Blue Planet Prize 2023

Professor Debarati Guha-Sapir

Interview Summary

THE ASAHI GLASS FOUNDATION

Prof. Debarati Guha-Sapir (Belgium)

Born: 11 November, 1953 / India
Director, The Centre for Research on the
Epidemiology of Disasters (CRED)
Professor, Université catholique de Louvain

<From Childhood to University>

Professor Debarati Guha-Sapir was born in the thriving steel town of Rourkela, eastern India, in November 1953. She is from a family of four: her parents and a sister who is four years older than her. She grew up in an idyllic environment surrounded by nature where peacocks and a variety of other animals were kept in their big garden. She also used to swim a lot and was passionate about sports. Communicating with nature and animals also brought her happiness. However, in her teens, she experienced a severe heatwave which left a deep impression on her. She still remembers her father constantly worrying about the construction workers working in the extreme heat. It was the very first natural disaster she experienced herself. After finishing secondary school, she went to university in the metropolis of Calcutta. However, the subject she majored in was decided by her uncle who was the head of her family. He chose a literature as her major at the University of Calcutta. It was believed to be the most suitable subject for a woman from a respected family because it would instill good behavior and be useful in finding a worthy husband. She followed the family's decision and enrolled in university to study literature. Once she started, she immersed herself and enjoyed her university life.

With her family
(Second from left)

At age 17

In Rourkela, with her family and relatives
(Middle row/second from left)

Her life was about to take a major turn following her graduation from the University of Calcutta. Although she enjoyed studying literature, she felt that it was not something she wanted to pursue for the rest of her life. She turned to her father, whom she trusted the most. Her father, who saw she was a capable and determined young woman and understood her intention, suggested she try to apply for some scholarships at top universities in the UK and the US. As she started to prepare for numerous applications, she received an invitation from the Rotary Club of India for a scholarship program. They offered four scholarships to go to any university abroad to students selected within India, whose population exceeded a billion. The Rotary Club would cover their travel costs, tuition fees, and the cost of course materials for one year. Professor Debarati Guha-Sapir successfully won this scholarship and received admission offers from four universities - Yale, Princeton, Johns Hopkins which are in the USA, and Cambridge in the UK. Eventually, she gained approval from her wider family to go to Johns Hopkins University in the USA because her cousin was also studying there at the time.

＜The Pathway into Public Health and Epidemiology at University＞

When she first enrolled at Johns Hopkins University, her major was comparative literature. However, when she told the Dean about her volunteer work in India during the big floods, he suggested seeing a professor in the School of Public Health. When she had an opportunity to talk with the professor, she began to realize what she truly wanted to pursue. It became clear to her that she wanted to do something meaningful for her home country of India, as well as for other poorer countries. Professor Debarati Guha-Sapir began studying really hard for the examinations that allowed her to transfer to the School of Public Health. As she looks back, she says: “I took advanced statistics, mathematics, a bunch of other subjects, and worked like a dog.”

Her efforts paid off. She passed the exams and enrolled in the Department of Epidemiology at the School of Public Health. Her main focus of study there was on infectious diseases and how they spread, as well as on international health studies. She dedicated most of her time to studying and getting trained in diseases such as dengue and hemorrhagic fevers and researching chronic manifestations of epidemics and malnutrition. During her studies, she was greatly influenced by Professor Carl Taylor, an expert in international health. Through his lectures, she learned many new things, including the division of the public health system between urban residents and the others. She discovered that in poor countries, nearly two-thirds to three-quarters of the health budget and the number of doctors are concentrated in urban areas, while the real problems lie in the rural regions. This is very much true today, and not only in poor countries. The availability of doctors is significantly lower even in wealthier countries once you leave the metropolitan areas.

Professor Guha-Sapir’s study into traditional and basic epidemiology at Johns Hopkins University, renowned for its Public Health research at the highest academic level, is how she developed her expertise in this field.

University days ①

University days ②

With André in early days

Professor Guha-Sapir recalls how she experienced a huge culture shock after arriving alone in the United States from India to study in the mid-1970s. She had never seen people with different hair and eye colors in her life before. She found it rather odd, and it took her a while to get used to it. Another aspect that struck her was the freedom to showcase one's strength in US universities. However, to demonstrate your strength, you have to constantly compete. You pay high tuition fees and living costs, so you need to get the knowledge and the degree you paid for. She reflects that studying hard from morning till night instilled in her a highly competitive spirit.

＜About Centre for Research on the Epidemiology of Disasters (CRED) and EM-DAT＞

While studying at the university, Professor Guha-Sapir met André Sapir, a doctoral candidate in economics from Belgium. He was three years senior to her and was a friend of her cousin, who was also studying at Johns Hopkins University at the time. After two years of dating, they got married in 1977. They moved together to Madison, Wisconsin, for his job, where she joined a research unit of the Wisconsin state government as an employee. It was a leukemia research project that revealed a link between leukemia cases in children and wastewater from paper mill, which was a pressing issue at that time. After living in Madison for five years, they decided to move to André's hometown Brussels, Belgium, where Professor Guha-Sapir's new research career in Europe began.

However, her new life in Brussels didn't start well. She couldn't speak the language, didn't have a job or any social contacts, and had to adjust herself again to a different set of cultural norms from those she experienced in the United States. Nevertheless, she tirelessly searched for what she could do there. She finally found a non-paid assistant job for a professor at the Catholic University of Louvain. While working there, she was introduced to Professor Michel Lechat, whom she deeply admires as a lifelong mentor in her research life. When they first met, Professor Lechat offered her two potential positions. One was for a big project with a good salary, but her task would be boring data entry. The other option was for an underfunded project with a lower salary, but focused on researching the problem of malnutrition in poor countries, allowing her to select her own target countries. Having no interest in the data entry job, she chose the lower-paid position without hesitation.

New Life in Brussels

With Prof. Michel Lechat

In 1985, she was asked to participate in a project to investigate hunger and drought in Chad, Africa. It was her first major fieldwork project, and she was deeply shocked when she arrived there. There were thousands of people, including many small children with mouths white from dryness, who were extremely malnourished because of the famine in the country. The children looked like sticks. People were facing extreme hunger, and their plight was excruciating to witness. Professor Guha-Sapir spent three and a half months collecting the necessary data there, before returning home. As she described the situation to Professor Lechat, she was asked about the rate of malnutrition and mortality. She remembers replying something like, "Many people were dying." It was then Professor Lechat told her, that 'many' is not a term for science but for daily newspapers and is meaningless unless it is accompanied by the number of deaths per head of population. This experience strongly drove home the necessity to have precise data to deal with disasters.
For example, when starvation occurs, the mortality rate rises sharply, but once it peaks, it starts to drop as the survivors would be brought to the hospital to receive intravenous nutrition and vaccinations to prevent deaths. If people come to the area after the peak and run a survey, they will find that the situation is not so bad because they will survey only the survivors. The conclusion would be misleading if they didn't compare it with past mortality rates. To make a correct analysis, it is vital to have the correct sets of data.

In 1988, after spending years collecting, analyzing, and studying disaster data at the Centre for Research on the Epidemiology of Disasters (CRED) in Brussels under Professor Lechat, Professor Guha-Sapir created the Emergency Events Database (EM-DAT), the International Disaster Database. The main objective was to provide data on the human and economic impact of disasters to support humanitarian action at national and international levels. However, there was a significant skepticism in the beginning. People didn't believe that anyone could monitor all the natural disasters in 184 countries; and even if they could, it would not be collected properly. Consequently, the quality of the data would be so poor that no one would be able to utilize it. Despite all these criticisms, she

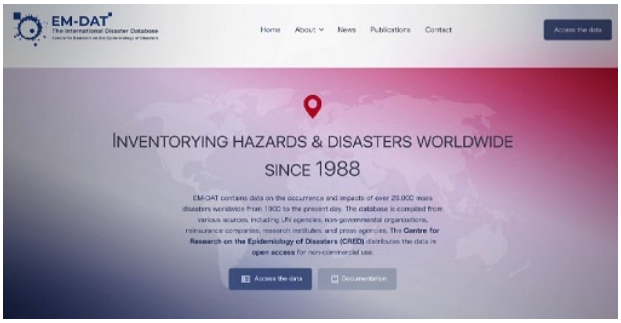
was determined to provide highly reliable data and worked hard with Claudine, her colleague, to gather and analyze the information. Finally, they published their data on their official website.

Since the launch of EM-DAT, the number of users increased rapidly around the world, ranging from high school students, UN, relief agencies, governments to the military. For countries with limited resources to collect disaster data, freely accessible EM-DAT data has proven to be highly valuable. Many students from around the world were also heavily using EM-DAT data to conduct research and produce papers. After about eight years of trial and error, Professor Guha-Sapir finally felt that they had achieved something substantial.

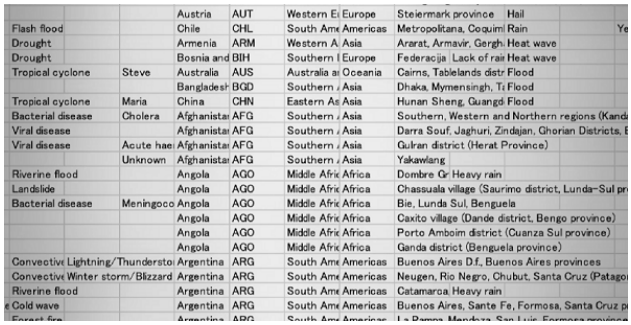
＜Data Collection and Classification for EM-DAT＞

EM-DAT covers 184 countries and is constantly gathering information. Initial reports on disasters come from major news agencies such as AFP, Associated Press, and Reuters, providing breaking news on the location and nature of the disaster. Subsequently, more detailed information is obtained from various contracted agencies and organizations, such as the Red Cross, UN agencies, insurance companies, Doctors Without Borders, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), NGOs, and civil society groups. These ongoing reports are closely examined and continuously updated. During the initial stages of a disaster, the figures reported from various sources may differ significantly, but after a few weeks, these discrepancies tend to diminish. A refined estimate is then established, drawing from expertise accumulated through years of experience. This estimate often relies on the final figures provided by UN agencies, the Red Cross, and governments. The data from these three sources is meticulously cross-checked to ensure consistency and reliability.

EM-DAT classifies disasters into two major categories: natural and technological disasters. Technological disasters are those triggered by technical factors, such as bridge collapses, ship accidents, and large truck accidents.
Each disaster is summarized by three key components.
(1) Physical characteristics of the disaster (scale and degree)
(2) Human impact of the disaster (number of dead, injured, homeless, etc.)
(3) Economic impact of the disaster (what industries were affected and how)
In the two major categories, the data will be classified further into elements (1) through (3).
For example, when a natural disaster occurs, it is classified into further categories of what kind of natural disaster it is. If it is a water-related disaster, then it is again classified into the different types of water-related disasters. If it is a flood, for example, it is divided into subcategories such as flash floods, river floods, and coastal floods. Other categories of data include the date, country, and region where the disaster occurred, so the data can be searched and sorted by category such as disaster size, type, region, or period, and freely downloaded.



EM-DAT Official Homepage



		Austria	AUT	Western Eu	Europe	Steiermark province	Hail
Flash flood		Chile	CHL	South Ame	Americas	Metropolitana, Coquimb	Rain
Drought		Armenia	ARM	Western A	Asia	Ararat, Armavir, Gergh	Heat wave
Drought		Bosnia and	BIH	Southern I	Europe	Federacija	Lack of rair Heat wave
Tropical cyclone	Steve	Australia	AUS	Australia a	Oceania	Cairns, Tablelands distr	Flood
		Bangladesh	BGD	Southern /	Asia	Dhaka, Mymensingh, Ti	Flood
Tropical cyclone	Maria	China	CHN	Eastern As	Asia	Hunan Sheng, Guangd	Flood
Bacterial disease	Cholera	Afghanistar	AFG	Southern /	Asia	Southern, Western and Northern regions (Kand	
Viral disease		Afghanistar	AFG	Southern /	Asia	Darra Souf, Jaghuri, Zindajan, Ghorian Districts, E	
Viral disease	Acute hae	Afghanistar	AFG	Southern /	Asia	Gulran district (Herat Province)	
	Unknown	Afghanistar	AFG	Southern /	Asia	Yakawlang	
Riverine flood		Angola	AGO	Middle Afric	Africa	Dombre Gr	Heavy rain
Landslide		Angola	AGO	Middle Afric	Africa	Chassuala village (Saurimo district, Lunda-Sul pr	
Bacterial disease	Meningoco	Angola	AGO	Middle Afric	Africa	Bie, Lunda Sul, Benguela	
		Angola	AGO	Middle Afric	Africa	Caxito village (Dande district, Bengo province)	
		Angola	AGO	Middle Afric	Africa	Porto Amboim district (Cuanza Sul province)	
		Angola	AGO	Middle Afric	Africa	Ganda district (Benguela province)	
Convective	Lightning/Thunderstor	Argentina	ARG	South Ame	Americas	Buenos Aires D.f., Buenos Aires provinces	
Convective	Winter storm/Blizzard	Argentina	ARG	South Ame	Americas	Neugen, Rio Negro, Chubut, Santa Cruz (Patago	
Riverine flood		Argentina	ARG	South Ame	Americas	Catamarca	Heavy rain
Cold wave		Argentina	ARG	South Ame	Americas	Buenos Aires, Sante Fe, Formosa, Santa Cruz p	

EM-DAT

In addition, Professor Guha-Sapir and her colleagues also conduct more detailed studies, or microstudies of the disasters. By closely examining the profiles of those who died in disasters, they aim to identify potential risks in that area and provide useful information for future policy decisions to prevent similar tragedies in the future.
For example, in 2021, a flood in Belgium claimed the lives of 38 people. The significant number of fatalities prompted an investigation into the profiles of the individual victims. Among them were mostly men, not particularly old, and some had disabilities. What risks were these victims exposed to? As it turned out, most of them resided in impoverished areas with a low cost of living but a high flood risk. This requires the government to reconsider its housing policies in those areas in the future, not to mention the higher risks for people with physical disabilities. They aim to provide such information that leads to better future policy decisions.

Another project example is the study of the earthquake in Naples, Italy, led by Professor Michel Lechat. Most of the victims of that earthquake were young men. Young men are generally agile, resistant, and usually have the lowest mortality rate. So why did so many of them die? There were university accommodation in the area where the earthquake struck. When researchers examined the individual cases, they found that most of the victims lived alone. In fact, often victims rescued after an earthquake, where the shock is sudden and violent, are saved by their family members and neighbors. The professional teams are often too late. This case showed that living alone could also pose a very high-risk factor for death in disasters. Professor Guha-Sapir hopes that such detailed information will lead to risk reduction and disaster preparedness, and that the right budget will be allocated to the relevant socioeconomic areas.

In this manner, EM-DAT has demonstrated a high degree of scientific reliability as a disaster database and has gained widespread recognition and use around the world. Researchers from the UN agencies, the World Health Organization, and universities use EM-DAT data as a basis for further in-depth analysis. Non-governmental organizations and activists also employ this data to support

policy recommendations. Additionally, EM-DAT plays a crucial role in the creation of global reports by IPCC and the World Bank.

＜The Future of Centre for Research on the Epidemiology of Disasters (CRED) and Professor Guha-Sapir's Future Goals＞

Professor Guha-Sapir states that floods account for 43%, nearly half, of all the natural disasters worldwide, followed by storms, accounting for about 30%. Floods and storms account for 70% of natural disasters. Earthquakes come next at 8%, followed by extreme temperatures (heat waves and cold waves) at 6%, and landslides and droughts at 5%. However, heat waves and cold waves are a natural phenomenon that is difficult to define. Professor Guha-Sapir believes that the 6% is an underestimated figure and needs to be refined in the future. A recent trend in natural disasters is that the number of people affected has increased compared to 30 years ago. She believes that this is probably partly, due to the rise in the population density in at-risk areas.

In response to these trends, Professor Guha-Sapir, the director of CRED, emphasizes the necessity for further evolution. One of the key elements they need to focus on is data collaboration. Some 20 years ago, each discipline, such as physics, atmospheric physics, meteorology, and climatology, conducted their own research within their field. She believes that now this approach should be brought to an end. Scientists holding relevant data, regardless of their discipline, should use and consolidate each other's specialized data for their research through a shared platform, which could eventually lead to better data and research results. This can be achieved if everyone comes together and decides to work collaboratively. This is her current goal.

Professor Guha-Sapir is also working on a new project to investigate the causes of death in humanitarian crises. This research will focus not merely on the sheer number of fatalities, but will also meticulously examine the root causes of mortality in large-scale humanitarian crises, such as natural disasters, armed conflicts, and religious persecution. In many countries, only around a third of deaths have death certificates, and most have no cause of death. So we don't know why a person has died. It is crucial to determine the cause of death, whether it was due to infectious disease, malnutrition, trauma, injury, heart disease, or some chronic problem. Utilizing the "Verbal Autopsy" method developed by the World Health Organization, information about the deceased can be gathered from their caregivers. Gaining a more precise understanding of the profile of the cause of death is essential. Professor Guha-Sapir emphasizes that interdisciplinary research and the study of cause-of-death validation pose new challenges for the future of CRED.

Meeting on flood defense structures

Meeting in Benin（2015）

＜Private Life＞

Professor Guha-Sapir enjoys listening to music and gardening as hobbies. She prefers attending live concerts to listening to recorded music as she enjoys the atmosphere of live performances. This preference stems from her upbringing in India, where she was accustomed to listening to classical music live. Gardening is another passion of hers. The cycle of watching growth, decline, and renewal brings her tranquility and peace. Professor Guha-Sapir also mentioned her partner André, an economist. Their diverse expertise, stemming from their work in different fields, fosters a rich exchange of stories and a profound understanding of each other's work constraints.

André also has a very positive impact on her work. For example, when she returned from Chad, he suggested she also explore the occupational characteristics of those affected by the famine. He highlighted that the impact of famine on individuals is not solely determined by poverty levels but also by occupational differences, which poverty affects indirectly. As a simple illustration, in a village setting, a barber's services become less essential during times of food scarcity, making barbers among the first to face significant hardships. The same poverty can have vastly different impact depending on one's occupation. André's economic perspective provides valuable insights that are distinct from those in the field of health and sanitation. This was solely an economic perspective, and André offered excellent insights from a completely different angle from public health. Professor Guha-Sapir deeply admires André for his intellectual excellence.

Wedding Ceremony

Love of cooking

André describes her as a very creative and resourceful person who can adequately adapt to situations, and is very optimistic. When she returned home from a field study in a refugee camp, he anticipated her being disheartened after witnessing many harsh conditions in Africa. Yet, to his surprise, she came back with a notably positive outlook. According to André, she has an innate ability to discover glimmers of hope, no matter how dire the situation may seem.

Amidst their busy lives, André finds immense joy in seeing his wife, Professor Guha-Sapir, a talented cook, prepare a variety of dishes in the kitchen on weekends. He relishes both the delightful food and the enticing aroma that fills their home.

＜A Message to the World Leaders and Policymakers and Our Challenge＞

The following is the message to world leaders and policymakers from Professor Guha-Sapir.

We need to understand that it is imperative to address the issues of people on the ground, especially in extreme climate conditions. While there have been numerous macro-level discussions and significant advancements such as electric cars and wind power, insufficient attention has been paid to improving the lives of those who are suffering on the ground. Local communities are at the forefront of climate change, despite not being responsible for its causes. Major Western countries bear responsibilities for climate issues, yet they are hesitant to provide adequate funding to poorer nations facing the brunt of climate change. We must substantially increase contributions to climate funds and demonstrate greater empathy for the plight of impoverished communities affected by floods, storms, and other disasters. Addressing the daily needs of people struggling with severely limited resources is crucial.

Professor Guha-Sapir also said as follows:

I think we must sit back and review what we have done for the last 30 years since the inception of COP. We have established an international framework and set specific targets for climate change and greenhouse gas emissions, but we have not seen any significant successes. Not only are we finding it difficult to limit the temperature rise to 1.5 degrees Celsius, but we are also going backwards. We must

acknowledge that the path we've been on may not have been the right one. We need to learn lessons from this and determine how we can safeguard those currently on the front lines of climate change. We must urgently seek more effective adaptation strategies that enable people to manage potential future disasters. Additionally, we need to change our lifestyles. Over time, our lives have become exceedingly consumer-based. A consumer-based society brings about not only climate-related issues but also various negative aspects. People living in Global North could reduce high levels of consumption of consumer goods and control food waste. Climate disasters are set to increase in the near future. We must adapt our lifestyles to protect the vulnerable in every country of the world – rich and poor. We can begin with educating children and young adults – who are the future of our world - on environmental and climate issues.

Professor Guha-Sapir poses a crucial challenge to us on what we should truly prioritize going forward.