Assessing the impact of disaster

In response to the lack of evidence -based micro-level research on extreme events to date, the MICRODIS project is taking steps to develop an integrated knowledge platform and a common global approach to reduce the health, social and economic impacts of natural disasters on the affected communities

AS SUBSTANTIATED BY the devastating impact of the recent Indian Ocean Tsunami, Hurricane Katrina, Cyclone Nargis and the West Sumatra earthquake, extreme climatic events are increasing in frequency. With an estimated 200 million people now affected by extreme events every year, the onus on governments to establish demonstrably effective disaster management strategies has never been more keenly felt. In particular, it is incumbent upon disaster relief agencies to maximise their capabilities by mitigating against the health, social and economic consequences of the initial devastation that so often can amplify the gravity of the situation for vulnerable communities. With this in mind, a three year European-Asian collaborative project called MICRODIS is seeking to build a detailed understanding of the relationship between extreme events and their consequences, establishing a common integrated framework for disaster response, thereby improving human resources, training and coping capacity in the future.

Led by Professor Debarati Guha-Sapir at the Université catholique de Louvain and the World Health Organisation Collaborating Centre for Research on the Epidemiology of Disasters, the initiative is supported by an international consortium comprising of academic institutions and grassroots organisations from Belgium, UK, Vietnam, Finland, Indonesia, India, USA, Germany, Norway, the Philippines, the Netherlands, France and Germany. Given the vast climatic and geographical differences that occur around the world, and the varying availability of infrastructure and resources to lend to crisis management, Prof. Guha-Sapir is in no doubt that the collaborative approach and shared expertise lent to the project have been fundamental to its progress: "The principle investigators of each partner hold a specific set of expertise in at least one of social,

PROVINCE OF ALBAY IN THE PHILIPPINES
PHOTO COURTESY OF TABI, A NETWORK IN THE CDRC MICRODIS TEAM

health or economic disciplines," she outlines. "As the project aims to look at not only the overall impact but also the interplay amongst different types of impacts at the micro-level, the collaboration between experts has been pivotal to any progress made in the project. Our partners can tell you that the process has been very challenging, especially when trying to satisfy all disciplinary requirements and needs, but the outputs of integrated assessment protocols and interdisciplinary scientific publications prove that this massive obstacle can be tackled on various different levels."

SCIENTIFIC AND POLICY ADVANCES

The innovative approach adopted by MICRODIS is manifest in its special emphasis on guaranteeing the European and international policy take up of its findings, by making the connection to long-term institutional mechanisms for sustainable development and decreased vulnerability to disaster. The project's stated objectives include the following:

- A new level of European-Asian cooperation
- A multidisciplinary yet uniquely integrated research approach
- Incorporating previously neglected social sectors
- A robust evidence base and methodology
- A harmonized model and tool for measuring extreme event impact
- A unique dissemination approach to facilitate policy take-up and the identification of user needs
- Development of MICRODIS Central Data Hub for field survey data
- Capacity building and training opportunities

The scientifically sound research and data collection underpinning the project centres around 9 integrated field surveys at sites affected by floods, windstorms and earthquakes in the EU, South, and South-East Asia. These findings will be utilised to formulate comparable datasets, vulnerability assessments, models, and tools to strengthen the capacity of decision makers, the humanitarian community and populations across the globe to cope with natural disasters. Moreover, while a broad-based strategy for the global management of extreme events is vital, the MICRODIS platform is intended to be a baseline which can be adapted to local situations, in line with their very specific geographic, climatic, and socio-economic circumstances. The team have identified and explored a range of social and cultural factors that impinge on disaster

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CASE STUDY Tewkesbury UK

IN THE SUMMER of 2007 much of the UK was hit by flooding, and due to its geographical situation at the conjunction of two rivers, the historic town of Tewkesbury was particularly badly hit. Dr Maureen Fordham of Northumbria University led the MICRODIS field team in Tewkesbury, working in collaboration with other disaster experts, local authorities, the Environment Agency, the British Red Cross and community flood action groups to generate interests in their findings. Flood risk management has long been incorporated into local government strategy for the area; nevertheless, Fordham points out that the scale and speed of the flood, highly unusual for the time of year, made the response difficult: "Major roads were impassable," she explains, "and this meant that emergency services could not get through to help." Widespread community feedback coordinated by MICRODIS through resident focus groups and a specially tailored questionnaire has highlighted the importance of social, economic and health impacts – particularly the availability of mental health support – on individual households and the community. "Lack of support can heighten stress and lengthen the recovery phase, so community feedback is vital in identifying issues that are important to affected people and gaps in available support and the emergency response mechanisms," outlines Fordham, who is clear that such data is instrumental in the formulation of future integrated emergency planning and management that takes account of social factors in enhancing community resilience to floods. Bolstered by the work of MICRODIS and other collaborative input, progress in this regard has been substantial: "There is now increased awareness of extreme flooding risks," says Fordham. "The Pitt Review undertaken by Sir Michael Pitt on recommendation of the UK Government identified a number of aspects which need to be addressed. The review calls the 2007 floods the 'country's largest peacetime emergency since World War II' which gives some indication of the scale of the event, and gives 92 recommendations for planning, response and recovery to reduce the risks of flooding and its impacts in the future."

SEVERN & AVON VALLEY COMBINED FLOOD GROUP, FLOODED STREET IN TEWKESBURY AFTER THE 2007 FLOOD

MICRODIS

The MICRODIS project aims to strengthen the scientific and empirical foundation on the relationship between extreme events and their impacts; to develop and integrate knowledge, concepts, methods and databases towards a common global approach and to improve human resources and coping capacity in Asia and Europe through training and knowledge sharing. This integrated project involves partners from Asia and Europe, including research, policy and ground roots institutions.

OBJECTIVES

- to strengthen the scientific and empirical foundation on the relationship between extreme events and their health, social and economic impacts
- to develop and integrate knowledge, concepts, methods, tools and databases towards a common global approach
- to improve human resources and coping capacity in Asia and Europe though training and knowledge sharing

FUNDING

Under the European Commission's Sixth Framework Programme

PARTNERS

The MICRODIS consortium consists of sixteen leading academic and policy expert institutions from across Europe and Asia who are specialised in key areas of disaster-related health, economic, and social science disciplines.

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CASE STUDY **Bahraich** India

PROFESSOR PC JOSHI at the University of Delhi leads the MICRODIS research on one site in India, a country which, due to its geographical and climatic circumstances, is particularly prone to natural disasters. Close to 200 villages were affected by devastating flooding in the Bahraich district in recent times, and consequently, the region was selected as one of the MICRODIS project's focal areas. Systematically designed studies for MICRODIS sites such as Bahraich have highlighted that although the primary concern of communities affected by floods is always the physical impacts - damage, loss of wages, food, fuel and livelihood – the non-economic domains such as mental health, social cohesion, social capital and physical health can be significantly altered in the aftermath of disaster, and these factors must be considered by disaster response teams. Through close collaboration with the Indian government, bodies such as the recently established National Disaster Management Authority committee and the National Institute of Disaster Management, alongside the research community, charitable organizations and outreach workers, Joshi illustrates that "the project is generating knowledge which is of a practical nature, grounded deeply in the existing field realities of the country, with important methodological and policy implications". Due to the seriousness with which India now looks at disasters, delegating required powers and resources to local bodies so that they enjoy requisite authority and flexibility in their disaster response operations, the institutional framework endorsed by MICRODIS has been extended to the level of village council and municipal ward in the country, and moreover, is being seen as an exemplar of good practice for crisis management in the region. "The recovery status of Gujarat earthquake and subsequently the Tsunami speaks of the maturity with which India has handled these disasters not only by rebuilding itself, but also supporting neighbouring countries such as Sri Lanka, Myanmar, and Indonesia in their recovery efforts," outlines Joshi.

UNIVERSITY OF DELHI MICRODIS TEAM, CHILDREN GATHER IN A RURAL VILLAGE OF BAHRAICH AFFECTED BY FLOODS

strategies, including the socio-political structures of a region, its power relations, conflicts, and issues surrounding class, ethnicity and gender – these conditions may preclude, for political or logistical reasons, actions such as the relocation of vulnerable communities, however scientifically desirable this approach might be. Helping to enhance disaster response strategies from a health care perspective, the project has assessed the demographic, climatic, clinical and epidemiological characteristics of disease, as well as the mental health impacts of such events. Another vital component of the integrated approach espoused by the project is its exploration of macroeconomic data to calculate the true cost of disasters.

COLLABORATIONS AND DELIVERABLES

The MICRODIS consortium has benefitted from the support of government agencies and local charitable organizations, who have assisted in data provision and collection, as well as outreach work for the project field studies. Such associations are crucial to the success of the initiative, as Guha-Sapir explains: "Many partnerships have been made in the MICRODIS project, including collaboration with UNDP, Plan International, GEOSS, NEDIES, the Red Cross, as well as the various networks of the Citizen's Disaster Response Centre in the Philippines and the Voluntary Health Association of India. As these aforementioned two partners are grassroots organizations, they regularly work with such agencies before and after disasters occur." Consolidating the surveys' findings, the dissemination output from the project includes reports, literature reviews, scientific papers, workshops and policy briefs, most of which are replicated on the MICRODIS website for public use. The encouraging feedback so far bodes very well for the project in terms of the achievement of its societal objectives, summed up in its executive summary as 'sustainable development, social and territorial cohesion and improved quality of life both in Europe and Asia'. Therefore, while an increase in natural disasters may be unavoidable, the implementation of a swift, effective and specially adapted strategic response represents a significant step towards minimising their negative impacts.