely corresponds to the poor urban planning conditions with uncontrolled population settlements that are associated with a low level of development. The persistence and prevalence of anthropic risks indicate that the communities that participated in this study are highly pressured in their daily activities, which in turn reinforces the interpretation of the position of the quadrants in which they are located. In conclusion, the current analysis and results provide irrefutable evidence that the valuation of anthropic and natural risks is determined by the culture of risk of the social members of a group.

The results of this investigation can be considered a valid diagnosis for the various interest groups, including politicians, insurance agencies, and development workers, who seek to influence the risk situations of the communities and to empower their capacities to mitigate the high impact of environmental risks. The consideration of the culture of risk allows the proposal of educational and governance programs that will impact the prevention, communication, and resilience processes associated with risk situations.

In this sense and within the framework of the aforementioned research project, we applied educational workshops and campaigns in coordination with several organizations in charge of reducing the risk from disasters in Barranquilla for the benefit of 100 children and 260 youth and adults from Barranquilla and its metropolitan area. These workshops aimed to impact the culture of risk of these populations so that they may acknowledge their vulnerabilities and threats. An additional goal was to empower the residents to face possible disasters, develop strategies when confronted by their environmental risks, and strengthen their democratic values and thus adopt an active role in development plans, local emergency committees, and the various community activities that generate capacities. Because the intervention forms part of a second phase of the research project that extends beyond the diagnosis of the culture of risk in vulnerable communities, we do not discuss it in this

article. However, future research should involve determining the effects of intervention in vulnerable communities through the culture of risk workshops in the case of Barranquilla.

## ACKNOWLEDGMENTS

The current article presented the results from a project conducted in 2010–2011 with the support from the Direction of Research, Development, and Innovation of the Universidad del Norte named “A culture of risk in vulnerable communities: The case of Barranquilla, Colombia, in the context of globalized (in) security.” We especially thank Dr. Jaime Ortiz for his work in helping develop this special issue, World Vision-Colombia for giving us permission to use the results of their probabilistic analysis of risk perception, the peer reviewers who provided very helpful comments, and the communities that participated in this study.

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