

SECTION C – Lessons Learned for Recovery and Development Planning

16 BUILDING BRIDGES TO REDUCE RISK: THE CAQUETA RAVINE,  
LIMA, PERU

David Sanderson

Oxford Centre for Disaster Studies (OCDS)  
PO Box 137, Oxford, OX4 1UE, ENGLAND  
E mail: 100612.1153@compuserve.com

ABSTRACT

*This paper results from a recently completed project "Reducing Risk In Vulnerable Communities, Lima, Peru. Phase One: Caqueta Pilot Project". The project comprised two components: a two week risk evaluation and a three day Workshop "Caqueta, Lugar Para Vivir Sin Riesgos - Caqueta, Place To Live Without Risk". The project was a joint collaboration between the Oxford Centre for Disaster Studies (OCDS) and the Peruvian NGO Instituto Para la Democracia Local (IPADEL). It was funded by the European Commission Humanitarian Office (ECHO 3). The principle aim of the project was to develop sustainable, appropriate and realistic risk reduction measures for Caqueta, a particularly low income area of Lima, Peru, vulnerable to landslide, earthquake and fire. The key idea was to involve the participation of all stakeholders: local community, non-governmental organisations (NGOs), municipality and governmental organisations in the identification and subsequent development of sustainable risk reduction measures. Those initiatives requiring funding has since been forwarded to funders, including ECHO 3, for funding as Phase Two of the project.*

*This paper outlines the projects rationale, methodology and activities up to the end of Phase One. Key hazards for Lima are summarised; research findings are presented for one of the three typologies covered in the project: squatter housing along the ravine area, a particularly dramatic area of Caqueta where dwellings are vulnerable to ravine edge erosion, exacerbated by the threat of regular landslide and fire. The paper concludes with summaries of two of the follow on initiatives related to the ravine, and five statements relating to increasing capacity and reducing vulnerability for mitigating risk.*

*The paper seeks to reinforce the key point of the project: that adherence to "top down" interventions can ignore community level initiatives and, crucially, other actors. Furthermore that successful, sustainable improvements require community participation. The title of the paper, "building bridges to reduce risk", refers therefore to the need to strengthen links between actors; it also refers to an initiative resulting from the project, that is now underway, for improving the precarious pedestrianised bridges that cross the ravine.*

INTRODUCTION

The project "Reducing Risk In Vulnerable Communities, Lima, Peru. Phase One: Caqueta Pilot Project" grew from a workshop *Rebuilding Communities in Lima* held in January 1995. The workshop was

organised by Lima's Engineering University in conjunction with Oxford Brookes University, UK and Massachusetts Institute of Technology, USA. The workshop was aimed at identifying realistic and affordable community development interventions in

Lima's Caqueta district. During the workshop two key points became apparent:

1. That primary community problems could be viewed in terms of vulnerability, in particular to the threat of natural hazards. Furthermore that vulnerability to natural hazards was linked to, and increased greatly by social, economic and political issues.
2. A fundamental problem of the lack of contact, and ensuing mistrust, between key actors: local community, the local municipalities, the national governmental disasters authority Defensa Civil, and to a lesser extent NGOs. This lack of good linkages between key groups was seen to be a major hindrance to sustained risk reduction.

These two points became the foundation for this initiative. The resulting project comprised two components, a risk evaluation of Caqueta's commercial and residential areas, and the Workshop "Caqueta, Lugar Para Vivir Sin Riesgos" (Caqueta, Place To Live Without Risk). The risk evaluation focused on information gathering for hazard and vulnerability identification from communities, research organisations and government authorities. In addition meetings were held with institutions and individuals to ensure their participation at the forthcoming workshop. As well as undertaking participatory rapid appraisal (PRA) and desk top research, physical mapping of Caqueta using satellite imagery and observation was undertaken by IPADEL and the use of GIS software, and initial information gathering on organisational structures. The findings produced information regarding building height, age, materials used and the likelihood of collapse in the event of an earthquake. At the end of the two weeks findings were presented to invited guests for review and feedback at the offices of Intermediate Technology in Lima. Guests attending included those from Municipalities, Defensa Civil, NGOs and academics.

The findings from the risk evaluation, and crucially the relationships built up between key actors, formed the basis for the three day workshop held three months after the evaluation. At the workshop working groups comprised of members of each of the stakeholder groups identified key vulnerabilities and capacities, and possible initiatives aimed at reducing risk of natural disaster (notably landslide, fire and earthquake). Over thirty representatives attended the workshop, drawn from the local municipalities, traders and residents associations, local NGOs, the fire services, and international NGOs. The workshop comprised the presentation of key problems and the development of realistic, affordable initiatives in working groups (Fig 1). By the end of the workshop seven initiatives were developed for risk

reduction in Caqueta. These included training for fire awareness, ravine improvement through lobbying and information interchange, NGO awareness raising of disaster management, community level environmental improvement and bridge upgrading in the ravine area.

## METHODOLOGY

Underpinning the project was the adherence to action planning, or action-oriented research. Action planning states that rapidly gathered information, that may be incomplete and may lack refinement, can, if accurate, be used in the formulation of immediate projects where results can be seen. Such projects may be small or large scale, or may lead onto larger initiatives; but the point is that the research stage is the short period of a project and is oriented towards what is possible; it is the implementation that is the key part of action planning. Action planning appears as a response to the many large scale initiative methodologies for grand projects which have demanded intense detail and seemingly infinite amounts of technical and social data before action can begin: many such projects have failed when the budget, political and individual interest is exhausted in the research stage alone.

The situation in Caqueta is a good example of such failed initiatives: the risk evaluation uncovered grand projects to relocate entire communities, cover the ravine and implement city master plans which, however good and borne of genuine concern, have not happened because of the lack of political will, cash and/or time to implement. Hence, whilst the results of action planning may sometimes be criticised as incomplete and sometimes obvious, nevertheless findings are being made, statements produced and action - real, tangible results - being implemented.

The project also relied methodologically on the pressure and release, or "crunch", model (Fig. 2) and the need to increase capacities and reduce vulnerabilities.

### The crunch model

The crunch model, widely used in disaster management states that risk (or disaster) is the product of vulnerability meeting a given hazard. Vulnerabilities may be social, economic, cultural, organisational or political, whilst natural hazards include earthquake, flood, landslide, volcano and fire. The diagram (Fig. 2) illustrates the relationship between hazard and vulnerability and allows for the identification of the

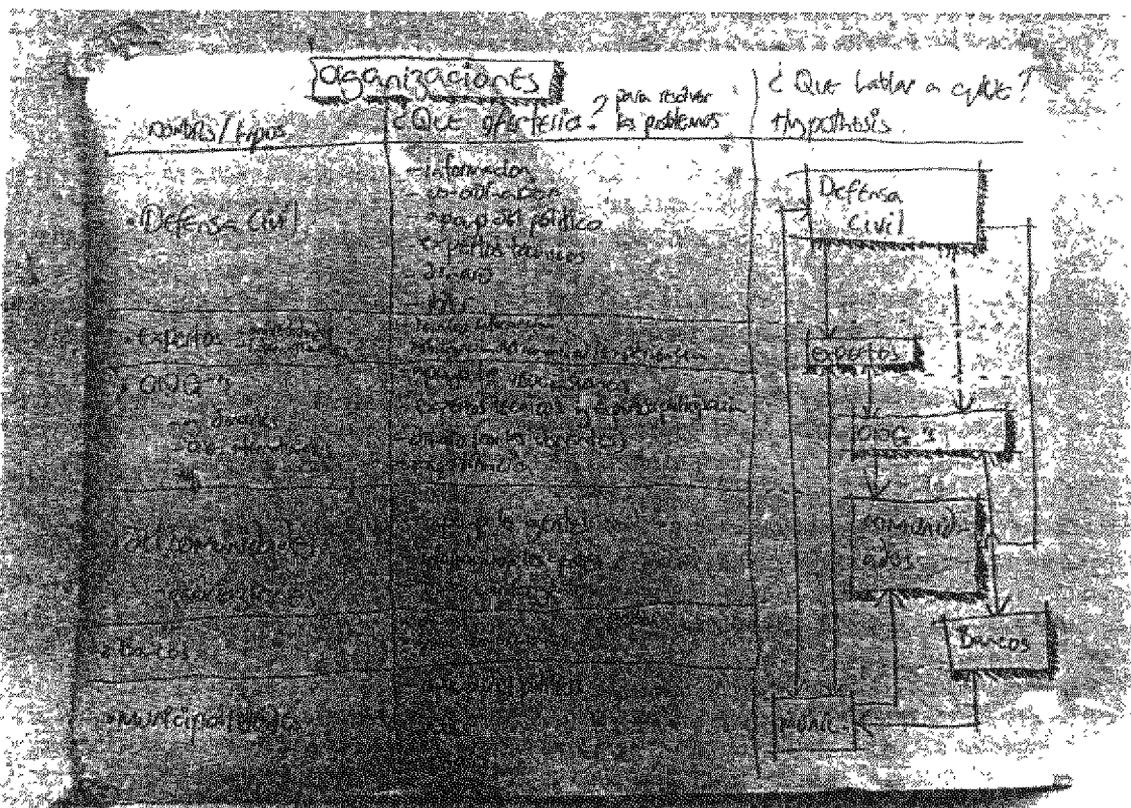
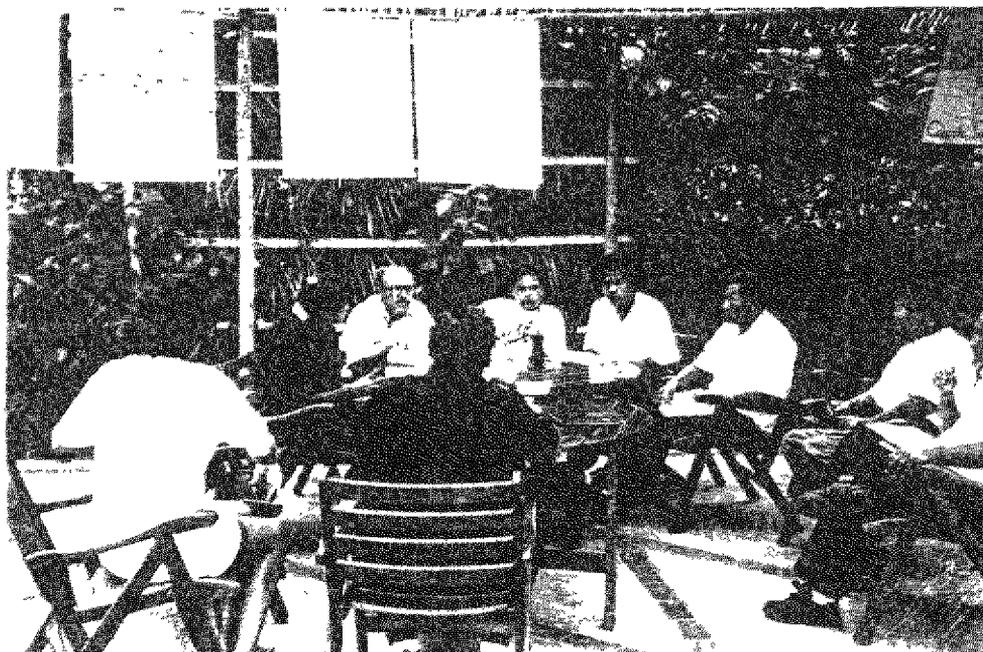


Fig. 1. Top: Group work during the workshop. Bottom: "brainstorm" of roles of key actors.