UCLouvain
Centre for Research on the Epidemiology of Disasters CRED

Special Edition
Happy Birthday, CRED

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# *Celebrating 50 Years of Disaster Epidemiological Research, Data Collection, and International Cooperation*

**The year 2023 marks the 50th anniversary of the Centre of Research on the Epidemiology of Disasters (CRED). Join us in this special newsletter as we travel back in time to explore the early days of CRED and the birth of our flagship project, the EM-DAT international disaster database.**

## The Emergence of International Disaster Management …

Throughout history, disasters have often been perceived as divine, rare, or uncontrollable, leaving individuals to depend on hope, luck, or improvised emergency responses to survive these catastrophic events. However, with the rise of globalization and increased visibility in the media, disasters appear to have become more frequent and devastating than ever, and so a paradigm shift toward proactive disaster management emerged in the early 1970s.

In the 1960s, numerous disasters prompted the United Nations General Assembly to facilitate and coordinate emergency assistance efforts. For example, the UN adopted specific resolutions following two earthquakes in 1962 and 1968, each killing more than 10,000 people in Iran. At the close of the decade, the year 1970 proved to be particularly devastating. In Peru, the Ancash Earthquake (a.k.a. the Great Peruvian Earthquake) claimed nearly 70,000 lives. In November of the same year, Cyclone Bhola struck East Pakistan (now Bangladesh), resulting in the loss of at least 300,000 lives. This cyclone has been recorded as the deadliest in history.

*In 1973, Prof. Michel Lechat founded CRED as a non-profit institution attached to the University of Louvain.*

In the early 1970s, as a response to these recurring tragedies, the UN aimed to enhance its proactive, organized approach to coordinating international humanitarian assistance. It also sought to promote pre-disaster planning, disaster prevention, control, and mitigation. For these purposes, the United Nations Disaster Relief Office (UNDRO) was established in 1971.

## … and CRED

In Belgium, by the end of the 1960s, the University of Louvain (UCLouvain), established in 1425, split into a Dutch and French-speaking university. The new School of Public Health was located in Brussels, in the commune of Woluwe-St-Lambert, where the medical sciences campus and university hospital were constructed (Fig. 1).

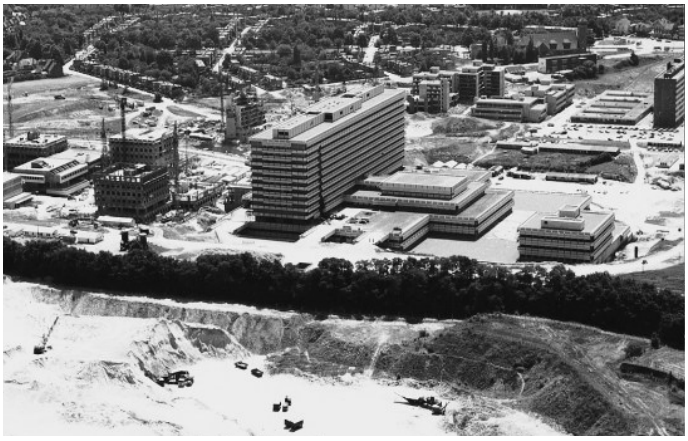

**Fig. 1. Construction Site of the New University Hospital and Campus of Medical Sciences in Brussels (ca. 1970)**
**Source: Archives of Woluwe-St-Lambert**

For this mammoth project, Prof. Michel Woitrin, General Administrator of the University, sought to recruit proficient professors to work in the new faculties. In 1967, his attention turned to Dr. Michel Lechat, a medical doctor from UCLouvain and a renowned leprosy specialist who had obtained a doctorate in public health from the Johns Hopkins School of Public Health (USA) (Fig. 2).

At that time, Lechat was stationed in Mexico as a regional officer for the World Health Organization (WHO) and the Pan American Health Organization (PAHO). When Woitrin asked him to assist in setting up the new School of Public Health and its epidemiology department, Lechat seized the opportunity.

A few years later, in 1971, during a visit to Washington, USA, Lechat met a former official of the Office of Foreign Disasters Assistance (OFDA, now Bureau for Humanitarian Assistance - BHA), a division of the decade-old USAID. Together, they discussed the catastrophic aftermath of Cyclone Bhola, its concurrent cholera epidemic, and the prevailing lack of guidance for humanitarian actors in assessing the impact of disasters on affected populations. This pivotal discussion was all Lechat needed. In 1973, CRED was born as a non-profit institution affiliated with the UCLouvain School of Public Health.

**Fig. 2: Prof. Michel Lechat, Epidemiologist and Founder of CRED (ca.1970)**

## 1970-1980: an Epidemiologist's View on Emergencies

Though founded by Lechat, CRED was first directed by one of his former students, Claude de Ville de Goyet, from 1974 to 1977. Then, de Ville left to join the Pan American Health Organization (PAHO). Lechat managed CRED until his retirement in 1992, at which point Dr. Debarati Guha-Sapir assumed the position.

In the 1970s, we were still in the early years of international aid. Beyond the traditional epidemiology of diseases, Lechat and de Ville started to investigate the epidemiology of earthquakes, notably the 1976 Guatemala Earthquake and its 23,000 victims (Fig. 3).

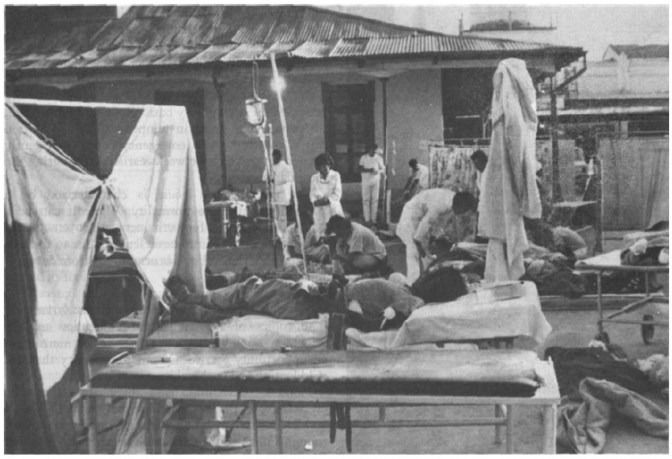

**Fig. 3. Improvised Surgical Operations in the Surrounding of the San Juan de Dios General Hospital, Guatemala Earthquake, 1976**
Source: de Ville et Lechat, 1976, courtesy of IFRC, Geneva

They observed, identified, and systematized common facts, tasks, and lessons to be learned. They also structured the different phases of disasters: prevention, prediction, warning, assistance, and long-term rehabilitation. They pioneered a research field—the epidemiology of disasters—by defining its underlying concepts and their inherent links with the environmental and social sciences. Yet, the emphasis mostly remained on emergency preparedness and the provision of appropriate information for effective emergency management and coordination of relief operations.

Later, the epidemiological approach was extended to include other disaster types, including man-made disasters, particularly nuclear accidents in the 1980s. In 1979, Lechat proposed a set of indices to document and objectify the impact of disasters on people's health. However, the field of disaster epidemiology soon encountered the challenge of insufficient local data and, what's more, global data for effective monitoring.

*In 1981, Prof. Michel Lechat announced a new collaboration with the World Health Organization (WHO), that would lead to the creation of the EM-DAT database.*

Lechat also had to advocate for the emergent epidemiological approach to disasters. During the *Third Conference on The Social and Economic Aspects of Earthquakes and Planning to Mitigate Their Impacts* in 1981, Lechat was surprised by the absence of a health section. He was the sole medical researcher, at that time attached to a group of sociologists. Yet, in his presentation, Lechat emphasized the importance of collecting epidemiological data to ensure effective disaster rescue and relief. To that end, he also revealed that CRED and UCLouvain had initiated a collaboration with Lechat's former employer, the World Health Organization (WHO). This collaboration, among others, paved the way for the development of CRED's flagship project, the EM-DAT emergency events database—a name that is still imbued with the 1970s emphasis on emergency management.

## 1980-1990: Think Human, Think Risk

In 1984, Debarati Guha-Sapir, who held an MSc in Epidemiology and Biostatistics from Johns Hopkins University, joined the CRED and UCLouvain, where she completed her PhD in Epidemiology and Preventive Medicine. Together, Guha-Sapir and Lechat (1986a, 1986b) began developing a global view of disasters beyond local case studies. They looked at the human impact of disaster using sparse global disaster loss data compiled by OFDA/USAID and other stakeholders.

For instance, Table 1, from the 1986a paper, presents disaster mortality distributed between low, middle, and high-income countries using historical data from the Swedish Red Cross. Based on compiled figures such as those from Table 1, it became evident that local socioeconomic conditions, i.e., the human component of disasters, sometimes determine the disaster impact more than the physical magnitude of the hazard.

**Table 1. Disaster Mortality by Level of Economy**

| Mortality | Economy | | |
|---|---|---|---|
| | **Low income** | **Middle income** | **High income** |
| **Per event** | 3300 | 500 | 125 |
| **Per 1000 population** | 69 | 28 | 19 |
| **Per 1000 km²** | 48 | 8 | 1 |

Adapted from Swedish Red Cross, 1985, as in Guha-Sapir & Lechat (1986a)

These kinds of figures and findings provided an evidence-based rationale for involving various experts such as sociologists, economists, policymakers, and health scientists in better framing our understanding of disaster risks and their management. The human component of disasters gained momentum beyond the narrow scope of emergency and relief actions. In the 1980s, the disaster-related concept of exposure, vulnerability, and capacity gained importance and gradually became more clearly conceptualized. In 1984, Wijkman and Timberlake were among the first to criticize the misnomer "natural disaster" in order to correct perceptions about the role and importance of human factors in the causes of disasters (Box 1).

### Box 1: How Could Disasters be Natural?

During the period from 1970 to 1990, the term "natural disaster" was common, but the expression is now discouraged as it conveys the false idea that disasters are, to some extent, part of Nature and, therefore, inevitable. During the 80s, Wijkman and Timberlake (1984) denounced this idea. This led to a progressive decoupling of the natural phenomenon, i.e., the natural hazard, and the subsequent impact, i.e., the disaster. This necessary distinction paved the way for disaster management strategies that are not only focused on emergency planning, e.g., for concepts such as disaster reduction, disaster prevention, and, in later years, disaster risk reduction. However, the old expression is tenacious. The term "natural disaster" is still commonly used in everyday language and in the media. To encourage moving disaster management away from a fatalistic view, many continue to advocate today for the abandonment of the expression.

Nevertheless, the ability of individuals to act before, during, and after an emergency and safeguard vulnerable people and assets is not solely ruled by circumstances, economic means, or development levels (see, e.g., Table 1). Sociocultural mindsets matter, as reflected in the idea of a "disaster culture." Lechat used to illustrate the concept by referring to Schneider (1957), who explained how well the Yap island community in the Western Pacific Ocean has organized itself to mitigate the impact of typhoons.

Far from the fatalism of the past, these new human-centered concepts and scientific approaches helped us to better understand the mechanisms that turn hazards into disasters. So disaster epidemiology emerged, with a focus on health impact and healthcare efficiency. This field matured and gained legitimacy during the 1970s and 1980s, supported by a body of studies adopting the new approach (see Lechat, 1990a).

Disaster management has eventually moved away from a reactive logic, solely based on emergency assistance or emergency preparedness, to gradually embrace the idea that disasters can be managed outside of emergencies and even prevented. It is under this widespread and global scientific impulse that the UN expressed its desire to better protect populations from disasters by launching, in 1989, the first UN agenda specifically dedicated to disaster prevention: the *International Decade for Natural Disaster Reduction* (IDNDR, Fig.4), under the theme "Building a Culture of Prevention."

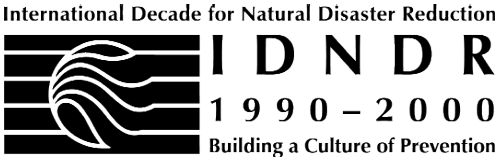


**Fig. 4: The IDNDR Logo**
Source: www.udel.edu

Lechat's involvement in the scientific expert group that instigated the IDNDR was another contribution in his late career as director of CRED (Lechat, 1990b). Years later, in 1998, UNDRO became the UN Office for the Coordination of Humanitarian Affairs (OCHA). In parallel, the UN International Strategy for Disaster Reduction Secretariat (ISDR or UNISDR) was created to pursue the implementation of preventive agendas. UNISDR is currently known as the United Nations Office for Disaster Risk Reduction (UNDRR). Hence, since the 1990s, disaster management at the UN has been carried out by two different institutions, OCHA for supervising humanitarian assistance and relief and UNDRR for disaster risk reduction. This dual structure reflects the changes in our perception and understanding of disasters that took place during the period from 1970 to 1990.

### 1988 - The EM-DAT Database: Think Data, Think Global

Supporting the progress in disaster risk understanding, data provided by the scientific community and field actors was essential. Recognizing the need for comprehensive data to better understand and manage disasters at any phase, Guha-Sapir and Lechat embarked on a mission to create the EM-DAT database. They published an initial design in 1986 that led to the creation of EM-DAT in 1988. EM-DAT was then seen as a component of a larger system managed by the WHO, the Emergency Management Information System (EMIS).

The EM-DAT project took over the data collection activities related to the occurrence, health, and economic impacts of disasters that were previously conducted by the Office of Foreign Disaster Assistance (OFDA), a long-term partner of CRED. In addition to OFDA and WHO, the EM-DAT project quickly established connections with UNDRO, the International Federation of Red Cross and Red Crescent Societies (IFRC), and professionals from the reinsurance sector, along with many other partners, to enhance data collection efforts and standards. Mostly under the leadership of Prof. Guha-Sapir (1992-2021), CRED has collaborated with its partners for the past 35 years to deliver comprehensive information on the global impact of disasters.

*In 1988, Prof. Guha-Sapir led the launch of the EM-DAT emergency events database.*

In addition to the efforts made by CRED, our partners, and the international community, technological advancements have been instrumental in implementing international disaster databases. The availability of data worldwide has significantly improved thanks to technological progress, in particular, the rise of mass media and the internet. This trend is reflected in the number of disaster occurrences in EM-DAT (Fig. 5). The upward trend started in 1964 when OFDA began compiling disaster data, and another significant increase occurred in the late 1980s following the creation of EM-DAT and the advent of the internet era during the 1990s.

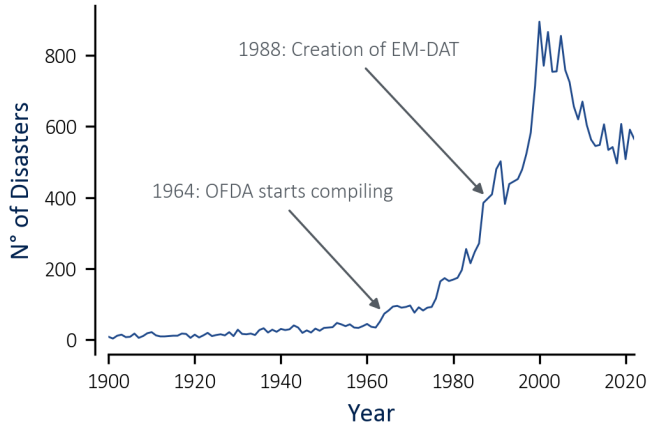


**Fig. 5: Number of Disasters per Year of Occurrence within EM-DAT (1900-2022)**

## Disaster Data: What's Next?

While Fig. 5 demonstrates progress in data collection, it also underscores the time bias and imperfections of the EM-DAT database. Past events are probably missing from EM-DAT due to limited information available to CRED. This artificial trend impedes the ability to draw meaningful conclusions regarding improvements in disaster risk management, shifts in disaster exposure, or the impact of climate change-induced intensification of natural hazards—a major concern in the 21st century. The database also has regional hazard-specific biases, still reflecting, 35 years later, persistent challenges in reporting and collecting comprehensive disaster data.

The current successor to the IDNDR, the UN's 2015-2030 Sendai Framework for Disaster Risk Reduction (SFDRR), reemphasizes the importance of reducing disaster mortality, affected populations, and economic losses globally. So, addressing the challenges of disaster data remains a societal concern. Despite the obstacles, CRED and its partners remain committed to improving current monitoring systems by assimilating more data and technologies. We also aim to increase awareness of disaster data, with improved accessibility along with transparency on its limitations.

On its 50th anniversary, aligning with SFDRR, CRED wishes to witness heightened commitment and partnership from nations, institutions, universities, and private companies in documenting disasters and reducing disaster risks.

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Analysis & Writing: Damien Delforge, Regina Below, Niko Speybroek.
Data: "EM-DAT: The BHA/CRED International Disaster Database."
Data are subject to change, for enquires: contact@emdat.be


## Acknowledgment

*In recognition of those who helped us to reach our 50th-year milestone, our main thanks go to our long-standing partner, USAID, for their steady support of the EM-DAT project over the years. Our thoughts naturally turn to the founder of CRED, Prof. Lechat, who passed away in 2014. CRED would not be what it is without the dedication of Prof. Guha-Sapir, CRED director for almost 30 years. Lastly, while there are many people who deserve our gratitude, our database manager, Regina Below, warrants special recognition. Having been a part of the EM-DAT journey since its early days, she is credited with encoding over three-quarters of the events in the database. If anyone is knowledgeable about the global impact of disasters today, it is highly likely that they owe that understanding to Regina's extraordinary commitment.*


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## CRED Updates and Recent Publications

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- CRED is thrilled to announce the launch of its new website. Check out www.emdat.be.
- The 2023 Scientific & Technical Advisory Group meeting report is available at www.emdat.be/stag
- Prof. Guha-Sapir was recently nominated for the Blue Planet Prize in recognition of her work. Congratulations to her.
- CRED and NIRAPAD conducted joint training on Subnational Retrospective Disaster Loss Database in Dhaka (June 21-22).