

METHODOLOGY

This report was created using a desk-based collection of technical scientific analysis, policy documents, institutional reports, case studies and research at all levels. Sources included: multiple reports and case studies by IFRC and National Red Cross Red Crescent Societies; analyses by major health, development and humanitarian actors including the World Health Organization (WHO), World Bank, United Nations and others; and academic research in fields including public health, disaster risk management, development and humanitarianism. The most significant external sources are listed and briefly described in the Introduction.

Conclusions from these sources were corroborated, updated and put in context through interviews of practitioners, staff and volunteers operating in the field. Interviews were conducted with representatives, often in groups, of specialist IFRC teams and various Red Cross Red Crescent National Societies.

Draft chapters have been reviewed by IFRC specialists and senior management, representatives of National Societies, and expert external peer reviewers.

Chapter 3 analyses of vaccine donations

We compared donations of vaccines to countries of different income levels. Vaccine donation data was obtained from the United Nations Children's Fund (UNICEF) COVID-19 Market Dashboard ([UNICEF, no date](#)). This was merged with World Bank income categories for donor and recipient countries ([World Bank Data Help Desk, no date](#)). Donors and recipients were each grouped into high-, middle- and low-income countries, and doses summed for each group.

A second analysis compared recipient countries' vaccine needs with the doses actually received. Income categories were again obtained from the World Bank. Data on vaccine courses delivered as a percentage of the country's population were taken from UNICEF ([UNICEF, no date](#)). This was merged with data on the number of doses donated and delivered ([UNICEF, no date](#)) and each country's total population in 2020 ([World Bank Databank, no date](#)). This gave a ratio of doses donated compared to the percentage of the population unvaccinated and therefore in need of doses.

A third analysis explored vaccination rates by income group. Data was obtained from Our World in Data's vaccination landing page ([Our World in Data, no date](#)). Vaccination rates were extracted by date and by country and mapped for each country with its income group

Trends in disaster data methodology

EM-DAT is the International Disaster Database from the Centre for Research on the Epidemiology of Disasters (CRED) at the Université Catholique de Louvain. It collects and compiles information on disasters from public sources, UN agencies including WHO, non-governmental organizations, insurance companies and research institutes, and secondary data from press agencies. Further details are available from EM-DAT ([EM-DAT, no date](#)).

EM-DAT data covers four overall categories of disaster:

- **Climate- and weather-related events**
 - » Meteorological: Storms such as tropical cyclones, extratropical storms and convective storms (such as tornadoes, storm surges, hail, lightning, severe storms, derecho, sandstorms, winter storms) and extreme temperatures (cold waves and heatwaves).
 - » Hydrological: Floods such as riverine, pluvial/flash floods, and landslides and mudslides related to hydrological events.
 - » Climatological: Droughts and wildfires.
- **Geophysical:** Earthquakes, volcanic activities, and landslides related to mass movement.
- **Biological:** Epidemics (only emergency outbreaks), insect infestation and animal accidents.
- **Technological:** Transport accidents (air, boat, train and road), which also include migrant boat accidents and industrial accidents (including nuclear explosions and dam breaks).

For a disaster to be entered into the EM-DAT database, at least one of the following criteria must be fulfilled:

- 10 or more people reported **killed**.
- 100 or more people reported **affected**.
- Declaration of a **state of emergency**.
- Call for **international assistance**.

The EM-DAT data used in this report was downloaded on 1 September 2022.

The data in EM-DAT have some key limitations, as follows:

- **Damage:** Damage and cost estimation of disasters is largely under-reported in EM-DAT. Most (78%) records do not contain this information.

- **Affected people:** Estimates of the number of people affected and killed by disasters are not comprehensively reported. A third (33%) of records do not contain the number of people affected, and 21% do not record the number of deaths. There may also be some inconsistencies in who is classed as affected. The EM-DAT definition of affected is “people requiring immediate assistance during a period of emergency, i.e. requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance”. However, for some disasters broader definitions appear to have been used. As a result, we focused more on numbers of disasters and deaths, which leaves less room for interpretation.
- **Other hazard information:** Data on the intensity (magnitude) of climate- and weather-related disasters is limited. Half (53%) of extreme temperature events, 58% of wildfires and 65% of floods do not include information on their measurable intensity. In addition, the precise duration of hazards is not known in 15% of records. Availability of precise location is also poor: 90% of records do not include GPS locations.
- **Conflict:** EM-DAT does not include war, conflict or conflict-related famine as disaster events.
- **COVID-19:** EM-DAT does not include COVID-19 data.

Care must be taken when calculating numbers of events, or countries affected, using EM-DAT. This is because disaster events are recorded by country in the EM-DAT database; as a result, a single event that impacts several countries will appear multiple times. To calculate the number of independent events, a unique identifier was generated based on the following fields available from EM-DAT: ‘Disaster type’, ‘Seq’ and ‘Year’. Total numbers of people affected and killed were then aggregated by this unique identifier. To validate these events, the data were checked against the ReliefWeb disaster database ([ReliefWeb, no date](#)).

Events with 10 or more people reported killed and/or with 100 or more people reported affected are classified as ‘significant’ events. The analyses presented in Chapters 2 and 3 is based only on disasters classified as ‘significant’.

To compare the effect of disasters depending on whether they were concurrent or not, we compared the same disaster type in the same first-level administrative division of each country. This enabled comparisons within similar geographic spaces, climates and environments.

BIBLIOGRAPHY

EM-DAT (Emergency Events Database) (no date) *Université catholique de Louvain (UCL) – Centre for Research on the Epidemiology of Disasters (CRED)*. <https://www.emdat.be/>

Our World in Data (no date) *Coronavirus (COVID-19) vaccinations*. <https://ourworldindata.org/covid-vaccinations>

ReliefWeb (no date) *All Disasters*. <https://reliefweb.int/disasters>

UNICEF (United Nations Children’s Fund) (no date) *COVID-19 Market Dashboard*. <https://www.unicef.org/supply/covid-19-market-dashboard>

World Bank Databank (no date) *Population, total*. <https://data.worldbank.org/indicator/SP.POP.TOTL>

World Bank Data Help Desk (no date) *World Bank Country and Lending Groups*. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

THE FUNDAMENTAL PRINCIPLES OF THE INTERNATIONAL RED CROSS AND RED CRESCENT MOVEMENT

Humanity

The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

Impartiality

It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

Neutrality

In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

Independence

The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

Voluntary service

It is a voluntary relief movement not prompted in any manner by desire for gain.

Unity

There can be only one Red Cross or Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

Universality

The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.



The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian network, with **192 National Red Cross and Red Crescent Societies** and around **16.5 million volunteers**. Our volunteers are present in communities before, during and after a crisis or disaster. We work in the most hard to reach and complex settings in the world, saving lives and promoting human dignity. We support communities to become stronger and more resilient places where people can live safe and healthy lives, and have opportunities to thrive.