

Swords, Plowshares, Earthquakes, Floods, and Storms in an Unstable, Globalizing World¹

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(Received for 10 Jun., 2004 and in revised from 7 Jan., 2005)

ABSTRACT

Researchers and practitioners concerned with humanitarian disasters such as war and violent conflict do not communicate sufficiently with their counterparts who work on the prevention and management of the disastrous impacts of natural hazards, and vice versa. Violent conflict and disaster management have many important interactions and they have to be addressed in a comprehensive and integrated manner. This paper provides a systematic introduction to that kind of needed framework.

I. VIOLENT CONFLICT AND NATURAL HAZARDS: INTRODUCTION, DEFINITIONS, APPROACHES

There are a wide variety of ways violent conflict complicates, confuses, and obstructs the efforts of planners, engineers, and others to assist people in protecting themselves, their livelihoods, and their built environments from natural hazards.

For example, civil war and the so-called 'war on drugs' in the Latin American country of Colombia have displaced more than a million rural people, who have sought a more secure existence on the edges of large cities such as Bogota.³ This influx of unemployed, poor people into highly dangerous locations where they squat in self-built houses in steep ravines, adds a great deal to the challenge faced by emergency management planners in that country. Although some very important innovations in earthquake and landslide preparedness and mitigation have come out of Colombia in the past decade,⁴ the sheer numbers of people displaced by violence threatens to overwhelm efforts to implement such innovative designs and programs.

Beginning in the 1990s one more and more frequently saw application of knowledge that could prevent loss from natural hazards blocked, deflected, diluted by violent conflict and its aftermath. More than six months after the tragic tsunami that affected Sri Lanka and ten other countries, the Tamil Tigers and the Sri Lanka government have still not concluded an arrangement for sharing relief and recovery assistance.⁵ Thus, as ambitious as it might seem, a dialogue needs to be fostered between the disciplines of peace research and disaster research for the benefit of both sides.⁶

Peace research and disaster research have similar and, at some times, overlapping histories. Briefly, peace research began as a discipline in the 1970s in part out of dissatisfaction with 'realist' approaches to international relations that take the necessity of war or the threat of war for granted in international relations. Instead, peace research drew on a venerable, centuries-long tradition of concerns with social justice and non-violent conflict mediation to

produce a positive notion of peace.⁷ It sought the root causes of war and other forms of violent conflict in what are conventionally considered 'normal' economic and political power relations.

Peace research approached a definition of violence and conflict from a broad perspective. Drawing from this research tradition, the analysis that follows treats several manifestations of violence:

- **Organized activity intended to kill or harm others.** Only one-to-one, interpersonal violence is excluded from the analysis that follows, although strictly speaking even domestic violence has been shown to be correlated with natural disaster occurrences.⁸ Organized violence takes the form not only of state vs. state war but increasingly as the activity of war lords, urban gangs, and mobs.
- **Use of the threat of violence to displace or coerce others.** In situations where rural or urban people live in fear of organized violence, they may be forced to forfeit their assets and leave their homes. Even when they remain, their behavior may be constrained and coerced.
- **In addition, peace research introduced the concept of "structural violence."** This describes entire economic, social, and political systems whose normal functioning produces and reproduces hunger, ill health, and premature death primarily via the structural maintenance of inequalities and inequities. This is a powerful concept, and its invocation by peace researchers has had much the same motive as attempts within disaster research to develop "integrated" frameworks of understanding.
- Finally, even when the actual use of violence or threat of violence has subsided, **historical memory of violence and its post-traumatic consequences** may affect the ability of groups of people to generate the trust required to implement disaster reduction measures. One should understand the term 'post-traumatic consequences' in a broad sense that includes the individual mind and body, domestic and social relations (including trust), as well as the longer term impacts on liveli-

hoods, the natural environment and resources, and on the built environment. Thus in numerous ways recovery from violent conflict may face similar challenges on a similar time scale as recovery from catastrophic disaster.⁹

This broad definition of violent conflict is in keeping with the way in which the United Nations and its specialized agencies and others have guided the evolution of the concept of 'security.' A narrow preoccupation with 'national security' from a politico-military point of view characterized this concept when the U.N. was founded in 1945. Whereas today the U.N. Development Program, among others, recognizes many interrelated aspects of 'human' security: economic security, food security, health security, environmental security, personal security, community security, and political security.¹⁰

Disaster research shares peace research's impatience with excessively narrow definitions. Current thinking about integrated disaster management grew out of dissatisfaction with a narrow approach that focused primarily on the hazard and not on vulnerability of the people and systems affected by a hazard. In addition, this earlier 'hazard' – as opposed to 'vulnerability' – approach tended to be inspired by the 'top down', 'command and control' style of cold war civilian defense.¹¹ By contrast, the vulnerability approach to integrated disaster management tries to balance participatory, or 'bottom up' use of local knowledge and capacity for risk reduction with 'top down' technical expertise.

Digging deeper, one can also see that the emphasis on social justice and the root causes of conflict one finds in peace research are also there in the search for root causes of disaster vulnerability.¹² In this way, Tony Oliver-Smith called the 1970 earthquake that destroyed the town of Yungay, Peru, a '500 year earthquake'.¹³ What he meant is that the vulnerability of the people of Yungay can be traced back many years to the destruction by Spanish conquest of the ancient Inca system of architecture and land use, which was risk-adverse and exposed the Inca population to less risk from natural hazards. Likewise in Guatemala City people referred to the 1976 earthquake as a 'class quake,' demonstrating that people on the street were aware that the majority of the homes destroyed were those of the poor Mayan squatters who had built on the steep waste land in the city. In this manner, integrated disaster risk management seeks out root causes for vulnerability just as peace research probes the root causes of violent conflict.

At the beginning of the 21st Century there is a growing consensus that human beings have a right to security and development as an extension of their right to life. A rights-driven approach to both development work and the practice of integrated disaster management must see violent conflict as a major obstacle to achievement of those rights.¹⁴

II. VIOLENT CONFLICT AND DISASTER: THE SCIENTIFIC, MORAL, AND POLICY CHALLENGES

It is important to note the scale and human cost of violent conflict in relation to the human loss from natural hazards. Disasters, especially those that seem to be principally caused by natural hazards, are not the greatest threat to humanity. Despite the lethal reputation of earthquakes, epidemics, and famine, a much greater proportion of the world's population has had its lifespan shortened by

events that are often unnoticed: *violent conflict, endemic disease, and hunger* – conditions that pass for normal existence in many parts of the world, especially (but not only) less developed countries (LDCs). Occasionally earthquakes have killed hundreds of thousands, and very occasionally floods, famines, or epidemics have taken millions of lives at a time. But to focus on these alone (in the understandably humanitarian way that outsiders respond to such tragedies) is to ignore the millions who are not killed in such events, but who also face grave risks. Many more lives are lost in violent conflict and to the preventable outcome of disease and hunger.

If one totals deaths during the 20th Century (1900-1999) from violent conflict, disasters triggered by a natural event, epidemics, and accidents (road, rail, air, industrial), it is violent conflict that accounts for 62% of these 424 million deaths. By contrast, rapid-onset disasters such as earthquakes and volcanic eruptions account for only 2 %; whilst epidemics take 12% as their share.¹⁵

U.N. Secretary General, Kofi Annan, put these multiple threats to human security into perspective in 2001 when he wrote:¹⁶

"We know that we cannot be secure amidst starvation, that we cannot build peace without alleviating poverty, and that we cannot build freedom on foundations of injustice. These pillars of what we now understand as the people-centred concept of 'human security' are inter-related and mutually reinforcing."

Violent conflict poses challenges to scientists and planners who attempt to anticipate 'surprises' and other kinds of complications and uncertainties that can accompany natural and technological hazard events. War and other kinds of violent conflict pose, therefore, serious addition difficulties in applying an integrated approach to disaster management. These violent conflict-induced complications can be seen in all phases of the disaster management cycle. Efforts at integrated mitigation, prevention, and preparedness are made more difficult by past, present, and possible future violent conflict. For example, early warning may be impossible under conditions of violent conflict. Goma, a city of 500,000 in eastern Republic of Congo, had no public warning of a perilous volcanic eruption in 2002.¹⁷ There was at the time simply no municipal government since the city was under the control of a rebel army contesting the authority of the central state in Kinshasa. Response capacity may also be reduced under conditions of violent conflict. Fire fighters were stoned and shot at when they responded to fire during the uprising in Los Angeles in 1991. Relief, reconstruction and recovery are all subject to additional requirements and possible limitations when they confront pervasive violent conflict or its aftermath in addition to the effects of the natural or technological hazard event (e.g. drought, flood, epidemic, explosion, or chemical release). For example, a refinery burned for many days uncontrollably during the bombing of Belgrade which was part of NATO's intervention in the Serbian/ Bosnian conflict.

During the 1990s many violent conflicts have broken out in various parts of the world, and many civilians have been killed, maimed (especially by land mines), injured, deliberately mutilated, starved, occasionally enslaved, and displaced by the belligerent parties. So great has been the need for humanitarian relief in these conflict and post-conflict situations that some normal development assistance has been diverted, and opportunities for self-generated

development delayed or destroyed, further worsening the position of marginal and vulnerable populations in the long term. Furthermore, there has been confusion among development agencies, including non-governmental organizations (NGOs) about how to act in regard to:¹⁸

- Civilian/military relations in ‘complex’ emergencies;
- Relations with war lords, local elites, and the ‘legitimate’ national army;
- Ways to move from relief to recovery, and to development;¹⁹
- Internationally acceptable standards of assistance;²⁰
- Mobilization of international support for relief.

Conflicts have continued to exacerbate natural extreme events such as flooding in the Malagasy Republic (2002) and Sri Lanka (2002), drought in Afghanistan (2002), and the volcanic eruption in eastern Congo (2002) mentioned above. In 2005, the way conflict has complicated recovery from the tsunami in Sri Lanka is a vivid example.²¹ At the same time, in Zimbabwe resilience to drought has been undermined by chaotic years of farm nationalizations and famine relief denied to opponents of the ruling party.²²

III. SYSTEMATIC REVIEW OF INTERACTION OF VIOLENT CONFLICT WITH NATURAL AND TECHNOLOGICAL HAZARDS AND MANAGEMENT EFFORTS

Violent conflict interacts with natural hazards and technological hazards in a wide variety of ways.

- **Violent conflict is often one of the root causes of social vulnerability.** In violent conflict situations today 90% of the casualties are suffered by civilians. This contrasts with around 50% during the Second World War and only 5% during the First World War.²³ In addition to death and injury, the civilian population often finds its normal livelihoods disrupted, leading many into more hazardous means of obtaining the necessities of life. Women and children are particularly affected by these stresses. Prostitution as a desperate means of livelihood combined with rape and sexual slavery has contributed to the explosion of HIV/AIDS in some parts of Africa.²⁴ In extreme cases famine²⁵ may be the result as in Bengal in 1943, Biafra (the Igbo-speaking breakaway territory of southeastern Nigeria) in 1969, Cambodia in the mid-1970s, Angola and southern Sudan in the 1980s and 1990s, and Darfur, Sudan in the early 2000s.
- **Institutional weaknesses due to past violent conflict may combine with natural hazards to produce a downward spiral.** This is evident in the case of Central America where Guatemala, Nicaragua, Panama, and El Salvador all have societies shaped by violent conflict. In the case of El Salvador, few of the elements of the 1992 peace accords had been implemented when hurricane Mitch hit the region in 1998. Contentious issues concerning land tenure and reform of the police and judiciary bear directly on social welfare and economic development. These issues were still not settled when two earthquakes struck in January and February 2001, killing more than one thousand people, injuring more than eight thousand and causing damages valued at \$2.3 billion. Forty per cent of the country’s health centers were destroyed and one-third of the schools. 150,000 homes were destroyed

another 185,000 damaged.²⁶ Because of institutional weaknesses, El Salvador was unable to make effective use of the international assistance for multi-hazard mitigation made available by the Stockholm group of donors to the whole region affected by hurricane Mitch. Had it done so, damage and loss from the 2001 earthquake might have been less.²⁷ Since then the poorest rural population have suffered hail and drought, both devastating food crops, as well as the collapse of the world price for coffee. Small farmers and landless laborers have suffered most. Caught up in a similar vicious spiral, half a million poor rural Nicaraguans have crossed the border into Costa Rica seeking work. These immigrants are likely to live in places and in conditions that expose them to risks such as flooding, landslides, and disease.

Such mass movement of poor people may be interpreted as motivated by a ‘pull factor’, namely economic opportunity, and not the ‘push factor’ exerted by violent conflict.²⁸ To some extent, that is true; however, one has to place the economic and institutional weaknesses of Nicaragua and other countries in the context of long histories of civil war.

- **Displacement of large numbers of people in war and other violent conflicts can lead to new risks.** There were 9.2 million refugees in the world in 2005, down from roughly 10 million official refugees in the world in 2003 and 12 million in 2002.²⁹ These numbers exclude ‘internally displaced’ people who have not crossed a national border while seeking refuge. Most of these refugees are fleeing violence. In many cases they face new risks that include exposure to disease and unfamiliar hazards in new rural or urban environments. Deadly outbreaks of cholera and other communicable diseases have affect displaced persons who fled the genocide in Rwanda and, earlier, the civil war that led to the creation of Bangladesh.³⁰ In Alexandra Township in Johannesburg, South Africa, refugees from the civil war in Mozambique were among the poorest residents who lived in locations most highly exposed to flash flooding.³¹ In addition, when international refugees are finally repatriated to their home countries, they often end up in new locations – not their original homes. And these locations are sometimes hazardous. In all these situation, women, children, and the elderly are among the most vulnerable people.³²
- **Violent conflict can interfere with the provision of relief and recovery assistance.** The civil wars and instances of violent conflict in Africa during the 1980s and 1990s often challenged the ability of humanitarian agencies to provide essential relief to the civilian population. In Sudan UNICEF was able to negotiate ‘corridors of tranquility’ during its so-called ‘Operation Lifeline Sudan.’³³ However, more commonly arrangements for relief and recovery assistance have been ad hoc, unreliable, and rapidly changing, as they have been more recently in Afghanistan, Iraq, and Darfur in Western Sudan. Worse than this, there is some evidence from case studies, mostly in Africa so far, that middlemen and war lords actually profit from and wish to perpetuate a ‘relief economy’ in which they are able to trade relief goods they steal or divert for guns or use relief aid they come to acquire to ‘buy’ support among civilians.³⁴
- **Participatory methods meant to empower and engage**

socially vulnerable groups may be difficult or impossible during violent conflicts. This effect of violent conflict is a particularly important challenge to 'integrated disaster management'. An integrated approach to disaster management has much in common with what the UNDP calls a 'developmental' approach to humanitarian assistance.³⁵ In both cases the goal is not only to address the specific crisis at hand – an earthquake, flood, factory explosion, or a violent conflict – but to do so in a way that builds capacity to mitigate or to prevent a future occurrence. In both cases, the role of local knowledge and capabilities is important, hence participatory methods based on trust are vital tools.³⁶ But in violent conflict situations people are less inclined or able to take part in such 'bottom up' efforts – be they directed toward preventing damage from future natural hazards or toward peace-making. In the case of the work by the Red Crescent Society with Palestinian refugees, there has been some success in empowering ordinary people in the assessment of their own vulnerabilities, capacities, and resources in a systematic way. However, this is likely to be an exception that proves the rule that under intensely violent conditions participatory and developmental approaches are very difficult.³⁷

It is important in this context to make a clear distinction between 'conflict' and 'violent conflict.' The author's position – shared by many who work in the field of development studies and peace research – is that the process of sustainable human development is necessarily conflictual.³⁸ That is, human beings have different objective material interests as well as subjective understandings of their needs. However, the vast majority of these conflicts are resolved directly by local mechanisms of negotiation and mediation.³⁹ Such conflicts are normally non-violent. These are verbal disputes-based conflicts whose resolution logical reasoning-based arguments, persuasion and debate as well as negotiation and bargaining work to a large extent. By contrast, violent conflict tends to by-pass or even to shut down local mechanisms for conflict resolution.

- **Application of existing knowledge for mitigation of risk from extreme natural events is often difficult or impossible during violent conflict.** Over the past three decades a very large knowledge bank has grown as regards preparedness, mitigation, warning, and response to natural and technological hazards. Flood and cyclone warning systems have improved.⁴⁰ So also have early warning systems of food emergencies based partly on satellite surveillance of pasture and croplands and partly on field data routinely reporting market prices and the nutritional status of children.⁴¹ However, violent conflicts disrupt the communication necessary to make application of this knowledge effective. Advances in hydrological modeling and the use of current information and communication technologies (ICTs) make management of large river basins feasible. But tensions among the 12 nations within the basin of the Nile make common management difficult, even in the absence of overt warfare. The same could be said of other large river basins such as those of the Mekong, or the Euphrates.⁴² It is not only current violent conflicts that complicate the practice of integrated disaster management. A long history of conflicts, as for example in southern Africa, leaves behind weak infrastructure

and institutional arrangements. Such a history may have played a role in the breakdown in communications between authorities in Zimbabwe and Zambia who released water from dams on the Zambezi River that took Mozambicans downstream by surprise during the floods in 2000.⁴³

- **Violent conflict often diverts national and international financial and human resources that could be used for mitigation of disaster risk.** On the national scale a good example is Ethiopia. During its state vs. state war with Eritrea during the 1990s, Ethiopia let its national famine early warning system deteriorate. Resources were used for war and not for such social investments as maintenance of the food monitoring system that had been put in place following the famines of the 1980s. In 2003 the Ethiopian government was 'surprised' by a widespread food emergency that it should have been able to detect much earlier.⁴⁴ On the international scale, donor attention was so fixated on post-war Afghanistan and Iraq that little attention was given to a fulminating combination of HIV/AIDS, flood, and drought in southern Africa, among other 'under-reported' humanitarian emergencies,⁴⁵ a distortion of course compounded by donor fixation by the Asian tsunami in 2004. It was only in 2005 with the G8 meeting in Gleneagles, Scotland and the massive, international 'Make Poverty History' citizen movement that donors began to redress this distorted focus.
- **Violent conflict often destroys infrastructure which may intensify natural hazards such as flooding, the effects of drought, or epidemic disease.** Among the infrastructure targets in recent conflicts have been irrigation systems, dams, levees, roads, bridges, water treatment plants, refineries, pipelines, and electricity systems. Such destruction may rapidly erode public health and also throw large numbers of people into unemployment. Both these effects increase a population's vulnerability to future hazards. In the case of Iraq, the destruction of water treatment and distribution systems, drainage and sanitation facilities, and electricity supplies during the first and second wars in that country contributed to health hazards that cost the lives of more than half a million children. During the first Gulf War, the U.S. destroyed electricity supplies, shutting off power to hospitals and water treatment facilities. This began a series of disastrous events that undermined public health. Transportation networks were also targeted, so that distribution of food and other essential items to Iraq's primarily urban civilian population was disrupted. As a result, there were 47,000 avoidable child deaths within eight months of the 1991 war.⁴⁶ The effect of sanctions during the years following the first Gulf war added to these initial stresses on the most vulnerable groups of civilians. Iraq's rank in the UNDP's Human Development Index fell from 96 to 127. That fall set an unenviable record as the most rapid decline in human welfare in recent history. Between 1990 and 1999, Iraq's under-five mortality rate increased by more than 150% to 131 per 1000 live births.⁴⁷ By 2005, occupied Iraq has still not been able to restore its basic infrastructure due to frequent terror attacks and instability. Twenty per cent of the cost of contracted reconstruction work goes for private security for the work force and consulting engineers.

• **Violent confrontations often wreaks havoc on vegetation, land, and water, and undermines sustainable development.** The use of depleted uranium as shell casings by U.S. and British forces during the two wars with Iraq have contaminated large areas of northern Kuwait and southern Iraq with radioactive dust. In 2005, the date crop in Iraq was at risk from insect infestation because insecticide dusters had been destroyed in the wars. Chemical defoliants were used by the U.S. in Southeast Asia during the Vietnam War. In such cases there may be long-lasting health and economic effects. Unexploded explosives and land mines make some agricultural land unusable in post-war regions, where there are on-going efforts to remove land mines in 90 countries.⁴⁸ Water has also been contaminated by acts as diverse as sabotage of oil terminals by Saddam Hussein in 1991 and the aerial spraying of coca fields by the U.S. during its so-called 'war on drugs'.⁴⁹ In addition, the presence of large numbers of displaced persons and refugees in dense concentrations can cause local de-vegetation and soil erosion.⁵⁰

IV. PRACTICAL IMPLICATIONS AND THE WAY FORWARD

A series of international conferences have defined 'integrated disaster management' as a set of risk reduction efforts that proceed by "integrating risk policy making with infrastructure development, communication, social networks and economic/ financial planning."⁵¹ In an urban context this implies "integrating disaster/ risk policy making with urban development, land use, communication networks, economic/ financial planning, human security, cultural heritage preservation and institutional realities."⁵² Above all, an 'integrated' approach to disaster management is "a multidisciplinary approach ... involving not only scholars ... but also practitioners in ... public policy making at the national and community level, and community and NGO representatives."⁵³

What should be clear from the previous section is that violent conflict affects in very specific ways each and every element in these definitions of integrated disaster management. So, in the face of such systematic blockage of such efforts in times of war, other situations of violent conflict, and often in post-war conditions, **what can be done?**

An analysis of these practical implications can be divided into two parts – those regarding humanitarian practice and those concerning professions whose practice is prevention and mitigation of hazards.

The first group of professionals face a task of coordination, negotiating the complex issue of civil-military relations mentioned earlier as well as the challenge of providing assistance in ways that contribute toward local capacity in the future. The United Nations has laid out the basic requirements for effective humanitarian assistance. These are a set of 'core protection principles' adopted by the U.N. Security Council in 2002:⁵⁴

- **Access to Vulnerable Populations:** Facilitate safe and unimpeded access to vulnerable populations as the fundamental prerequisite for humanitarian assistance and protection.
- **Separation of Civilians and Armed Elements:** Maintain the humanitarian and civilian character of camps for refugees and internally displaced persons.

- **Justice and Reconciliation:** (1) Put an end to impunity for those responsible for serious violations of international humanitarian, human rights and criminal law. (2) Build confidence and enhance stability within the host State by promoting truth and reconciliation.
 - **Security, Law and Order:** Strengthen the capacity of local police and judicial systems to enforce law and order.
 - **Disarmament, Demobilization, Reintegration and Rehabilitation:** Facilitate the stabilization and rehabilitation of communities.
 - **Small Arms and Mine Action:** Facilitate a secure environment for vulnerable populations and humanitarian personnel.
 - **Training of Security and Peacekeeping Forces:** Ensure adequate sensitization of multinational forces to issues pertaining to the protection of civilians.
 - **Effects on Women:** Address the specific needs of women for assistance and protection.
 - **Effects on Children:** Address the specific needs of children for assistance and protection.
 - **Safety and Security of Humanitarian and Associated Personnel:** Ensure the safety and security of humanitarian, United Nations and associated personnel.
 - **Media and Information:** (1) Counter occurrences of speech used to incite violence. (2) Promote and support accurate management of information on the conflict.
 - **Natural Resources and Armed Conflict:** Address the impact of natural resource exploitation on the protection of civilians.
 - **Humanitarian Impact of Sanctions:** Minimize unintended adverse side effects of sanctions on the civilian population.
- Those professionals whose prime concern is integrated disaster risk management – and not management of conflict and protection of civilians in conflict situations – may also draw some other implications from the foregoing analysis.
- **First, they should design early warning systems and other programs for risk reduction in ways that are robust even under the stresses of violent conflict.** Joanna Macrae, coordinator of the Humanitarian Network run by the Overseas Development Institute in Britain, has noted that in many countries the challenge is not this or that crisis, but more or less continuous 'chronic political emergencies'.⁵⁵ She denies that in most cases there is a clear-cut 'post-war reconstruction' phase during which development-as-usual can be practiced. She sees a much more chaotic situation. Therefore, if the application of knowledge from engineering, earth science, hydrology, meteorology, public health and other disciplines is to be long-lasting and effective, contingency plans for the resilience of systems in the face of political instability and even violent conflict have got to be built in from the beginning. A corollary is that early warning systems and other risk reduction 'technologies' cannot simply be add-ons and provided from the top-down by specialist expatriates or centers of excellence. Technologies, systems, and designs for a safe society must be developed in partnership with end users who know the demands and stresses of the real environment in which these innovations will have to be implemented. Among those stresses is violent conflict.
 - **Thus a second implication is that capacity needs to be**

built deeply among the end users and stakeholders. An example of such an approach is the flood early warning system set up with assistance of Swedish SIDA in one river basin in Guatemala. It does not rely on warning messages from the capital city or an academic institution. Trained villagers take stream flow measurements and monitor rainfall with simple instruments and send their observations to the local town using solar powered radios. In the town, other trained volunteers use software on a lap top computer to model the flood hazard and give the warning. During hurricane Mitch in 1998 no one was killed in this part of Guatemala, despite flash flooding that killed hundreds elsewhere in the country and thousands in Honduras and Nicaragua.⁵⁶ A very similar system also saved lives in northern Honduras during Mitch.⁵⁷

The effects of violent conflict and its long-term consequences also must also be faced by practitioners in more developed countries (MDCs). People fleeing violent conflict such as illegal immigrants and asylum-seekers, who find themselves in large cities in Europe, North America and elsewhere, may be highly vulnerable to natural hazards, but they are very difficult for professionals to contact. This is because of language difficulties as well as a lack of trust. In the case of the World Trade Center, possibly as many as 500 illegal immigrants, many of them from war-torn areas of Latin America, were killed.⁵⁸ In the aftermath of the 1994 Northridge earthquake in Los Angeles, illegal immigrants avoided hospitals and recovery services for fear of deportation.⁵⁹

- **The third implication is that efforts should be made to implement and institutionalize risk reduction and disaster management systems in ways that address disparities and grievances that may lead to violent conflict.** This point may be considered more controversial than the first two. One might ask if this is where specialist engineers and the like should not cross the line into ‘political’ activity. In answer to this doubt, one should consider the fact that the cycle of poverty and marginalization is often perpetuated by drought, flood, crop pests, human and livestock disease. If one is in the situation of a consulting engineer, for example, giving advice about a large city’s water supply, is this not the perfect opportunity to suggest an extension of the system into the low-income squatter settlement adjacent to the city center? If one begins to look for opportunities to use risk reduction to reduce or eliminate disparities that are among the root causes of violent conflict, it is surprising how many opportunities there are. Among these opportunities are the occasions where similarity in human suffering faced by two hostile countries provides a window of opportunity for diplomatic breakthroughs or at least humane contact. A Cambridge-based researcher, Dr. Ilan Kelman, has begun to collect such examples as the exchange of relief aid between Turkey and Greece – erstwhile enemies – on the occasion when they both suffered earthquakes within a brief period. Kelman refers to these openings as ‘disaster diplomacy’.⁶⁰

V. CONCLUSION

War and violent conflict certainly complicate the challenges of integrated disaster management in a number of ways. However, professionals can take these complications into account in order to

increase the chance that policy advice, programming, project planning, design, and training activities will be robust enough to survive the chaos of violent conflict situations. More ambitiously, it is also possible that integrated disaster management can help to reduce the social and economic disparities – especially the differential exposure to disaster risk – that divides people in fragile societies and can lead to violent conflict. Finally, the common humanity that unites people, no matter what their professional disciplines or national origins, call them to support the United Nations and to work for peace at a time when unilateralism and so-called preemptive war threaten to tear up the fabric of world order.

Even such a possibly woolly-sounding moral or philosophical exhortation can be broken down in some surprisingly practical ways. In 1988 – those heady days when governments were beginning to talk about a ‘peace dividend’ and what could be done with money saved from national budgets if the military expenditure was cut – the World Watch Institute published an alternative security budget.⁶¹ In this budget the project team produced rough estimates of additional expenditures from national budgets between 1990-2000 needed to achieve ‘sustainable development’ by the end of the year 2000. They calculated what investments would have to be made to achieve goals worldwide in six problem areas. One striking thing about these problem areas is that they are all closely tied to the question of reducing risk from natural hazards. In the lead up to the Johannesburg World Summit on Sustainable Development, the Secretariat for the International Strategy for Disaster Reduction and many other institutions and scholars demonstrated the close connection between sustainable development and risk reduction.⁶² This connection was developed even more clearly and recapitulated during the World Conference on Disaster Reduction in Kobe, Japan in January 2005.⁶³

Over the eleven years from 1990-2000, the World Watch Institute proposed spending between \$46 billion and \$150 billion per year on:

- Protecting Topsoil on Cropland
- Reforesting the Earth
- Slowing population growth
- Raising Energy Efficiency
- Developing Renewable Energy
- Reducing Third World Debt.

These sums would come from **reduced** military expenditure worldwide. At the time of publication that annual global expenditure on the military was around \$900 billion. Thus in each year, they subtracted what was needed to ramp up investment in ‘security’ defined in sustainable development terms from a total global military security budget of \$900 billion. The remainder would be left for the generals.

Today one might quibble about the amounts – but not by orders of magnitude – or one might want to include investments in the health of the world’s oceans, conserving fresh water, and human health. Nevertheless, as a thought experiment this exercise was breathtaking in its scope. The specific risk reduction goals that motivate work on flood control, food security, reversing global warming and instability, the mitigation of coastal storms, and the building of municipal and regional capacity for integrated disaster management require investments of roughly these magnitudes in precisely these problem areas. Indeed the amount of increased development assistance pledged by the G8 at its Gleneagles,

Scotland meeting was \$48 billion over five years, with \$25 billion for Africa. These amounts falls below the magnitude of investment suggested by the World Watch Institute in 1988, but they are roughly within the same range.⁶⁴

Disaster reduction work in the 21st Century should not lose its ability to be inspired by such large visions, nor should practitioners lose the courage to speak truth to power in pursuit of the vision of a peaceful, just, and sustainable world.

VI. ENDNOTES

- ¹ Based upon Invited Keynote Address at the DPRI – IIASA 3rd International Symposium on Integrated Disaster Risk Management (IDRM-2003), Kyoto International Conference Hall, Kyoto, Japan, 3-5 July, 2003.
- ² Visiting professor at the Research Center for Disaster Reduction Systems (DRS), Disaster Prevention Research Institute, Kyoto University, 2005. His more permanent affiliations are Research Fellow, Crisis States Development Research Centre, Development Studies Institute, London School of Economics & Benfield Greig Hazard Research Centre, University College London & Visiting Professor of Environmental Studies, Oberlin College, Oberlin, Ohio, U.S.A; bwisner@igc.org .
- ³ Two million people have become internally displaced in Colombia since 1985; 300,000 alone in 2000. Rural health services have been destroyed. In urban areas these displaced persons live in very dangerous places. This is a recipe for increasing exposure to flood, landslide, earthquake, and epidemic disease. See: Médecins Sans Frontières 2001. *The Top Ten Under Reported Humanitarian Crises of 2001* www.msf.org/content/page.cfm?articleid=7B5D6023-75EA-415A-80CC71C8E6B90DCF . In addition, the majority of the displaced in Colombia are children, Afro-Colombians, and poor women. Only 20 per cent of these internally displaced persons have received any aid from the Colombian state, and even that has been 'minimal and short term' (A. Lopez. 2001. *Talking Sense on Colombia*. Philadelphia: American Friends Service Committee, September, 12 pp. <http://www.afsc.org> , p. 7.
- ⁴ Wilches-Chaux, G. and Wilches-Chaux, S., 2001. *¡Ni de Riesgos!* Bogotá, Colombia: Fondo Para la Reconstrucción y Desarrollo de Eje Cafetero, <http://www.ejecafetero.gov.co> ; Omar Dario Cardona, Low cost, locally based repair and retrofitting of non-engineered, rural structures [in Spanish] http://online.northumbria.ac.uk/geography_research/radix/knowningsvsdoing2.htm#From Dr. Omar D. Cardona, University of Los Andes, Bogota, Colombia: .
- ⁵ BBC News, "Sri Lanka suspends tsunami deal," 15 July 2005; http://news.bbc.co.uk/1/hi/world/south_asia/4685291.stm .
- ⁶ Other specialists are also taking up the daunting subject of war and peace, for example, **in the context of public health**: Etienne G. Krug, Linda L Dahlberg, James A. Mercy, Anthony B. Zwi and Rafael Lozano (eds) 2002. *World Report on Violence and Health*. Geneva: WHO; C.J.L. Murray et al., 'Armed conflict as a public health problem'. *British Medical Journal* 324 (9 February 2002), pp. 346-349; Kevin M. Cahill, ed., *A Framework for Survival: Health, Human Rights and Humanitarian Assistance in Conflicts and Disasters*. New York: Routledge, 1999; Ben Wisner and John Adams, *op. cit.*, 2003; **and in the field of food security** (Frederick C. Cuny with Richard B. Hill, *Famine, Conflict and Response: A Basic Guide*. West Hartford, Connecticut: Kumarian Press, 1999; Joanna Macrae and Anthony Zwi, eds., *War and Hunger: Rethinking International Responses to Complex Emergencies*. London: Save the Children (UK) and Zed Press, 1994).
- ⁷ See the discussion of the sub-fields of peace studies and their origins in the *Guide to Graduate Programs* produced by the Peace and World Security Studies Program (PAWSS) at Hampshire College <http://pawss.hampshire.edu/students/grad/#2> . There the earliest roots of peace studies are traced to various religious views of non-violence and concerns with social justice. The field is also subdivided into these focal areas: Conflict Resolution and Negotiation, Citizen Participation in Socioeconomic Development, Arms Control and International Security, and Law.
- ⁸ Walter Gillis Peacock, Betty Hearn Morrow, & Hugh Gladwin, eds. *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*. London and New York: Routledge, 1997; Fran H. Norris, "Disasters and Domestic Violence," U.S. Department of Veterans' Affairs, National Center for Post Traumatic Stress Disorder, Fact Sheet http://www.ncptsd.va.gov/facts/disasters/fs_domestic.html (no date; web site updated 4 July 2005).
- ⁹ The time dimension of recovery in both these circumstances is poorly understood and little researched. Certainly the well-known overlapping bell-shaped curves that Haas et al. found to fit recovery from the 1906 San Francisco earthquake and the 1972 earthquake in Managua, Nicaragua cannot be generalized (see E. Haas, R. Kates, and M. Bowden, *Reconstruction Following Disaster*. Cambridge, MA: MIT Press, 1977 and one critique of the later use of this model in B. Wisner et al., *At Risk*, 2nd ed., *op. cit.*, pp. 353-363). Generally the length of time required for full psycho-social, economic, and environmental recovery from catastrophic events has been underestimated. This may be because of a desire on the part of the donor community and recipient governments to "move on" and to re-establish minimum conditions for international trade and 'business as usual' as soon as possible. However, consider the continuing low level violence (social banditry) in post-war situations such as Cambodia, Guatemala, and Somalia long after peace agreements. In a similar way, donors and affected nations are reluctant to admit that in certain respects recovery may simply not occur. Some households never regained rural livelihoods following the Sahel drought and famine in the last 1960s or in the wake of hurricane Mitch (1998) in Honduras and Nicaragua. It is likely that some large proportion of those who survived the Asian tsunami may never again engage in fishing or farming (see B. Wisner and P. Walker, 'Getting Tsunami Recovery and Early Warning Right.' *Open House International*, in press, 2005).
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- ¹² Ben Wisner, Piers Blaikie, Terry Cannon, and Ian Davis, *At Risk: Natural Hazards, People’s Vulnerability, and Disasters*. 2nd edition. London: Routledge, 2003 [1st edition 1994]; Ben Wisner. ‘Disaster Vulnerability: Scale, Power and Daily Life’. *Geojournal* 30, 2 (1993), pp. 127–40; Ben Wisner. ‘The Communities Do Science! Proactive and Contextual Assessment of Capability and Vulnerability in the Face of Hazards’. In: G. Bankoff, G. Frerks and T. Hilhorst (eds), *Vulnerability: Disasters, Development and People*, pp. 183–193. London: Earthscan, 2003.
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- ¹⁴ James K. Boyce, ‘Let them Eat Risk? Wealth, Rights, and Disaster Vulnerability’. Political Economy Research Institute (PERI) Working Paper 4, University of Massachusetts Amherst, 2000 <http://www.umass.edu/peri/pdfs/WP4.pdf>.
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- ¹⁷ Ben Wisner. ‘Goma, Congo: City Air Makes Men Free?’ RADIX web site, 2002 http://online.northumbria.ac.uk/geography_research/radix/nyiragon-go.htm.
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⁶⁴ Charles Abugre, "The G8 Africa Brouhaha: Hot air and little substance," *Pambazuka* 14 July, 2005 <http://www.pambazuka.org/index.php?id=28871> . Abugre states: "The G8 promised to boost aid by US\$48 billion for all developing countries in five years of which \$25bn will go to Africa. This seems to satisfy the recommendation of the AfC. The Africa Commission report called for the boosting of aid to Africa by US\$25 billion per year by 2010. Thereafter, to raise aid by an additional \$25bn by 2015. In contrast, the Millennium Project Report of Jeffrey Sachs called for raising aid by at least \$85bn in 2006, and by a further \$60bn by 2015." While the vision embraced by the G8 in Scotland falls short of that expressed by the 'alternative security budget,' the goal recommended by the Millennium Project Report (\$85 billion in 2006 and a further \$60 billion by 2015) is definitely of a similar scale.