



Name and number. However hard it is to find, information is vital in disasters to show what is happening and how, to reveal the scale and scope of a crisis, to show the trends that agencies must understand if they are to do good work. And behind every disaster number is a person affected by that disaster, like these displaced people being recorded in Jalalabad after fleeing fighting in Kabul. Information is rarely neutral, so data asks as many questions as it answers: what is being collected and why? Who will use the results and how?

Registration queue, Afghanistan, 1994 Chris Steele-Perkins/Magnum

Meeting the need for systematic data

As disasters become more complex, and the cost of response grows, the need for systematic data for disaster response and management has been of increasing concern to international and national relief agencies, governments and donors.

Despite the obvious time pressures of relief actions and fundraising, the ad hoc collection of information by individual organisations at the time of an emergency is clearly inadequate for effective disaster response, good management and strategic planning.

This chapter has been divided into two parts, the first describes and defines parameters for information contained in the EM-DAT, a non-conflictual disaster events database. Tables 1 to 11 in this database section were derived from EM-DAT. The second part comments on the practical difficulties encountered when collecting data for tables concerning mass movement of populations, conflict intensity and major causes of conflict (Tables 12 to 17).

EM-DAT Disaster Events Database

The Centre for Research on the Epidemiology of Disasters (CRED) has developed a system of databases for global disaster management, drawing on its existing disasters documentation, information network and computer system. Development of its EM-DAT was supported by the University of Louvain, the International Federation of Red Cross and Red Crescent Societies, the World Health Organization (WHO), the United Nations Department of Humanitarian Affairs (UNDHA), the European Commission Humanitarian Office (ECHO) and the International Decade for Natural Disaster Reduction.

EM-DAT is now fully operational, with more than 10,000 records of disaster events from 1900, and its own menu for updates, modification and retrieval. Designed to have the right level of detail for wide use, the entries are constantly being reviewed for redundancies, inconsistencies and the completion of missing data.

The criteria for entry of an event is ten deaths, and/or 100 affected, and/or an appeal for assistance. In cases of conflicting information, priority is given to data from governments of affected countries, followed by UNDHA and then the US Office for Foreign Disaster Assistance. Agreement between any two of these sources takes precedence over the third. This does not reflect the value placed on the quality of data since most reporting sources have vested interests and figures may be affected by socio-political considerations.

There are a series of caveats inevitable when presenting information on disasters, including the tables presented on the following pages which have been prepared by CRED from EM-DAT.

Despite efforts to verify, cross-check and review data, its quality can only be as good as it is reported. The complexity and cost of compiling essential data coherently from numerous sources requires considerable investment, which could be avoided if field agencies followed functional conventions for reporting. All the data presented here is recorded at CRED; while no responsibility can be taken for a figure, its source can always be provided.

Dates are a source of ambiguity since the declared data for an event such as famine is both necessary and meaningless, since famines, population movements, conflict and epidemics can rarely be pinpointed to occur on a single day. In such cases, the date of declaration of an emergency by the appropriate body has been used.

Figures for those "killed" in disasters should include all confirmed dead and all missing and presumed dead. Frequently, in the immediate aftermath of a disaster, the number of "missing" is not included, but it may be added later. Without international standards, definitions vary from source to source, so each entry is checked for clarification.

People "injured" covers those with physical injury, trauma or illness requiring medical treatment as a direct result of disaster. First aid and other care provided by

volunteers or medical personnel is often the main form of treatment provided at the site of a disaster, but it has not been defined whether people receiving these services should be included as "injured"

"Homeless" is defined as the number of people needing immediate assistance with shelter. Discrepancies may arise when source figures refer to either individuals or families. Average family sizes for the disaster region are used to reach consistent figures referring to individuals.

Defining "persons affected" is extremely difficult, and figures will always rely on estimates, as there are many different standards, especially in major famines, conflict and the complex disasters of the former Soviet Union and Eastern Europe.

Ambiguities also exist because of changes in national boundaries in the past few years, notably the break-up of the Soviet Union and Yugoslavia and the unification of Germany. In such cases, no attempt has been made to retrospectively disaggregate or combine data. Data is presented for the country as it existed, at the time the data was recorded.

Disparities in reporting units can be a problem, such as monetary value of damages expressed in either US dollars or local currencies. While it is easier to leave currencies as they are reported and convert them only when the event is of interest, this effectively slows the comparisons and computations often required by data users.

In addition, inflation and currency fluctuations are not taken into account when calculating disaster-related damages. At present, estimating the monetary value of disasters is far from precise. Multi-standard reporting makes estimations difficult, as does the lack of standardisation of estimate components. For example, one estimate may include damages to livestock, crops and infrastructure, while another may also include the cost of human lives lost. It is not always clear whether estimations are based on the cost of replacement or the original value. Insurance figures, while using standard methodology, include only those assets that have been insured, which in most developing countries represent a minor proportion of the losses.

A standard methodology for the estimation of economic damages is urgently required to justify prevention and preparedness programmes.

Finally, assembling disaster-impact information faces the same problems as data reporting in general. To improve the quality of data, it is essential that a standard protocol for reporting procedures be established and followed by the main actors in disaster relief. Without such an agreement, data will always remain contradictory and incomplete.

Data contained in EM-DAT: description and parameter definitions of each element

- Onset date – the date when the disaster occurred is well defined for all sudden-im-

pact disasters, with both natural and non-natural triggers. For disaster situations which develop gradually over a long period of time (e.g., drought, civil strife) with no definite onset date, only the year is recorded

- Disaster types – a description of the disaster according to a pre-defined classification scheme. Disaster types include those with natural and non-natural triggers. For example, natural-trigger disasters include avalanches, cold waves, earthquakes, high winds (cyclones, storms, hurricanes, typhoons), floods, insect infestation, landslides, tsunami, epidemics, volcanic eruptions, drought and famine; and disasters with a non-natural trigger include conflicts (e.g., civil strife, riots), displaced people, technological accidents and fire. Two or more disasters may be related, or other disaster types may occur as a consequence of a primary event – a cyclone may generate a flood or landslide, or an earthquake may cause a gas line to rupture, causing an ecological disaster. The primary disaster type is recorded first, followed in the "Comments" by a list of disaster types that are related to, or occur as a consequence of, the primary disaster.

- Country – the country in which the disaster occurred, every disaster is recorded by country. Autonomous regions, not yet recognised as countries, are not used. The same disaster may affect more than one country. For example, a hurricane in the Caribbean may cause damage in several different countries, or a drought in Africa may create catastrophic food shortages across a wide region. If the same disaster affects more than one country and a recognised disaster situation exists in several countries, separate records are entered for each country. The name of the country in which the disaster occurred is entered, as it appears on a standard list of country names published by the International Organization for Standardization

- Region – the continent of an affected country as defined by the United Nations has been selected for the disaster database

- Dead – people confirmed dead and those missing and presumed dead (official figures when available). The number of missing is not usually included in the "dead" figure if the source used gives preliminary figures. When the missing are considered dead, the data has to be updated; it is obviously almost impossible to obtain precise figures. In long-term disasters the number of dead per year, if available, is entered only once even if the conflict lasts several years

- Affected population – people requiring immediate assistance during an emergency situation. Assistance means meeting basic needs, such as food, water, shelter, sanitation and immediate medical assistance. This information has to be available as soon as possible for the launching of appeals. For epidemics, all people who have contracted the disease and fallen ill,

but have not died, are considered as "primary affected" Specific information about these people is included in field-situation reports Determining realistic numbers is the responsibility of the assessment team coordinating the response to a disaster situation In long-term disasters the number of affected per year, if available, is entered.

- Injured – people with physical injuries, trauma or illness requiring medical treatment (therapeutic feeding included) as a direct result of a disaster It includes the severely malnourished as well as victims of radiation exposure and chemical intoxication. The injured are always part of the affected population. Determining realistic numbers for this category is the responsibility of the field-assessment team. In long-term disasters the number of injured population per year, if available, is entered

- Homeless – people needing immediate assistance with shelter. This definition also includes displaced populations or refugees for whom shelter has to be provided The data is obviously necessary for operational purposes Homeless people are always part of the affected population. Field reports should give the number of homeless; where only the number of families is reported, the figure is multiplied by the average family size for the affected area. Field reports may also give the number of houses destroyed or other data, but the homeless figure (number of individuals) is the minimum information required. In long-term disasters the number of homeless per year, if available, is entered.

- Estimated amount of damage – a value (in US\$) of all damages and economic losses directly related to the occurrence of a given disaster situation. The amount is not as yet adjusted for inflation, users will, therefore, have to calculate constant rates based on these figures.

The economic impact of a disaster usually consists of direct (e.g., damage to infrastructure, crops, housing) and indirect (e.g., loss of revenues, unemployment, market destabilisation) consequences on the local economy Although several institutions have developed methodologies to quantify the losses in their specific domain, as yet no standard procedure exists to determine a global figure for economic impact. However, these statistics are an important element for public information and fundraising programmes. The source of the information is always indicated

- Additional information – this field provides additional information on the type of disaster, for example, scientific indicators, e.g., Richter scale or wind speed, disaster agent, such as pathogen, vector or contaminant, name of disaster, e.g., Hurricane Andrew; area affected (square km), location (latitude and longitude), time of event; main source of information; and other descriptive data. Alternative estimates of mortality or other human impact variables are also entered here.

Additional information is provided by a wide variety of sources For example, scientific indicators, time and exact location of event are provided by scientific or technical organisations, such as the World Meteorological Organization (WMO) or the US Geological Survey Names of all cyclonic storms are designated by WMO.

Effects of conflicts

The *World Disasters Report* uses tables and figures in an attempt to indicate the effects of conflict This approach raises several problems, which should be examined before studying the tables

This commentary has been divided into three parts: the first studies the problem of refugees and the internally displaced (Tables 12, 13 and 14), the second evaluates the intensity of conflict (Table 15) and their consequences in terms of numbers of victims (Table 16); the third tries to give an idea, globally, of the main types of conflict over the last five years (Table 17)

Part 1: Movement of populations

The displacement of populations was studied from two different points of view: Table 12 indicates the countries of origin of refugees and Table 13 shows host countries that have to bear the socio-economic consequences of the floods of refugees.

The figures come essentially from international organisations — either those working in the field (Office of the UN High Commissioner for Refugees (UNHCR), World Food Programme (WFP), UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), etc.) or others (e.g., US Committee for Refugees) — who themselves refer to indications given by the governments concerned. The figures are therefore second-hand, with the advantages and disadvantages inherent in such information. For example, it may be in the interest of certain governments not to declare the exact number of displaced people waiting for assistance within their borders. Figures may be based on the number of refugees directly aided by an organisation working in the field, but may not take into account illegal immigrants; those who are well integrated in the local population, or other displaced people who do not live in the camps where the organisation operates. In addition, some refugees are more mobile than others, which renders any census more difficult

The nature of conflicts of the last few years and the brutality they have engendered in relation to civil populations have multiplied the likelihood of massive and rapid flows of refugees: when confronted with these streams of displaced people, it is often difficult for observers to give, then and there, a reliable estimate of the number concerned This is one of the reasons why the figures advanced are often far from

accurate; it is not until humanitarian agencies have set up their operations that data can be revised. A good example of this sort of situation is the Rwandan crisis. Therefore the figures for 1994 — when they are available — are often subject to caution.

Another important feature of recent conflicts is their long duration, which has obvious repercussions on the methods used to evaluate the movement of populations. The start of a crisis is often characterised by a spectacular flood of refugees, but a trickle of people will continue to flee as long as it lasts. Occupied territories (e.g., Palestine, Western Sahara), recurrent ethnic conflict (e.g., Rwanda/Burundi) or prolonged civil war (e.g., Sri Lanka, Angola) are the most striking examples of this sort of situation. Of course, there are exceptions such as Kuwait in 1991.

While Tables 12 and 13 give an indication of cross-border movements, Table 14 gives an estimation of the number of internally displaced within a country where civil war or other such strife has broken out. And it really is only an estimation. The study of mass movements of population is further complicated when, for one reason or another, access to victims is difficult.

- for material reasons, because civil wars (in the majority at the moment — see Table 17) take place within the boundaries of a state and it is therefore almost impossible for assistance organisations to intervene safely on behalf of the internally displaced until they have crossed a national border;
- for legal reasons, because the protection given by certain front-line humanitarian organisations, including some UN specialised agencies, is an “international” protection; for example, UNHCR’s mandate does not, with a few rare exceptions (e.g., the former Yugoslavia), include assistance to internally displaced people. It should be noted, however, that in certain countries torn by civil war, such as Mozambique, UNHCR’s presence has been justified by its repatriation and rehabilitation programmes. But the people concerned by these programmes are not included in Table 14, as they may be internally displaced, repatriated refugees or members of demobilised armed forces.

Part 2: Conflict intensity

Table 15 is an attempt to evaluate the intensity of conflicts. It indicates the number of conflicts by region and by intensity and the same three-section division already employed by other researchers was used (see Wallensteen, P. and Axell, K., *Conflict Resolution and the End of the Cold War 1989-93*, 31 JPR 333 (1994), and *L’Etat du Monde 1994*, Paris, Ed. La Découverte). It distinguishes

- minor armed conflicts, in which the number of victims for the whole conflict is not greater than 1,000,
- intermediate conflicts, where the number of victims for the duration of the con-

flict is greater than 1,000 and the number for the year in question is between 25 and 1,000;

- major conflicts, finally, where the number of victims for the year in question is greater than 1,000.

This strictly quantitative approach makes it possible to avoid the pitfalls that are bound to arise when searching for both the most meaningful and the most wide-ranging definition of conflict. Certain experts — especially legal experts — have tried to define internal conflict by highlighting various objective standards: the existence of an organised, armed group which opposes the government in place, where there is open hostility, and territory occupied by the group. However, these standards are too restrictive, rejecting conflicts in which terrorist groups are active; the situation in Northern Ireland, for example, does not fit into this category. It should be noted that inter-state conflicts do not pose the same problem, as — whatever the consequences — they concern confrontations between two recognised and independent governments (see Part 3 below).

Therefore a quantitative evaluation was chosen. a conflict can be defined as an incompatibility between two parties, where one is a recognised government and the other an armed group, which contests the government’s sovereignty over all or part of national territory and which provokes armed confrontation resulting in the death of at least 25 people. The group does not need to have a well-ordered hierarchy, or even be particularly well organised, but it must have made itself known and use force to achieve its ends.

However, if the use of figures is convenient to establish the field of research, their use does not make the collection of data concerning the victims of conflict any easier. Table 16 shows the figures available for war victims by country in which a conflict has taken place during the study period. The analysis of data presented certain problems.

- Frequently, available statistics only indicate an overall total of victims from the start of the conflict to the present. For this reason, Table 16 indicates the year the conflict started and recapitulates the total number of victims. Even the date can cause problems: when, for example, did the Cambodian war start? Was it in 1970 (Cambodia has been at war more or less permanently since then), or in 1978 (with external intervention)? Or can the hostilities that resumed after the laborious 1991 Paris Accords be considered a separate conflict?

In Table 16, therefore, two dates are shown for certain conflicts — the first date indicates when the problems began and the second indicates an escalation or a sudden resumption of hostilities. The total number of victims is calculated from the date mentioned (year conflict started) to the present time.

- Some reports published immediately after particularly deadly episodes in a conflict are almost too accurate. They take into consideration only the number of victims they can directly confirm, people missing and presumed dead are not often taken into account and the figures have to be regularly updated, where possible

- A distinction should be made between conflicts where a well-defined front line exists and those where it does not. The most reliable figures are obviously obtained in cases where hostilities erupt in a country with well-established institutions, such as when terrorist groups attack a state without threatening its survival or disrupting its structure (Northern Ireland, Spain and, to a lesser extent, Algeria)

The results are fairly conclusive when the conflict takes place around a stable front line or in a geographically well-defined area. Obviously, the situation is much more complicated in war-torn countries where the whole administrative structure has broken down. The figures obtained — when they are available, which is rarely the case — must be treated with caution.

- Finally, indirect victims of conflict must frequently be added to the number of direct victims. The populations in the regions or countries involved in the conflict often exist in such precarious conditions that they are prey to illness (frequently cholera, e.g., Yemen, Rwanda, Angola, etc.) and malnutrition. These victims are included

in the totals shown in Table 16 and therefore influence the data in Table 15.

Part 3: Conflict trends

Table 17 (Types of Conflict by Year and by Region) indicates the number of armed conflicts by major cause. Two distinct categories have been established, inter-state conflicts and internal conflicts, for which an explanation is given below:

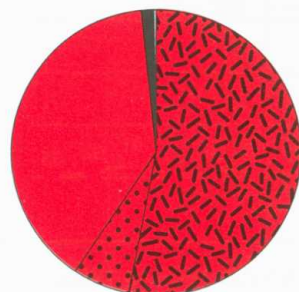
- Inter-state conflict is defined as a conflict between two states, i.e., two territorial and popular entities represented by an internationally recognised government. It is possible that hostilities between two nations will find an echo in one of them, and there are then two distinct conflicts with a common cause.

Kashmir is a good example — one conflict opposes two states (India and Pakistan) and the other opposes one of these states (India) and a section of its population who have formed an armed group (Kashmiri rebels). The situation is different, however, in the case of the former Yugoslavia. There, hostilities broke out inside a single unit which then splintered into several parts. The wars between the governments of the formerly federate states remain one conflict, in spite of the fact that, at one point, it will present the same duality as that described in Kashmir.

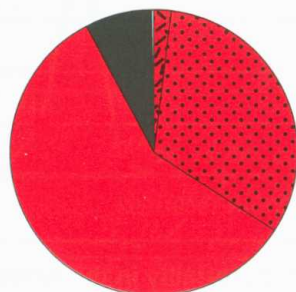
- All other conflictual situations are grouped together as internal conflicts ■

TABLE 1
25-year average by region
Disasters with a natural trigger from 1969 to 1993

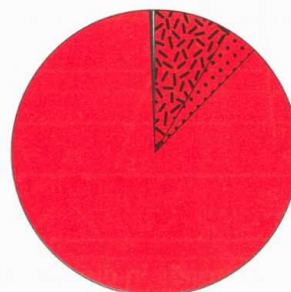
	AFRICA	AMERICA	ASIA	EUROPE	OCEANIA	TOTAL
Killed	76,883	9,027	56,072	2,220	99	144,302
Injured	1,013	14,944	27,023	3,521	100	46,601
Affected	10,556,984	4,400,232	105,044,476	563,542	95,128	120,660,363
Homeless	172,812	360,964	3,980,608	67,278	31,562	4,613,224



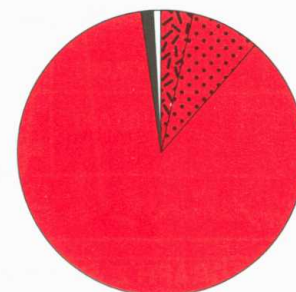
Killed



Injured



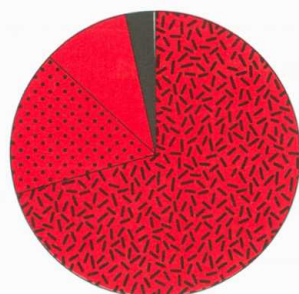
Affected



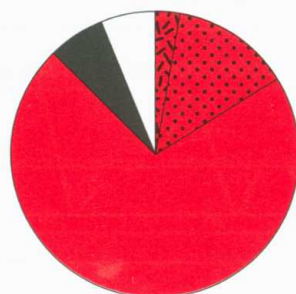
Homeless

TABLE 2
25-year average by region
Disasters with a non-natural trigger from 1969 to 1993

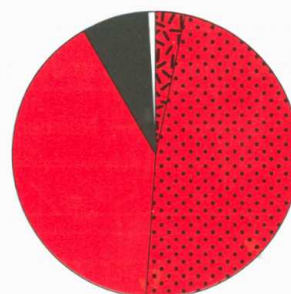
	AFRICA	AMERICA	ASIA	EUROPE	OCEANIA	TOTAL
Killed	16,172	3,765	2,204	739	18	22,898
Injured	236	1,030	5,601	483	476	7,826
Affected	3,694	48,825	41,630	7,870	610	102,629
Homeless	2,384	1,722	6,275	7,664	24	18,069



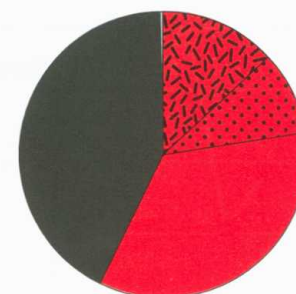
Killed



Injured



Affected



Homeless

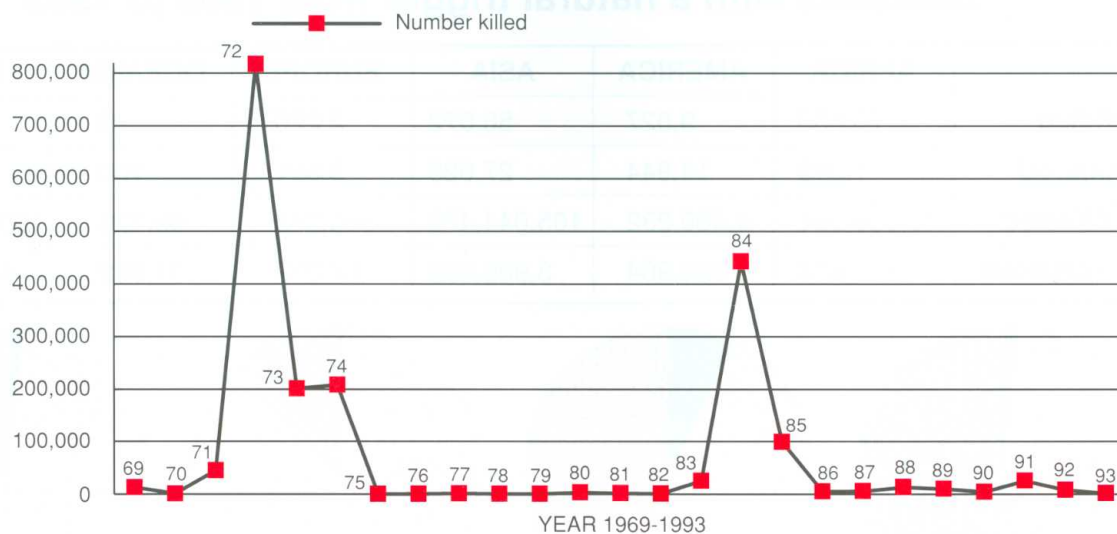
 **AFRICA**
 **AMERICA**
 **ASIA**
 **EUROPE**
 **OCEANIA**



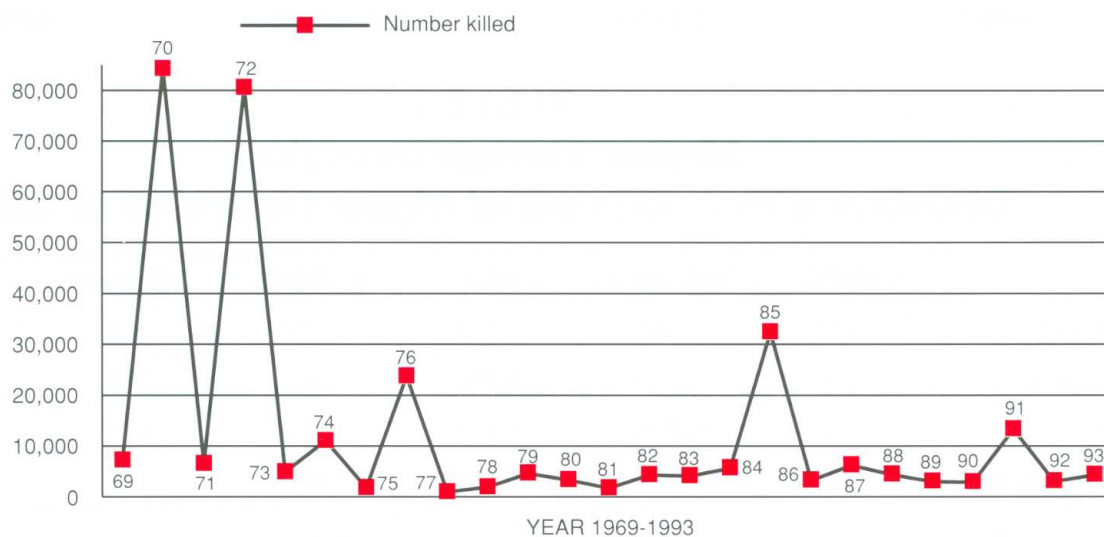
Although agencies measure the severity of disasters by the number of people killed, it is becoming increasingly important also to look at the number affected. Across the world, almost a thousand times more people are affected by disaster than are killed and, for many of these people, survival after the disaster is becoming increasingly difficult, leaving them more vulnerable to future shocks. Addressing human vulnerability to disaster is at the heart of disaster preparedness and prevention strategies.

Mortality for all disasters, 1969-1993

GRAPH 1: Smoothed time-trends in disaster-related mortality in Africa from 1969 to 1993.



GRAPH 2: Smoothed time-trends in disaster-related mortality in the Americas from 1969 to 1993.



GRAPH 3: Smoothed time-trends in disaster-related mortality in Asia from 1969 to 1993.

