

# On the role of cultural heritage in people's behaviour in the face of natural hazards: Some insights from Bacolor, Pampanga

## Background for the study

The way people behave in facing natural hazards may be approached from two different viewpoints. The so-called "dominant" paradigm considers that people's ability to face natural hazards largely depends on their perception of the risk. An individual or a society with a low risk perception is likely to adjust poorly to the threat. On the other hand, people with a high risk perception are likely to behave in a positive way in the face of Nature's threats (Burton et al., 1978). This approach emphasizes the rare and extreme dimension of natural hazards.

The dominant paradigm has however been challenged by the proponents of a radical viewpoint. Drawing on cases from the developing world, scholars such as Hewitt (1983) and Wisner et al. (2004) argue that people's behavior in the face of natural hazards is constrained by social, economic and political forces. Political neglect, social marginalization and limited access to resources compel helpless people to live in hazard-prone areas without appropriate physical and social protection. This perspective emphasizes people's vulnerability to disasters or their propensity to suffer from damage should natural hazards occur (Cannon, 1994). Natural hazards are then viewed as highlighter or amplifier of daily hardship and quotidian emergency.

The literature has yet paid little attention to cultural constraints to people's behaviour in the face of natural hazards. Cultural heritage has largely been considered in the context of post-disaster recovery or from the viewpoint of structural vulnerability, especially in facing earthquake hazard (e.g. Jigyasu, 2000). The present paper is an attempt at filling this gap. It addresses the role of cultural heritage in constraining the behaviour of the people of Bacolor in the face of the 1991 eruption and subsequent lahars.

The following discussion relies on field work conducted in Bacolor between December 1997 and July 2001. It includes a questionnaire-based survey among 32 people, some interviews with key informants from the civil society and disaster management sectors. Field work was completed with the collection of secondary written documents. More information on the methodology are available from Gaillard (2008).

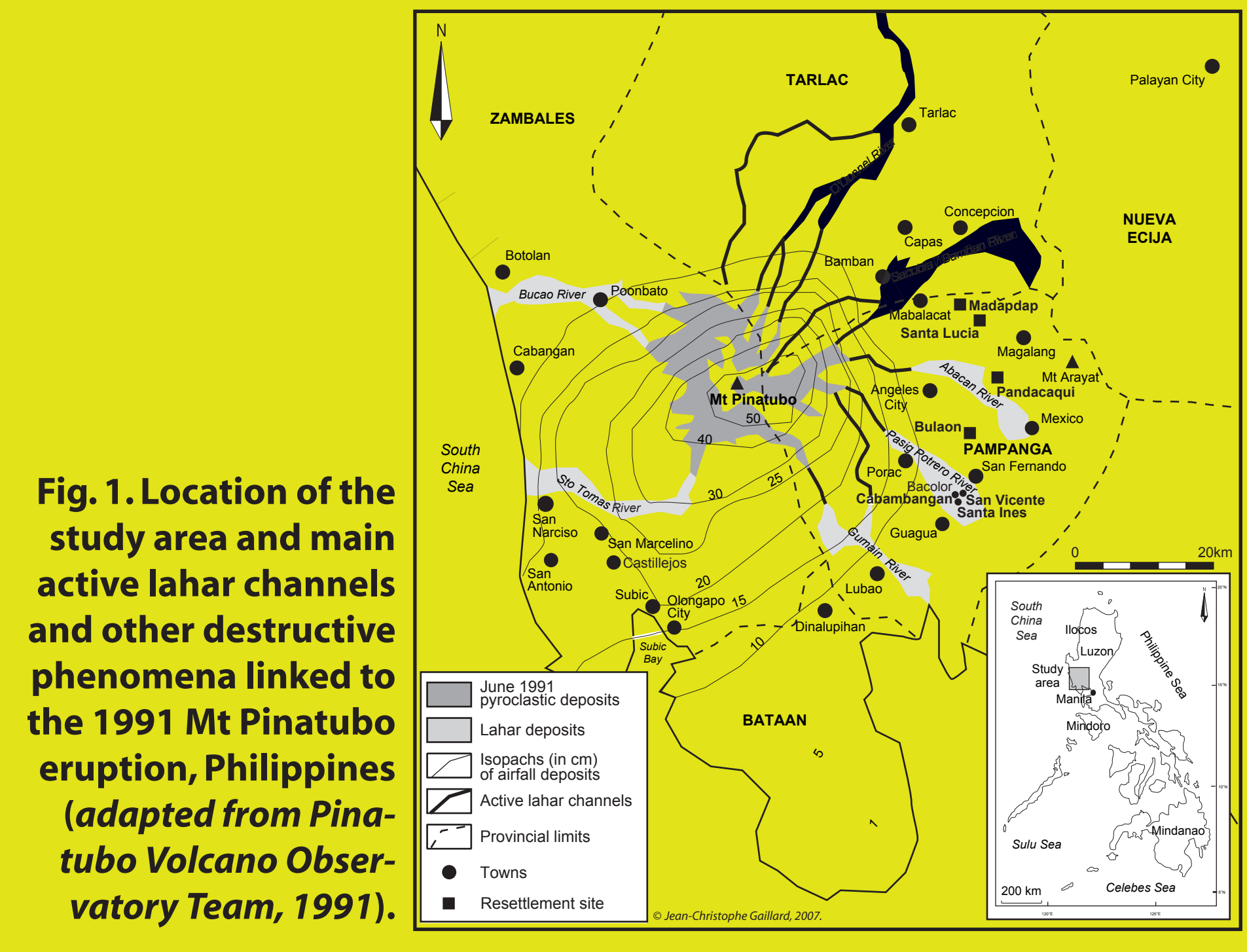


Fig. 1. Location of the study area and main active lahar channels and other destructive phenomena linked to the 1991 Mt Pinatubo eruption, Philippines (adapted from Pinatubo Volcano Observatory Team, 1991).

## Bacolor and the 1991 Mt Pinatubo eruption



Fig. 2. The town of Bacolor buried by successive lahar onslaughts in late 1995 (Y. Arthus-Bertrand)

Mount Pinatubo volcano is located on the main island of Luzon (Fig. 1). In June 1991, it violently awoke after five centuries of quiescence in what is considered to be the second most powerful volcanic eruption of the 20th century. Since then, destructive lahars (volcanic debris flows), triggered by typhoon-associated downpours, tropical monsoon rains and lake break outs, have flowed down the flanks and foothills of the volcano.

The municipality of Bacolor is located in the province of Pampanga, on the southeast side of Mt Pinatubo, along the Pasig-Potrero river (Fig. 1). Between 1991 and 1997, the town was progressively buried under almost ten meters of lahar deposits (Fig. 2). In October 1995, a single event killed more than 100 people in the village of Cabalantian in what remained the worst Mt Pinatubo lahar tragedy.

The Cabalantian tragedy reflects the failure of the initial diking program set up to control Pasig-Potrero lahars. Yet, it did not discourage the authorities from engaging, in 1996, in a massive and controversial 50-million US dollar project called "Megadike" (Fig. 3). The construction of the Megadike led to the transformation of the town of Bacolor into a catch basin for the Pasig-Potrero lahars. In parallel, most of the victims from Bacolor were relocated in four resettlement centers in the neighboring municipalities of San Fernando, Mabalacat, Mexico and Magalang (Fig. 1).

## People's behaviour in the face of lingering lahars

The survey conducted in Bacolor shows that people's perception of risk was high. 84% of those surveyed in Bacolor had a high to very high perception of the risks from lahars and a possible eruption of Mt. Pinatubo. These interviewees felt that their homes could be affected by further events (eruption and lahars) or at least lahars. Furthermore, more than 90% of the surveyed population predicted that the lahars would return in the following rainy season.



Fig. 3. Houses raised on concrete posts in Cabambangan, Bacolor, in December 1997 (JC Gaillard)

Despite the high level of threat they face, their realistic perception of this and their belief that lahars would return during the next rainy seasons (Gaillard, 2008), the people of Bacolor chose to remain in their village and face the lahar threat. Others chose, on mass, to come back from relocation centers despite the fact that they felt the lingering lahar threat as well. In 1990, the population of the Bacolor town proper reached 16,143 people. In 1997, an informal census conducted by American sociologist K. Crittenden counted 1,755 people. Eventually, the 2000 census of the Philippines recorded 3,817 people in the same area. In facing the threat of lahars, the people of Bacolor displayed a wide range of adjustments of a technical and non technical nature (see also Crittenden, 2001). The most frequent technical adjustment was to raise houses onto concrete posts (Fig. 3). Such precautions had already withstood several rainy seasons and appear to be a safe form of protection from lahars in contrast to sandbags, widely used in some areas.

**What pushed people to stay on the banks of the Pasig-Potrero river despite evident seasonal danger and compelled them to develop unique strategies to protect themselves from the threat of lahar, is clear when one studies the struggle for access to resources, poverty, political strategies (all discussed in Gaillard, 2008) and cultural heritage inherent in the daily routines of life.**

## Cultural heritage and people's behaviour in facing lahars

The people of Bacolor had a very strong cultural attachment to their native town. They associated the town of Bacolor with a rich history and cultural heritage. From 1706 to 1904, Bacolor was the provincial capital of Pampanga under the Spanish government. It had even been elevated to the rank of national capital of the Spanish government during the two years of British occupation of Manila from 1762 to 1764 (Larkin, 1993). The inhabitants of Bacolor took pride in their famous ancestors who were involved, at the end of the 19th century, in the emergence of a very influential local culture.

### The statues



The presence of many statues in the memory of the local artists helped define the cultural identity of Bacolor, symbolically called the "Athens of Pampanga". These monuments evoke the history or the myth of a community.

With the eruption of Mt Pinatubo and the progressive burial of the town, the statuary became the tangible signs of the link between the community and place, in contrast to public buildings, whose architecture was similar to that of the whole country.

The statues were probably the last visible signs of the past of Bacolor, whose remembrance is being maintained through their exhumation (Fig. 4 and 5).



Fig. 4. Statue of J.C. Soto (A) in front of the Bacolor market (B) in 1990 (anonymous).



Fig. 5. Statue of J.C. Soto exhumed in front of the Bacolor market in November 1999 (L. Desbiez).

### The church

The San Guillermo parish church is particularly interesting. Given its history and remarkable architecture, the church was, until the awakening of Mt Pinatubo, more a symbol representing Bacolor to the inhabitants of the neighboring municipalities (Fig. 6).

With the crisis and the ceremonial practices that took place in at that time, it acquired a stronger meaning beyond its architectural and religious value. A female interviewee reflected this in the following quote: "I do not believe in God and I never went to Church before Mt Pinatubo erupted but now I regularly attend the Sunday mass just to meet my former village mates". The church had become the symbol of the resistance of the inhabitants to the damages brought by the lahars. It hence allows the people of Bacolor, scattered in many resettlement places, to meet once a week and maintain a collective existence.

Fig. 6. The San Guillermo Church between 1990 and 2000; a: 1990 (anonymous); b: 1994 (R. Sicat); c: 1995 (R. Sicat); d: end of 1995 (anonymous); e: tent in the front of the church at the end of 1995 (anonymous); f: 2000 (JC Gaillard).



The statues and the church represent a symbolic anchoring point for people the Bacolor within their historical lands.

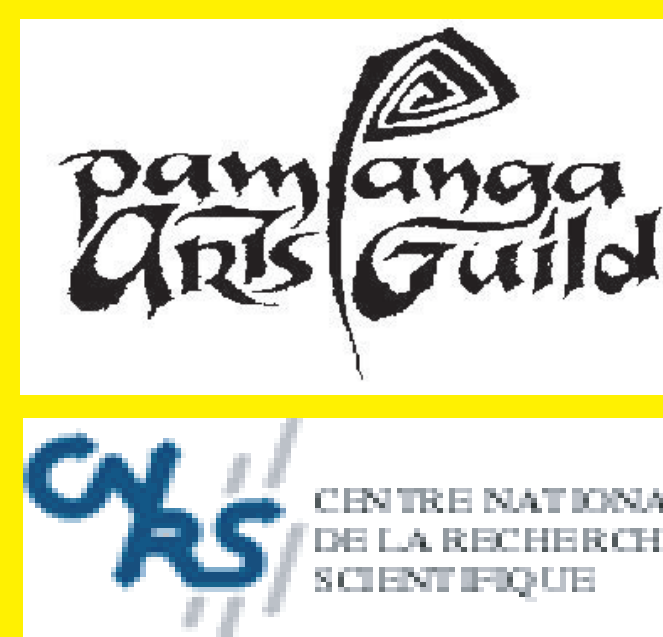
## References

Cannon, T., 1994. Vulnerability analysis and the explanation of 'natural' disasters. In: Varley, A. (Ed.), *Disasters, Development and Environment*. J. Wiley & Sons, Chichester, pp. 13-30.  
Crittenden, K.S., 2001. Can this town survive? Case study of a buried Philippine town. *Natural Hazards Review* 2 (2), 72-79.  
Gaillard, J.-C., 2008. Alternative paradigms of volcanic risk perception: the case of Mt Pinatubo in the Philippines. *Journal of Volcanology and Geothermal Research* 172 (3-4), 315-328.  
Hewitt, K., 1983. The idea of calamity in a technocratic age. In: Hewitt, K. (Ed.), *Interpretation of Calamities*. The risks and hazards series No. 1, Allen & Unwin Inc, Boston, pp. 3-32.  
Larkin, J.L., 1993. *The Pampangans: Colonial Society in a Philippine Province*. New Day Publishers, Quezon City.  
Maskrey, A., 1989. *Disaster Mitigation: A Community Based Approach*. Development Guidelines No. 3, Oxfam, Oxford.  
Pinatubo Volcano Observatory Team, 1991. Lessons from a major eruption: Mt Pinatubo - Philippines. *EOS, Transactions, American Geophysical Union* 72 (49), 545, 552-553, 555.  
Wisner, B., Blaikie, P., Cannon, T., Davis, I., 2004. *At risk: natural hazards, people's vulnerability, and disasters*. 2nd ed., Routledge, London.

## Conclusions

The present study emphasizes the importance of cultural heritage preservation in defining people's behaviour in the face of natural hazards. In the case of Bacolor, the threat to an individual's identity through a loss of cultural heritage combined with everyday poverty weighed heavier than the seasonal volcanic hazard. Perception of risk related to poverty and the loss of cultural heritage was actually higher than perception of risk linked to volcanic hazards. In other words, risk perception of returning despite lahar threat was lower than the risk perception of not returning because of menace to livelihoods and cultural heritage.

A full understanding of the weight and impact of such cultural constraints is critical to effective disaster risk reduction. Overlooking them may lead people to distrust official risk reduction policies as evident in the partial disdain for the resettlement program felt by the people of Bacolor. To avoid such misunderstanding between decision makers and people living in hazard-prone areas, it is crucial to involve affected communities in both the evaluation of their needs and in the ways to sustain them through Community-Based Disaster Risk Reduction (CBDRR) programs coupled with development objectives (e.g. Maskrey, 1989). CBDRR empowers communities with self-developed and culturally acceptable ways of facing natural hazards.



JC Gaillard  
University of the Philippines Diliman /  
University of Grenoble, France  
Michael Raymon M. Pangilinan  
Pampanga Arts Guild