Social Representation of Human Resettlement Associated with Risk from Volcán de Colima, Mexico

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Abstract

This study examines a rural community of several decades of existence called *"La Yerbabuena"*. *La Yerbabuena* belongs to the state of Colima and it is situated on the flanks of the active *Volcán de Colima*; as such, the inhabitants are exposed to high levels of volcanic activity in their daily lives. This community has experienced resettlement on several occasions due to the volcanic risk. The study is based on theories of social representation that deal with how people perceive the events of their daily lives, as well as what happens in their immediate environment, including available information (such as news) and interactions with familiar people. These perceptions are formed partly from personal experience and from information, knowledge, and patterns of thought acquired during a shared tradition, education, and social communication. The social representation of families resettled due to volcanic risk is classified in four categories or assumptions: (a) the volcano represents a potential risk to their lives and possessions; (b) their relocation involved a change in economic, political and cultural factors that impacted on their daily lives; (c) this relocation represented a benefit to their daily lives; and (d) the relocation fractured the social cohesion of the community. Meanwhile, for the families who opposed their own resettlement, social representation was anchored in three aspects: (a) *La Yerbabuena* is not considered a zone of high volcanic risk; instead the resettlement was a *"governmental pretext to expropriate these families of their land and possessions"*; (b) the resettlement was a violation of their human rights, given the harassment they received before and during the resettlement process; and (c) their failure to acknowledge a volcanic risk allowed them to implement strategies of resistant, such as generating discussions and actions appropriate only when the volcano was no threat and became a *"guardian"*. This refers to the old traditional view

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of the volcano as the guardian in which the volcano would protect this community from possible eruptions and it would emit signals in which only these families could perceive and interpret. At the same time, these resistant families depended on the risk management protections implemented by the authorities. Based on this research it is clear that social representation in La Yerbabuena is born from the mental images that both the relocated and the resistant constructed from the sociocultural reality common to all members of the town. It is therefore important that all social actors involved in risk management have an understanding of the culture, risk perception, and forms of social representation of the volcanic risk of the inhabitants of communities high risk zones in order to design plans suitable for prevention. Furthermore, it is critical for the population to have active participation, to facilitate better risk management.

1 La Yerbabuena: A Space of Negotiation and Social Interaction

At the foothills of the Colima volcano, which is located between the states of Colima and Jalisco, there are several rural settlements surrounding this colossus. La Yerbabuena town is located 8 km to the southwest of the volcano's summit. It is an "ejido", an area of communal land used for agriculture on which community members get assigned a parcel but maintain communal ownership of the land. It is officially named "Ex-hacienda San Antonio" and it belongs to the municipality of Comala, which is one of the ten municipalities that constitute the state of Colima.

La Yerbabuena is a young town that for decades struggled with the fair distribution of the land. In 1934 workers of the Hacienda San Antonio and those of the Red Union of Small Farmers, made the first written request of endowment of the agricultural communal land to the Governor of the State of Colima. However, it was not until 1968 that the resolution was approved in favor of the 26 applicants who took possession of 540 ha. The new *ejido* was officially called "Ex Hacienda San Antonio La Yerbabuena." The village was established in 1968 by a group of families from the former hacienda San Antonio and nearby towns such as La Becerrera, Suchitlán, and Cofradía de

Suchitlán in Colima; as well as from San José del Carmen, Zapotitlán, and Tamazula in Jalisco (Cuevas 2001).

La Yerbabuena is a traditional social space where power relations are interwoven; social actors perform several traditional acts like maintaining kinship and labor ties as well as negotiating and interacting face to face with the members of the village and some external social groups. In this context, the relocation of a part of the peasantry population formed another community social space with physical-spatial characteristics and habitats different from those of their locality of origin. On February 1999 the government of the state of Colima proposed to relocate La Yerbabuena, but it was not until May 2002 that most of the Yerbabuenians moved to the new settlement (La Nueva Yerbabuena). However, more than 10 families refused to accept the government's conditions and decided to stay at La Yerbabuena. As a result, two groups of settlers formed: those who were "relocated" and, those that were "resistant", building more fractional social relations from that process. The social cohesion of the community was fractionated since that time and it was accentuated by the displacement of part of this rural population.

This study applies the theory of social representation to explore the issues related to the resettlement in the community of La Yerbabuena.

2 Theoretical Foundations of Social Representation

Social representation is defined by Moscovici (1973) p. xiii as:

> Systems of values, ideas and practices with a two-fold function; first, to establish an order which will enable individuals to orientate themselves in their material and social world and to master it; secondly, to enable communication to take place amongst members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual and group history.

The history of the theory of social representation began with the contributions of Herbart (1825) and French sociologist Emile Durkheim (1893). Herbart developed his concepts from psychosocial situations (understood as the interactions between the individual's mind and its collective environment) and helped to give meaning to the relationship between an individual and society. This is a key factor in the understanding of several situations related to volcanic activity; as an example we have the different cultural roles or perceptions of risk within the village. For his part, Durkheim, speaking of "collective representation" and "cultural factors", proposed the possibility of investigating how this collective representation came to form part of a subjective perspective that positioned an individual against an object and against oneself.

The theory of social representations has been applied in several studies not only related to social psychology but also incorporated into sciences and disciplines as diverse as anthropology, sociology, pedagogy, social work, among others. In fact, recent risk-disaster research includes some areas that have used the theoretical-conceptual tools built by Moscovici (Aparico and Pérez 2014; Bravi 2016).

This study is based on the theory of social representations and its tools used to construct meanings of social actors; in this case, those that resettled and those that resisted. These meanings are socially produced by the actors through culture. Based on them, people organize and give meaning to their experiences and knowledge

through narrations, forming beliefs about their own world and themselves. In this way, people legitimize their world from verbal actions and actions based on the relationship between what is done and what is said (Brunner 1992).

According to Moscovici, social representations are a set of concepts, statements, and explanations originated in daily life and the inter-individual communications. In our society, they correspond to the myths and belief systems of the traditional customs. One could say that they are the contemporary view of commonsense (Moscovici 1981, quoted by Perera 1999, p. 10). The relationship established in this work is between the theory of social representations of Moscovici (1969) and the constructivist view of the social actor of Norman Long based on Habermas' concept of "worlds of life" (1987). With the perspective of the social actor we could only illustrate cultural practices and interpretations developed by both relocated and resistant people in the process of permanent resettlement of La Yerbabuena. However, such a perspective would be insufficient to describe how these actors construct their own meanings of displacement. For this reason, from the relocated and resistant world views of life, we explore how these meanings are constructed: first, starting from the theory of social representations, used as an instrument of analysis, since through it we explore how individuals are oriented and act in their relationships with other individuals; and second, on the basis of meanings or understandings about the world that are being created and transformed as the interactions between social actors in the resettlement as it progressed. That is, how the social actors from their feelings, worlds of life, experiences, perceptions and systems of knowledge are building different meanings about the relocation, that in some of them there are similarities, but also differences.

In addition of the perspectives of Long (1998) and Habermas (1989) that enabled us to consider the advancing interactions between social actors as the central object of this study, we based our research on the sole theory of social representation to examine how individuals react to and act in their relations towards other individuals, and

on the basis of meanings or intentions how they approach their world views that they are creating or transforming. We considered that these theoretical approaches could enhance our understanding of the role of the resettlement of La Yerbabuena in the social construction of risk.

In people's daily lives, the images that are constructed of a certain social process emerge as a mental elaboration that takes into account the history of the people, the experiences of each person's life, the personal cognitive constructions and above all, their world views of life. In these social processes, there are articulated fields of multiple meanings that are shared by belonging to the same social and cultural space, and having very similar meanings of these processes. Hence each social group tends to make appraisals of reality, which are built from their own experience, but also from the interactions they established with other actors; so, it can be said that the knowledge that is acquired from a social process or a reality corresponds to forms of interpretation of the world that are socially constructed and shared by the members of a group in a given context (Moscovici 1979).

Within social psychology, and according to the approaches of Moscovici (1979) and Jodelet and Tapia (2000), social representation is generated from two phases or processes: first, *"objectification"*, and second, *"anchorage"*. The first consists of transforming an abstract entity or thing into something concrete and material: products of the imagination into physical reality, concepts into forms. Objectification turns a concept into reality, giving an image its corresponding physical counterpart. The outcome is chiefly cognitive. The amount of meanings that a person receives, expresses, and picks up in their daily cycle of interactions may be superabundant. To decrease the separation between the sheer volume of words in circulation and the objects to which they are related, just as one could not speak of "nothing", "linguistic signs" latch onto "material structures": that is to say, the linguistic signs try to attach the word to the thing (Moscovici 1979, p. 75).

Objectification may be defined as an image-forming and representation-structuring process. In this process, the social part translates as the assemblage of knowledge concerning the subject of a representation articulated by a feature of social thought: to make concrete the abstract; to materialize the word. Furthermore, the process of objectification carries within itself two essential operations: (1) naturalization, and (2) classification. In naturalization, social representation is given concrete evidence through conversion into a "common theory" which can categorize autonomous individuals and their behaviors. Classification makes sense of the world around us and introduces a new order that adapts to the existing one mitigating the impact of any new design.

The second phase of social representation is anchorage, which is a process of categorization whereby we classify and give names to things and to people; the integration of the unfamiliar into the familiar. Anchorage denotes the introduction of knowledge into the hierarchy of values, and between transactions that occur in society. In other terms, "through the process of anchorage, society changes a social purpose by an ordering operation, and this purpose is located on a scale of preferences in existing social relationships." (Moscovici 1979, p. 121).

In an artificial way, Moscovici clarifies both processes, arguing that "objectification translates knowledge into the domain of being, and anchorage defines knowledge within the realm of doing" (Moscovici 1979, p. 121); that is to say, just as objectification demonstrates how the elements of knowledge are articulated in a social reality, anchorage makes visible the way in which these elements shape social relationships and also how the elements are expressed.

By Moscovici's definition, social representation arises in four constituent elements. The information which is related to what "I am"; the images which "I see"; the opinions which "I think"; and the attitudes which "I feel". Meanwhile, Jodelet and Tapia (2000) asserts that social representations are areas of knowledge that form part of our personal experiences, but also form information, understanding and patterns of thought that we acquire and share through tradition, education, and social communication. Seen in this way, social representation is directly and exclusively related to common humanity due to the individual reality of all human beings.

3 Methodology

This study adopts a qualitative and cross-sectional methodology guided by the theory of social representations (Moscovici 1979) as a tool for the construction of the image and meanings of the resettlement individuals. This study also analyzes the representation of this social object using two techniques: 'free' (Abric 2001; Borgatti 1996) and 'draw lots or sorting' (Abric 2000; Borgatti 1996), both described further below. These tools explored the meanings attributed both by resistant and resettled individuals to the permanent resettlement. These meanings were constructed by the Yerbabuenians from their own life worlds, experiences, feelings, perceptions, and knowledge of the process of resettlement. The data analysis was carried out using Anthropac 4.9 software (Borgatti 1996), in which a correlation of the knowledge possessed by each informant in relation to the group was calculated to identify the informant's key words; the ones with the highest scores were the people identified to conduct the in-depth interviews.

The studied population were 30 people (randomly selected), amongst them 20 were relocated settlers and 10 were resistant. The study consisted in: (1) exploratory image of the relocation; (2) the dynamics of obtaining the relocation image; and (3) explanatory of the relocation process.

In the image of the resettlement the free association technique was used, as well as the 3-question semi-structured questionnaire instrument called free listing (Abri 2001; Borgatti 1996). Each questionnaire lasted 20 min, and was recorded both in digital audio as well as written hardcopy. The free association technique consists of asking the social actors to name or write all elements that correspond to an inductive term. For example, *to explore word associations relating to the term "relocation" interviewees were asked*: "Please mention all the words that come to mind when you hear the word *resettlement.*" These word associations, called 'free listings' are sets of terms used in additional and subsequent data collection tasks, such as pile sorts or indexes or scales. For the free listings, two databases (resettled and resistant) were developed in the Anthropac 4.9 software, frequently used in anthropological studies to study cultural domains. Anthropac 4.9 counts the number of times each descriptor is mentioned by the interviewees, and then organizes the list on a decreasing frequency scale. In this way, it calculates a list of the descriptors, which includes three columns: the frequency, the order in which they were mentioned, and the cultural weight.

The draw lots or sorting approach is characterized by the descriptive phase of the resettlement image. We described how the different forms of social thought are objectified (Moscovici 1979; Jodelet 1984), which included the image and meanings of the resettlement that both the relocated and resistant people have since being displaced. Fifteen descriptors were identified by the Anthropac analysis to apply the draw of lots or sorting to both groups of interviewees (Table 1). The following descriptors were selected:

Table 1 Descriptors selected to apply the draw of lots or sorting

Government	Volcano	Family	Emotional status	Relationship with resettled and resistant
Benefit	Explosion	Houses	Confidence	Resentment
Human rights violation	Danger	Do not sow	Pain	Disunity
Government non-compliance	Risk zone	More expenses	Desperation	Difficulties

4 Construction of Meaning: The Process of Human Resettlement and Volcanic Risk as It Affected the Inhabitants of *La Yerbabuena*

In this section, we present the images and meanings constructed by both the resettled and resistant families of the at-risk community of *La Yerbabuena*, Colima who in beginning of May 2002, the last evacuation began the process of human resettlement.

4.1 Impressions of the Process of Human Relocation

(a) *Impressions of the relocation process formed by resettled habitants of* La Yerbabuena

The impressions of the relocation process for displaced families is divided into five descriptors derived from the *"Free Listings"*: Positive *emotional state; trust on government; benefits to family; volcanic threat;* and *relationship between the resettled and the resistant* (Table 2).

From these descriptors, we can observe that the *La Yerbabuena's* inhabitants have accepted the relocation process, due to the confidence that they had in the authorities (represented by the

highest frequency in the table); moreover, they were amenable to the latter's promises of better services, including health and education, that would benefit all the inhabitants. However, the disadvantages of the relocation process were that it provoked resentment between families and that the resettled families encountered various difficulties in the new settlement. The decision to relocate was not made for the risk that the volcano represented to them, but it was motivated by the promises of the state government, who had assured them that relocation would give them a better quality of life—an assurance that was proved to be false.

(b) *Impressions of the relocation process formed by resistant population of* La Yerbabuena

The impressions of the relocation process formed by the families who resisted resettlement were divided into four descriptors: *authoritative government, family deterioration, negative emotional state, and volcano threat* (Table 3).

These families attributed the relocation process to a decision made by an authoritative government, with hidden intentions, which had nothing to do with their living in a zone of high volcanic risk. They asserted that the displacement of inhabitants was forced because of

Table 2 Descriptors of the impressions of the relocation process held by displaced families

Descriptor	Fr[a]	%	Om[b]	Cultural weight[c]
Positive emotional state	28	16	4.3	2.018
Trust on government	61	35	2.6	1.707
Benefits to family	47	27	4.7	1.010
Volcanic threat	20	12	2	0.566
Relationship between displaced and resistant families	17	10	10.1	0.309
Total	173	100	23.7	5.61

[a]Frequency (*Fr*) refers to the number of times that each descriptor was mentioned

[b]Order of mention (*Om*) is provided by the subjects according to the order in which the descriptors mentioned the derivatives of the introductory term "relocation". The order of mention "can reveal aspects of the underlying cognitive structure of this domain" (Borgatti 1996, p. 5)

[c]'Cultural weight' is the correlation between frequency and order of mention, and was obtained through the use of Anthropac 4.9 software (Borgatti 1996). It classifies by type in order to select 15 descriptors for the implementation of the *"Drawing Lots"* phase of information collection

Table 3 Descriptors of the impression of relocation formed by resistant families

Descriptor	Fr	%	Om	Cultural weight
Authoritative government	26	41	3.5	1.385
Family deterioration	20	32	3.6	0.949
Negative emotional state	12	19	4.2	0.656
Volcano threat	5	8	3.6	0.111
Total	63	100	14.9	3.101

constant pressures, threats, and harassment from the authorities during the course of their daily lives and during the evacuation processes.[1] They recounted that, for some, resettlement did not affect the dynamics of daily life and that for others, resettlement afforded fewer opportunities of employment and resulting in economic imbalances in households.

As for the families' impressions associated with the volcano, they acknowledged that the local government displayed that *La Yerbabuena* as a zone of high volcanic risk and thus that the volcano presented a threat to the village's inhabitants. However, they declared that the hidden intention of the authorities was to expropriate them of their property and lands.

For both the resettled and the resistant, impressions of the relocation process are 2-fold. The initial impression of the resettled was one of wellbeing and progress, generated by the expectations and promises of the governmental authorities. The ultimate impression of the process formed by the resistant was that the volcanic threat was a pretext of the government to divest them of their goods and to carry out plans for a tourist project in their community.

4.2 Meanings of the Process of Human Relocation

In this section, we explain the phenomenon of resettlement in terms of image and meanings found in the context of everyday lives of social actors of *La Yerbabuena* (both relocated and resistant), and from their subjective observations. This was achieved through the technique of in-depth interviews.

The results we present are interpretations developed from the theoretical and methodological assumptions of the theory of social representation (Moscovici 1979). These interpretations were elaborated in the analysis of social actors' narratives of their daily lives around the period of displacement of *La Yerbabuena* inhabitants due to volcanic risk. The results are displayed below in two sections: (1) significance of resettlement to relocated families; (2) significance of resettlement to resistant families.

(1) *Significance of resettlement to relocated families:*

This section itself is split into three parts: (a) meanings associated with the resettlement process; (b) impressions of daily life after resettlement; and (c) impressions of volcanic risk.

(a) *Meanings associated with the resettlement process:*

The following meanings, given by social actors in in-depth interviews, are attributed to the economic imbalance encountered when the new settlement's cost of living was higher than in the actors' place of origin. They recounted how previously, in order to provide for their basic necessities, they spent two hundred pesos each week; in the resettlement place (Cofradia de Suchitlán), their expenses doubled. Before resettling, Mrs. Reyna Cervantes along with another female partner was applying for a small loan. With the loan they hoped to buy a *nixtamal* mill with the intention of improving domestic savings by grinding maize and making tortillas.

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[1]From November 1998 to May 2002, six evacuations of the population of *La Yerbabuena* occurred. The most comprehensive of these were those of May 10th, 1999 and May 18th, 2002.

Once displaced, they continued with their project and, although their incomes were minimal, they were not dissuaded from their objective. *Doña Reyna* said:

> What happened is that here you have to buy everything, and there you didn't. You know that, back there, there is only corn, beans, and sugar— that's all we had; however, here you crave meat… or you want something else. There you only have the produce of the field… here I spend 70 pesos on tortillas alone, and back there I used to make them with two balls of dough, or three balls, each 1.5 kg and people paid 1.50 pesos for each, because I used to grind them myself… for that reason, I think it's better to buy the maize [instead of the tortillas], but only when I have money.[2]

The majority of the inhabitants paid for the transfer of their possessions to the new settlement with their own savings. Furthermore, they enrolled their children in a new school, for which they were required to buy uniforms and school equipment; expenses they did not have encountered in *La Yerbabuena*. For Maria de la Luz Mejia, interviewed at home, the choice to relocate was made because of the constant evacuations of *La Yerbabuena*, and for the hope that resettlement would involve owning a home, as opposed to renting. She commented:

> Beginning with school, there were differences… [in La Yerbabuena] it didn't cost, here it does. Here at the start of the school semester they asked for 50 pesos and over there, deals were made with produce from the allotments… then, my daughter entered kindergarten and it cost 120 pesos for enrollment and breakfast was 5 pesos each week… and now they're asking us to pay for uniform, shoes and extra … over there, you went to school with the little you had but here you can't, you have to go every day with shoes, with these closed shoes or with sneakers and socks… and we had to buy it, and of course it costs money, and if you don't have it then you have to get credit to fulfill it.[3]

Relocated Yerbabuena farmers acquired new transportation costs to go daily to their plots of land. This represented an investment in both time and money, mentioned by Eusebio Montejano.

He was always in favor of resettlement, but several weeks after having been relocated, asserted that: "life was much more expensive [in the new resettlement] and it was very difficult to adapt to this new way of life".

One of the difficulties that resettled families encountered was the diminutive size of their new households. The built area, the distribution of space and the dimensions of individual plots were not equal; in *La Yerbabuena* plots were 30×50 m (1500 m^2), whereas in the new settlement they were 8×25 m (200 m^2), with a built area of 35.86 m^2. All the new houses were equal in extent and distribution, had a living-dining room, a bathroom, a bedroom, kitchen, and an area of 7 m^2 which could be used to plant a vegetable garden, store work tools, or construct another bedroom. The people of *La Yerbabuena* who lived here found it cramped and overcrowded.

The urban style of the houses imposes a new form and style of life on people from a rural environment. Furthermore, as the economy in the rural setting is different from that of the urban, very few of the families are able to construct new and adequate spaces to meet their immediate needs. In the rural environment, families own large plots of land with the understanding that the children will inherit a part of it when they grow up and have their own families. Additionally, it gives them an area to grow vegetables. Hence, leaving these conditions and styles of life for an "urban life" increases a family's vulnerability and limits their access to resources they once had.

The people of *La Yerbabuena* expressed that relocation has brought disunity. Ines Montejano provides one example of family breakup:

> It broke up families as well as people, for example we usually reenact the stages of the cross but this time we did nothing. Here in Cofradía everyone did what he or she wanted. Before the day used to be respected, recently it has not been so, everything has been lost (…) for example in La Yerbabuena we used to have festivals and people were more united (…)[4]

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[2]Interview with (18RC-M43/04-04). Cofradía de Suchitlán, Colima.

[3]Interview with (6MdLM-Am29/04-04). Cofradía de Suchitlán, Colima.

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[4]Interview with (16IM-M18/04-04). Cofradía de Suchitlán, Colima.

For other families, the process of relocation was a benefit as it meant they were distanced from the volcanic hazard, as said by Jesús Montejano:

> For me the people who have come have been given a great benefit, as people who had houses made of cardboard now have higher quality homes.[5]

(b) Appearance of daily life in resettlement

Relocation, which shows to have an important difference on your daily life, changes your actions relative to both time and space. One of the most significant disturbances the families experienced is the impact it had on the educational environment. Previously they had a kindergarten with one classroom and one community teacher from CONAFE (Consejo Nacional de Fomento Educativo). At primary level, they had one school with two classrooms for all six grades and one teacher. If one wanted to attend secondary school, they would have to walk to La Becerrera; as mentioned by farmer Jesús Montejano:

> When we lived in La Yerbabuena, I should note, I remember they used to have class three to four times a week and the teacher would have to walk from La Becerrera to La Yerbabuena, and by the time he came in and checked our work he would leave. So what was he teaching us? (…) And here it seems that children have class every day so it is therefore an improvement for them.[6]

Many people considered living in the new homes to mean "a new life" and "a place to live" and furthermore related it with "progress"; this was because many families (especially residents) lived in homes made from flimsy materials. Although the homes were flawed it was a "a new way of life" for the inhabitants; this was expressed by Guadalupe Cueto, municipal commissioner of the new settlement of Corfradía de Suchitlán, and Jesús Montejano, municipal commissioner of La Yerbabuena:

> Because this means we will be starting a new journey, we are starting a new life because we are beyond what we had and what we were doing, and now we are living in progress (…).[7]

> The most important thing for me is that we are removed from danger, because it was a nuisance that we could be evacuated at any moment, that we could be moved to a shelter, this was a trauma I lived through, although one I was used to, I am now distanced from the danger and that is good.[8]

One of the consequences derived from the resettlement was the differences between the relocated and the resistant, a situation that distanced and broke up family relations. Forced displacement dissolved and dispersed the social ties of the town. However, some villagers consider that the land distribution of the ejido which was configured during the 1960–1970 decade, was not equal nor fair for all, and, as a result, the social fragmentation of the community initiated since that time. Living in small homes unsuitable for large families also caused difficulties in people's daily lives. Ma. De la Luz Mejía, daughter in law of Eusebio Cuellar who was the comisario ejidal (the highest political authority elected by the community) of La Yerbabuena, commented:

> The problem has been around a long time, since they distributed the land. Don Eusebio Cuellar was commissioner at the time, and he moved because the land was being divided, however they gave him a bit more for having fought for everyone, and for this his brother Don Leandro is jealous and it has turned into a rivalry.[9]

(c) The representation of volcanic risk

The scientific community and the government authorities still consider La Yerbabuena as an area of high volcanic risk (Cuevas and Seefoó 2005; Gavilanes-Ruiz et al. 2009; Cuevas and Gavilanes 2013). This perception differs between professionals and the people; therefore, highlighting that risk is not recognized the same way by all involved. It is a social hierarchy where some participants based their opinions on their scientific and technical

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[5]Interview with (5JM-Eh56/04-04). Cofradía de Suchitlán, Colima.

[6]Interview with (10GC-Ah32/04-04). Cofradía de Suchitlán, Colima.

[7]Interview with (10GC-Ah32/04-04). Cofradía de Suchitlán, Colima.

[8]Interview with (5JM-Eh56/04-04). Cofradía de Suchitlán, Colima.

[9]Interview with (6MdLM-Am29/04-04). Cofradía de Suchitlán, Colima.

knowledge, and others on their experience and their conviviality with the medium.

Relocated families view the volcanic risk from two sides. The first is that the volcano is dangerous for their physical integrity. Others feel that daily coexistence with volcanic activity forms part of their daily lives and geographic location. That is, living on the slopes of the Colima volcano is an everyday experience and not considered dangerous. Jesús Montejano, having lived in the locality for 34 years with no collective memory[10] (Halbwachs 1950; cited in Mendoza 2001) of a volcanic eruption having affected them, says the volcanic risk is not a lived experience for relocated families:

> Look, for me personally it is not dangerous because I have not yet had to experience a large eruption. For all those who say it does nothing we can go 70 years back: the only woman to live there (he refers to La Yerbabuena) has told us she did not live in La Yerbabuena at the time (…) but like I said, one says it does nothing because you've lived here a long time and nothing has happened, but 60 or 70 years is not a long time[11]

(2) Significance of relocation in resistant families

This section consists of three parts: (a) significance related to relocation; (b) representation of daily life in the resistant and (c) the representation of the volcanic risk and the volcano.

(a) Significance related to relocation

From 2001 when Colima Housing (IVECOL) presented the relocation project to the people of La Yerbabuena many people showed reluctance to relocate, as for them it was only a pretext to deprive them of their properties and a violation of their human rights. Relocation caused disunity between relocated and resistant families, and an interruption of daily activities such as deprivation to educational services. Antonio Alonso, moral leader of the resistant, states:

> The reason we have been given the volcano is so we can lose (refers to the resistant families) our lives for it, we would be honored to give our lives for this (…) not because someone doesn't impose. We have already stated this publically, we have disclaimed to the government and institutions that are near the volcano, because the right to education is not given and there are 12 children here in the community (…) but we will continue to resist for a few more years.[12]

The displacement caused a shortage of basic products for the resistant families. Shops disappeared and they had to travel to La Becerrera or Comala to buy basic foods. Despite all the drawbacks, none of them are willing to relocate as they argue they had not been requested to do so. The only official petition was realized by the ex-president in 1998 to whom they asked for land to build a house to suit their own needs to inhabit it only during times of volcanic crises without the need for shelters. Antonio Alonso remembers:

> For us the decision we made from the beginning was to stay and that it will be respected. At no point did any of us ask to be relocated. We were also asked at the shelter when the President came to visit; he had very clearly stated that he could provide some ground for everyone to build a home, whether it be made of cardboard or a proper home—everybody needs a home.[13]

The relocation fractured personal relations between people as well as family ties and pre-established social networks. According to the resistant families, the government intended on building a tourist facility in place of the settlement, as stated by Don Eusebio Cuellar:

> The tourist area will be made as it seems one of the Leaño Family wants to by a Cristero Camp (…) and they told me they wanted to build a church and

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[10]The theoretical antecedents of collective memory can be found in the works of the Frenchman Durkheim, the British Federico Bartlett, the Russian Lev S. Vygotsky and the American George Herbert Mead. However, the concept can be attributed to the French sociologist Maurice Halbwachs. According to this author, collective memory "is the social process of the reconstruction of the past, lived and experienced by a particular group, community, or society" (Mendoza 2001, p. 67).

[11]Interview with (5JM-Eh56/04-04). Cofradía de Suchitlán, Colima.

[12]Interview with (1AA-Ah48/04-04). La Yerbabuena, Colima.

[13]Interview with (1AA-Ah48/04-04). La Yerbabuena, Colima.

cabanas, and so it will be converted into a tourist area.[14]

(b) *Representation of daily life in the resistant group*

There were notable registered changes in the daily lives of the resistant families. The local government suspended various public services, such as public lighting, from the start of the relocation. Later on the scholarship support program for students (Progresa) disappeared; and soon after then closed the school and cancelled all government help programs in the community. Antonio Alonso retells the story:

> From the start the government were attacking us; they took away Progresa (…) they attacked as if we were no longer there (…).[15]

As time passed, the authorities of state were pressuring the resistant group by threatening to demolish their houses by order of the government.[16] Subsequently, they made use of their networks and social capital contacting the Civil Committee of the Zapatista Front of National Liberation (CCFZLN) who support the resistant, as noted by Antonio Alonso:

> Don Rafael, a fellow from here, already had contact with them (refers to the C. C. F. Z. L. N.), that is how we joined forces. Therefore, they said we have to work together, we have to be self-sufficient, we have to find a way to resist, and that is how we came into contact with them.

Gratitude and loyalty for the Zapatista prevailed within the resistant families. With their intervention, they adopted adaptive survival strategies. For example, some farmers did both farm work and hand crafts (dream catchers, bracelets, necklaces, volcanic rock engravings, and papermaking with banana fibers). They

argued that one of the strategies for resisting was knowing the Mexican Constitution to defend themselves against violations of their human rights, as told by Alicia Mejía:

> We rely on the law that is in accordance with the law under the articles, they are supposed to be respected as they are articles of the law and we rely on them to defend ourselves.[17]

The participation of the Zapatista Front was one important factor that contributed to the fracture of the social links between the resistant families, as well as with the displaced families. Some internal disagreements were the result of land conflicts that originated from the foundation of the ejido, others were a consequence of the relocation.

The band "Nativo" joined after the intervention of the Zapatista Front and participated in the first homage to the volcano. At this event, it was proposed to build a temazcal[18] with the objective of obtaining economic resources to cover the costs of the resistant, a proposal that was accepted and consolidated just a few months later. A temazcal was built in one of the houses. The lucky family felt honored but the other families considered that they were victim of some kind of exclusion, which contributed to cause fractures in the social relations.

(c) *The representation of the volcanic risk and the volcano*

For the resistant families, there was no representation of the volcanic risk. Many years of living their daily lives on the slopes of the colossus have allowed them to identify when it going to be dangerous. However, they also denied the

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[14]Interview with (7EC-H68/04-04). La Yerbabuena, Colima.

[15]Interview with (1AA-Ah48/04-04). La Yerbabuena, Coima.

[16]In the radio show of the former governor Fernando Moreno Peña, "Un Nuevo Colima", he declared the following: "Neither I nor my hand will hesitate to make a decision of that nature"; referring to the displacement of inhabitants.

[17]Interview with (11AM-Am32/04-04). La Yerbabuena, Colima.

[18]Temazcal comes from the Nahuatl language, meaning 'steam house' (Temaz—steam, calli—house). A temazcal is a prehispanic bath that is found throughout Mesoamerican cultures, whose oldest remains are found in archaeological sites in Palenque, México and in Piedras Negras, Guatemala. Historically, temazcals have been used for therapeutical, medicinal, and ceremonial uses; its practice survives in the present day thanks to the oral traditions of diverse indigenous communities in Mexico.

possibility of a major eruption affecting their lives, goods, and property. Although, they relate these events to divine powers, as stated by Maximino Ramírez: "If God wants us to die from the volcano, then we will die happy".

With the help of CCFZLN, the residents organized the first Spring Equinox festival *"Atlacohualco"*, where the environmentalist organization *Bios-Iguana, A. C.* made their first intervention in the area. From this, the organization joined the resistant movement. Many residents showed an interest in ecology, as demonstrated by Maximino Ramírez:

> So we have confidence that nature is something that can deprive us of life (…). For me it would be very honorable to die due to nature, because I come from nature and there I shall go back, how beautiful it will be, to appreciate that.[19]

The relocation brought about a redefinition of the volcano amongst the resistant. From being a mountain that spews smoke, to being called the "guardian". Some inhabitants claim to have had visions of the volcano and they are sure that the colossus sends signals to "the chosen ones", as they call themselves. It is possible that residents of other volcanic regions such as Popocatépetl and Iztaccíhuatl, respectively called Don Gregorio and Doña Manuela, inspire these visions and forms of redefinition of the volcano. For these residents, the volcanoes are like people who occasionally wander through the village, but their presence, now with the risk of a volcanic eruption, is explained differently from their previous wanderings. Julio Glockner (1996) has called some inhabitants of these communities "tiemperos", "graniceros",[20] or "time workers", who have been sometimes paid by their neighbors to keep the hail stroms (bad for agriculture) away and attract rain.

In the words of Hobsbawn (1983) the visions experienced by the resistant are an "invented tradition" because they are constructed, formally introduced, and emerge during a short time period. These "invented traditions" are a set of practices normally governed and tacitly accepted as a ritual or something of symbolic nature, which seek to instill values and behavioral norms that imply continuity with the past. One of the principle characteristics is to remain linked in a convenient form to the past—not necessarily the remote past—in which one intends to establish continuity.

For the resistant, the volcano is a being one should respect and learn to live with, because thanks to it, there is life in the location and they can subsist on what Mother Nature has endowed on them.

5   In Conclusion

From the start of the resettlement process the social representation constructed in La Yerbabuena was based on volcanic risk resulting from the processes of interactive significance that the inhabitants of the community developed with other social actors and the interaction amongst themselves. In this significant process, shared values and traditions that form a way of life and history have unified individuals in a cultural belongings and built forms of meaning and explanation from the most mundane and most extraordinary events.

According to the testimonies of the people, we can say that social representation is born from the mental images that both the relocated and the resistant constructed with the information they received of the sociocultural reality common to all members. Social representation represents the organizational forms of symbolic space in which a person develops. The reality appears through social representation and discourses that form the social fabric through which actors related in a particular social space, configure the subjective sense of the spheres of their lives and significance attributed to them and their relationships with others.

Knowledge of how social representation is constructed/built by residents helps link the

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[19]Interview with (9MR-Ah58/04-04). La Yerbabuena, Colima.

[20]Graniceros and tiemperos are people that have been struck by lightning and survived. The amount of energy that struck them opened energy points within their bodies, which gives people the ability to talk to animals, people, and the Popocatepetl (Anaya 2001).

process of human resettlement and volcanic risk to understand how communities will respond, act, and implement adaptive or resistant strategies at individual, familial, and communal levels during a volcanic emergency. However, despite these representations, volcanic risk managers in the state have implemented mechanisms of information and hierarchical communication for many years while omitting the knowledge and meaning built by the residents; while authorities and scientists implement prevention and mitigation mechanisms based on largely technical and scientific knowledge only.

Undertaking studies on risks and social representations allows us to recognize the ways and processes through which people form and construct their own social reality and bring us closer to the "worldview" they have. The approach to social representations makes it possible to understand the dynamics of social interactions, and to clarify the determinant factors of social practices since representation, discourse, and practice are mutually generated (Abric 1994).

Finally, the lessons learned from this work are that the knowledge of social representations that the social actors constructed regarding volcanic risk and human relocation helped to understand how they will respond, act, and implement strategies, at individual, familiar and collective levels in situations of risk and/or disaster. It is urgent that all social actors involved in risk management have an understanding of the culture, risk perception, and forms of social representation of the volcanic risk of the inhabitants of the communities settled in zones of high risk in order to design plans suitable for prevention and where the population can have an active participation. These measures will improve risk management while strengthening multidisciplinary research.

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