

## A Community Participatory Approach for Disaster Prevention in the Municipality of Tlatlauquitepec, Sierra Norte de Puebla, Mexico

**Location:** Municipality of Tlatlauquitepec, Sierra Norte de Puebla, Mexico

**Date:** 2007

**Sector focus:** Landslide hazard, risk communication

**Spatial focus:** Community

### Bibliographical reference

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Marlene López-Mendoza, 'Cultural vulnerability, risk perception and communication: towards a community participatory approach for disaster prevention in the Municipality of Tlatlauquitepec, Sierra Norte de Puebla', Mexico, Research Report, ProVention/ World Bank Young Researchers Grant Program, 2007.

### Abstract

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This project involved cultural vulnerability analysis and risk perception in an isolated indigenous community in the Municipality of Tlatlauquitepec prone to landslide hazard.

The purpose was to contribute to communication during the prevention phase of disaster situations. Due to the cultural characteristics of the community, education and communication were considered key elements in the research. The team analyzed landslide risk, common in the area, through different techniques: analysis of satellite images, which allowed for building a landslide inventory and a vulnerability analysis; observation and mapping of landslide areas and landslide processes, analysis of landscape elements, community workshops, and analysis of existing data, statistical and other, regarding the population of the area and the community.

Through these activities, the project was able to advance community education on landslide risk, mapping hazards and vulnerabilities, and to contribute to communication and early warning regarding landslides through the production of local radio warnings for floods and landslides in local indigenous widespread languages of Náhuatl and Totonaca.

The necessity of incorporating cultural diversity in vulnerability and risk analysis is demonstrated in this project and can be helpful in other communities that confront diverse cultures within their territories

## Technical description

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**Hazard/risk type:** Landslide, flood

**Type of assessment:** Assessment of general landscape elements through geological maps, geomorphological maps and maps of localities/communities. Analysis of satellite images of the municipality where landslide areas were identified allowed a landslide inventory to be created. There was a vulnerability analysis of communities which was done through the use of existing demographic data, contrasted with observations of the communities through field work and discussion with the inhabitants.

## CRA process

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**Methods used:** Study of existing maps, geological, geomorphological, political and satellite imaging. Community workshops to explain project and to involve the community in further information gathering activities such as mapping of landslide hazard areas and also to review booklets and audio warnings created by the project.

**Was livelihood analysis used?** No.

**Was external specialist knowledge introduced?** Yes, satellite imaging and the use of specialized maps. The production of the audio warnings for local radio for flood and landslides also required specialist knowledge.

## Vulnerability analysis

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Cultural vulnerability was the main focus of the analysis and related to communication difficulties due to the diversity in spoken languages in the community: Náhuatl and Totonaco, as well as Spanish. Economic and social vulnerability seemed to have been analyzed through census information but not directly observed at the household or community level. Landslide mapping contributed to the physical vulnerability analysis.

## Capacity analysis

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**Resources available:** *Financial resources* were available through the project. *Other resources:* student research team and team leader and community participation. There was more participation from community women than men, possibly because the principle investigator was a woman.

**Limitations to capacity:** Support from the local municipal authorities was not available. Changes in personnel due to political interests destroyed the possibility of continuity and sustainability of efforts. Efforts that had been made during a previous municipal government's tenure and agreements with those authorities were lost, along with information, due to changes in municipal personnel. Specifically in this case, the Head of the Civil Protection Unit was changed. The new authority had no previous experience in the area, his having pursued the professor of baker up until his assignment. This made it impossible to acquire important information for the project regarding the municipality.

## Action planning and implementation

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**What actions were actually planned?** Production of booklets in the local languages of Totonaco and Náhuatl on landslide warning.

**What actions were actually carried out?** After visits to the community and the community workshops it was decided to convert the landslide warning booklets into audio warnings for local

radio because the research revealed that most of the community lacked reading skills. Thus the project needed the flexibility to modify its goals in view of the realities of the situation.

**Have these actions turned out to be sustainable?** Ongoing research within the student team and its coordinator guarantees to the team that actions will be sustainable since they plan to continue working in this area.

**Were there any unanticipated additional benefits of the actions?** The participation of more women in the workshops could be considered an additional benefit. Knowing how women play such an important role in early warning and prevention, and the role they play in community communication, the fact that many women participated will probably be a multiplication factor and a sustainability factor for the project.

**Were there any unanticipated negative consequences of the actions?** No.

**Limitations on action/sustainability of actions:** The aforementioned changes in the local Head of the Civil Protection Unit limited access to information.

**Indicators** There are no explicit indicators for the success of this project included in the case study; however, measure of awareness and safety practice as regards landslides before and after the broadcasting of the audio messages could constitute a measurable indicator.

## Contextual notes

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### Existence/role of prior or contemporaneous conflict?

Puebla, like other parts of Mexico, has seen struggles and conflicts over land for a very long time. For example, between 1861-1894, there was a protracted indigenous peasant rebellion against the Spanish land lords in the mountains of Puebla.<sup>1</sup> Tension over land and ethnic identity is deep seated and continues to this day. James T. Taggart summarizes the situation: "Spanish-speaking Mexicans have taken the bulk of the land, with help from the Colonization laws of 1883 and 1894, which forced the Sierra Nahuat, who held land corporately, to adopt fee-simple tenure (ownership with unrestricted rights to dispose of the land) and register their land in the district capitals. Many could not prove ownership and lost their land in public sales or pawned it to Spanish-speaking merchants. Some regained less productive land as *ejidos* during the Agrarian Land Reform of the 1930s and 1940s, but changes made in Mexican law in 1992 create the possibility of converting ejidos into private property."<sup>2</sup>

### Role of displacement/relocation?

The isolated indigenous population who where the participants in this study have not yet been drawn in large numbers into the major rural-urban migration streams destined for relatively nearby Mexico City and the U.S./ Mexican border industries and beyond. Yet many young women from the State of Puebla do migrate to the *maquila* industries on the border, and economic pressures and conflicts over land could eventually have this effect.

**Role of prior disaster & prior recovery attempts?** The isolation and poverty of the indigenous rural communities makes access to development resources of all kinds very difficult. This includes disaster information, prevention and emergency relief and reconstruction activities. Disaster situations, in this case flooding and landslides, worsen poverty and makes recovery a very long process. Resources and help during disaster situations do not arrive in these isolated communities, and do not reach victims but seem to be diverted to other uses tied to political interests.

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<sup>1</sup> Guy P. C. Thomson (1991) Agrarian Conflict in the Municipality of Cuetzalan (Sierra de Puebla): The Rise and Fall of "Pala" Agustin Dieguillo, 1861-1894, *The Hispanic American Historical Review* 71,2, pp. 205-258.

<sup>2</sup> James G. Taggart (2008) Nahuat of the Sierra de Puebla <http://www.everyculture.com/Middle-America-Caribbean/Nahuat-of-the-Sierra-de-Puebla-History-and-Cultural-Relations.html> , accessed 29 October 2008.

**Significant historical, geographic, economic, political, or cultural issues that influenced this instance of CRA and its consequences?** Indigenous communities are isolated and very poor. There is a cultural diversity which emphasizes this isolation causing cultural vulnerability. These communities speak traditional languages such as Náhuatl and Totonaco, and the possibility of effective communication with regional governments and other instances is difficult. The communities have low educational levels and survive on a day to day basis.

## **Strategic notes**

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**How has this practice of CRA influenced change in policy and practice at the national level?** No.

**How has this practice of CRA influenced change in policy and practice at local level?** There is no report of a change in practice although perhaps we can assume that the project had an impact on the information level of the indigenous community in disaster prevention risk perception and the radio warnings would improve communication and early warning.

**How has this practice of CRA influenced the level of organization and solidarity in the locality where it was carried out?** No information available.

**Less divided along class, gender, age, ethnic lines?** It seems that more women participated in the community process in the project than men.

**More divided along these lines?** No.

**Are the people living in this area more able to speak out on issues that concern them?** No information available, but the linguistic and cultural differences between these indigenous groups and the senior representatives of national government persist.

**Have new civil society organizations been created directly or indirectly because of this practice of CRA?** No information available.

## **Lessons learned**

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- The lived reality of people can differ greatly from existing data on these communities and their populations.
- The specific characteristics of populations in culturally diverse communities need to be verified through field work, and this should be a first planning phase step. This would have allowed for the research team to plan ahead regarding the lack of reading skills of the population involved in the project.
- Local governments also have specific characteristics, strengths and limitations that need to be made clear and this can also be more effectively done with field visits.
- The fact that more women participated in the workshop process can show us that the project could have included a gender perspective from the start.
- Other lessons refer to the research team itself and the leadership capacities that were developed during the research process among the participating students

## **Keywords**

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Cultural vulnerability, cultural diversity, isolation, language, indigenous communities, prevention communication and education, radio warnings, risk perception, landslide hazard.

## Resource Persons

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Team leader and contact: Marlene López-Mendoza, [geolopez98@yahoo.com.mx](mailto:geolopez98@yahoo.com.mx)

Team members: Roberto Carlos Borja-Baeza, Ricardo Javier Garnica-Peña, Omar Esteban Chávez

Mentor: Dr. Irasema Alcántara-Ayala

**Editorial assistance in creating guidance note:** Dr. Lourdes Meyreles, FLACSO, Santo Domingo, Dominican Republic; David Wrathall, Department of Geography, King's College, London, UK.