

*United Nations International  
Strategy for Disaster Reduction*

*Natural Disasters Due  
to Global Warming:  
The Aftermath*

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## *INTRODUCTION*

The United Nations Office for Disaster Risk Reduction was established in 1999. “UNISDR’s mandate has been defined by a number of United Nations General Assembly Resolutions, the most notable of which is ‘to serve as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities of the United Nations system and regional organizations and activities in socio-economic and humanitarian fields’” (UNISDR, 2018). The UNISDR focuses on understanding natural disasters and its causes, the reduction of the effects a natural disaster may have and on the aftermath of it.

Climate hazards are natural events that happen every year. However, in recent years these hazards have increased, bringing with them destruction and devastation. On average there are 400 “extreme weather events” per year globally (Oxfam International, 2018). As the global warming phenomenon keeps augmenting each year, “the chance of being displaced by a natural disaster is 60 percent higher today than it was in the 1970s” (White, 2015). The scale of destruction that natural hazards have in present day is terrifying for the people in risk of suffering them. The reason is that “changes in the global climate exacerbate climate hazards and amplify the risk of extreme weather disasters” (Oxfam International, 2018). This, together with overpopulation and lack of resources puts international security in danger.

Disaster risk reduction is a global responsibility. As an international community it is important to seek solutions for the aftermath of natural disasters. As such, the UNISDR serves as a secretariat that facilitates the implementation of the International Strategy for Disaster Reduction (ISDR). This agency aims to reduce the damage caused by natural disasters such as earthquakes, floods and cyclones through an ethic of prevention. The UNISDR focuses on the reduction of the risks that come with a disaster through systematic efforts and in this way reduce causal factors, as well as on the actions taken in the aftermath of these disasters to assure they are sustainable and effective (UNISDR, 2018).

### **History of the problem**

Climate change is a change in climate that persists for a long time or permanently. It arises either by natural causes or human intervention. It modifies and intensifies the occurrence of natural hazards and increases the “vulnerability and

eroding the resilience of exposed populations that depend arable land, access to water, and stable mean temperatures and rainfall” (UNISDR, 2015). Effects may vary for each region, but some are:

- Decreasing agricultural yields in warmer environments due to heat stress
- Rising sea levels
- More severe and frequent extreme precipitation events, which will intensify existing patterns of extensive risk
- Changes in the geographic distribution of weather-related hazards
- Decreasing resilience

There are 2 types of natural disasters:

- **Geophysical:** no relation with weather; include volcanoes, earthquakes, rockfalls, landslides, and avalanches
- **Climate-related:** have causal connection with the weather; include floods, storm surges, coastal flooding, storms, tropical cyclones, heat/cold waves, drought, and wildfires.

Between **1990** and **2014** there were more than 8,000 weather-related disasters around the globe. This pie chart represents them in categories, according to International Monetary Fund statistics.

In **2005** Hurricane Katrina displaced more than one million residents of the Gulf Coast. “Once rescued from their flooded homes, many were shipped to neighboring states where they had [nothing] and little idea of how long they would be gone” (White, 2015).

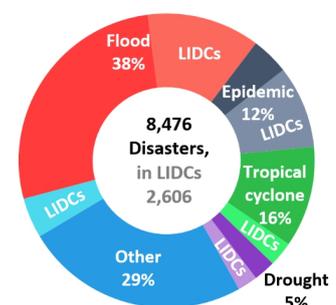
In **2014** there were reported that more than 19 million people around the world fled their homes due to natural disasters.

In Syria, drought caused huge citizen migration from rural areas to cities just before the civil war commenced. Even though droughts are not the only reason why it was triggered, they provoked similar events in Africa (Jones, S., 2016).

**2017** brought a series of devastating hazards around the globe:

- The Mexico earthquake in september originated 100km away from the capital and caused severe damage (displacement, death, fallen buildings and infrastructure, etc) in Mexico City, Puebla, Morelos, Oaxaca and bordering states.

**Weather-stricken**  
Natural disasters are more frequent in low-income developing countries relative to their land area.



Sources: International Disaster Database (EM-DAT) and IMF staff calculations.  
Note: The colors indicate the different types of natural disasters, while the lighter shades of each color specify the portion corresponding to low-income developing countries.

- Hurricane Irma was the strongest in the Atlantic since 2005 (in terms of sustained winds, caused widespread and catastrophic damage).
- There were floods in South Asia in which 43 million people were hit by heavy monsoon rains and intense flooding; they were the worst in nearly 30 years and more than 1,200 were killed.
- The East Africa drought lasted for 18 months (and counting); it was caused by El Niño wind current shifts and climate change.
- Hurricane Harvey was the first major hurricane to make landfall at such an intensity in the United States since 2005.
- There was a deadly extreme heat wave in India and Pakistan, as in 2015. Temperatures soared 53.5°C. *(further information at Oxfam International, 2018)*

The events listed are very few in comparison to the ones that have stricken countries all across the globe in recent years. If you wish to access a complete list of natural disasters on each country, visit one of the following links:

For Africa: [https://www.preventionweb.net/english/countries/statistics/index\\_region.php?rid=1](https://www.preventionweb.net/english/countries/statistics/index_region.php?rid=1)

For Americas: [https://www.preventionweb.net/english/countries/statistics/index\\_region.php?rid=2](https://www.preventionweb.net/english/countries/statistics/index_region.php?rid=2)

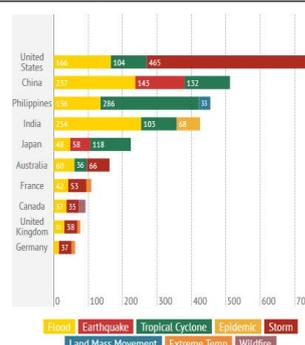
For Asia: [https://www.preventionweb.net/english/countries/statistics/index\\_region.php?rid=4](https://www.preventionweb.net/english/countries/statistics/index_region.php?rid=4)

For Europe: [https://www.preventionweb.net/english/countries/statistics/index\\_region.php?rid=3](https://www.preventionweb.net/english/countries/statistics/index_region.php?rid=3)

For Oceania: [https://www.preventionweb.net/english/countries/statistics/index\\_region.php?rid=5](https://www.preventionweb.net/english/countries/statistics/index_region.php?rid=5)

Climate change is caused by various factors. One of them is the El Niño Southern Oscillation or ENSO. El Niño and La Niña are contrasting effects of the ENSO. They are an oscillation in temperatures between the atmosphere and the ocean of the eastern equatorial Pacific region. The phenomenon is caused by a change in wind patterns. The importance of the effects of it is that the effects of ENSO worsens climate change (Mason, M., 2018).

### Most common natural disasters by country



It is a struggle to manage all the hazard consequences properly, as they do not only have to do with environmental issues, but also with the following:

- Displaced populations: refugees can affect the accessibility to health and education services, food supplies and clean water
- Health: disasters can augment the probability of new diseases, as the environment has dangerous conditions
- Food scarcity: delivering supplies to the affected can turn very complicated, and hunger puts people in risk
- Emotional aftershocks: events can be highly traumatic for anyone who experiences them. It can lead to permanent damage

(Child Fund International, 2013)

### *CURRENT SITUATION*

Nowadays, sea levels are rising, temperature is shifting uncontrollably, droughts are more common and prolonged, extreme heat events last longer, storms are supercharged, wind speed is higher, flood and precipitation are heavier, and gas emissions are excessively high. Weather conditions tend to be more unpredictable and extreme than they were before. It is worrying that families with low income own housing which “is poorly equipped to cope with the impact of extreme weather because it is often old, poorly maintained, or shabbily built” (White, 2015). Natural disasters have disproportionate consequences for low-income people, making them the weakest link to reach with disaster prevention strategies.

Climate change displaces people, thus increasing a state of poverty and hunger on the population. “People in poorer countries are at least five time more likely to be displaced by extreme weather than people in rich countries” (Oxfam International, 2018). This is frequently seen as highly unfair, as these people are often dubbed as the least responsible for climate shifts for their unprivileged condition and yet they are the ones that suffer their effects more harshly. As a global community, there is no purpose on deciding who is more or less responsible, as everyone makes up a whole.

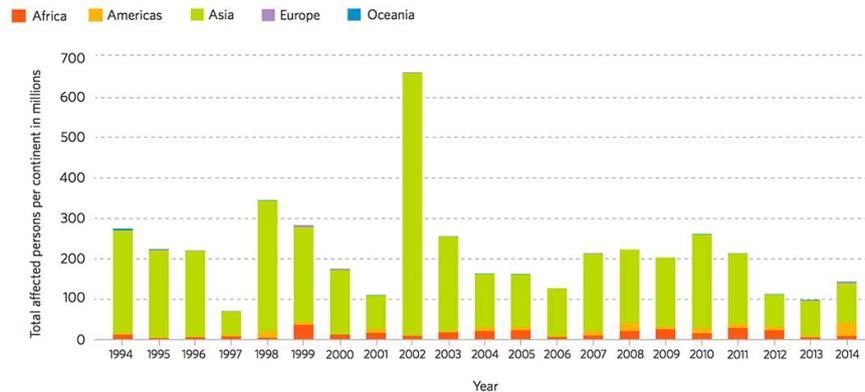
Along with the increasing number of natural disasters, there is also a significant rise in the financial costs incurred by them. On average, the yearly post-disaster cost is around \$65 billion USD as of 2016 (Owlcation, 2016). A lot of money is spent and yet we fail to plan properly to protect areas from the effects of climate change, and humanitarian need is not fulfilled. Climate change increases the frequency and severity of natural hazards, causing crisis among various populations. That, together with population growth, food security issues and threats like new viruses are surpassing any strategy existing to protect the world. Robert Glasser, representative for disaster risk reduction says that “[...] the only way we’re going to be able to deal with these trends is by getting out ahead of them and focusing on reducing disaster risk” (Jones, S., 2016).

Prevention is seemingly not as important as response. However, it is essential as the extension and consequences of natural disasters may be worse if not controlled or revised beforehand. More than five times as much is spent worldwide on disaster response as on disaster risk reduction (The Guardian, 2016):

Total international aid - \$3.03trn
Disaster risk reduction - \$13.5bn
Emergency response - \$69.9bn
Reconstruction and rehabilitation - \$23.3bn

International disaster relief is said to be the cause of some drawbacks in disaster management. Some examples of drawbacks are poor coordination when delivering immediate necessity goods/services, exacerbating existing problems like discrimination, damage to accountability and trust if citizens believe the government is unable to help them, and corruption and exploitation (Reinhardt, G.Y., 2016).

ESTIMATED NUMBER OF PEOPLE AFFECTED BY NATURAL DISASTERS, BY REGION  
1994 TO 2014



(CRED, 2015a)

<https://www.publichealthpost.org/databyte/natural-disasters-asia-affect-people/>

The Intergovernmental Panel on Climate Change (IPCC) has said that the actions perpetuated by humans have already taken an important and damaging toll on the world: climate change or global warming. This phenomenon will keep augmenting with time, together with natural disasters. Some of the effects this organization have predicted are the following:

- Total global warming is headed toward 4°C (7°F). The US faces warming in the range of 5°C (9°F) by the year 2100
- More rapid sea level rise is now projected (28-97 cm by the year 2100). By the year 2300, global sea levels will rise by 1-3 meters
- Increasing storm surges as a result of sea level rise
- Arid areas are likely to get drier and wet areas wetter
- Near-surface permafrost at high northern latitudes will be reduced as the global mean surface temperature increases. By the end of the 21st century, the area of surface permafrost will decrease by between 37% to 81% on average.
- “Climate change will affect carbon cycle processes and further uptake of carbon by the ocean will increase ocean acidification” (IPCC, 2013)

For one to call a disaster management strategy effective it must provide “the technology, tools and practices that enable disaster response organizations to systematically manage information from multiple sources and collaborate effectively to assist survivors, mitigate damage and help communities rebuild” (Teutsch, K.,

2010). Interoperability is essential to be communicated with various organizations to deliver aid right away. Response is not always immediate, being a detractor to efficient management.

Thanks to technology, response systems today can be improved very quickly. It provides a better way of handling resources and help.

As a place and its people are recovering from a disaster, investments should be sustainable and innovative, as the process can take a lot of time to be completed. All private, public, and non governmental sectors should work together to create strategies that solve hazards problems faster. Even now, that new technological discoveries happen every day, perfect solutions do not exist. These solutions need to have a “multifaceted approach that leverages the skills, resources and commitments of corporations, government agencies, intergovernmental organizations, nongovernmental organizations and individuals” working together to solve a crisis.

### *UN ACTIONS*

The UN has been working on different plans in order to reduce the risks a natural disaster may have. Active participation of this committee is essential, as these hazards demand immediate solutions.

One of the most important and well known documents the committee has created is the **UNISDR Sendai Framework for Disaster Risk Reduction 2015-2030**: Its aim is to substantially reduce “the disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries” (UNISDR, 2018). It is a fifteen year long agreement made up of 7 targets and 4 priorities for action, all listed below:

#### TARGETS:

1. Reduce global disaster mortality, aiming to lower average per 100,000 global mortality rate in 2020-2030 compared to 2005-2015.
2. Reduce the number of affected people globally, aiming to lower average global figure per 100,000.
3. Reduce direct disaster economic loss in relation to global GDP.

4. Reduce disaster damage to critical infrastructure and disruption of basic services through developing their resilience.
5. Increase the number of countries with national and local disaster risk reduction strategies.
6. Enhance international cooperation to developing countries through sustainable support to complement their actions for implementation of the Framework.
7. Increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments.

**PRIORITIES:**

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response

Another plan of action is the report of risk patterns or trends in order to prevent the future risks of a hazard. This plan is known as the **UNISDR Global Assessment Report (GAR)** It monitors risk patterns, trends and progress in disaster risk reduction. It also provides strategic policy guidance to countries and the international community. It was produced in collaboration with UN agencies, governments, academic and research institutions, donors and technical organizations and specialists.

Additionally, the UN created the **Resolution 54/219 (2000)** in which the International Strategy for Disaster Reduction is established. During 2001-2014 there was an implementation of the International Strategy for Disaster Reduction. During 1998-2015 there was an international cooperation to reduce the impact of the El Niño phenomenon. Another important resolution is the **Resolution 2816 (1971)**. This resolution established the creation of the United Nations Disaster Relief Office (UNDRO) to promote the study, prevention, control and prediction of natural disasters thus reducing the risks and effects of them.

An important and recognized UN solution for the issue is the **Paris Agreement**. It was made effective on November 2016, with 195 signatories and 179 parties. However, official tasks will start until 2020. The aim of the Paris Agreement is “to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius and to pursue

efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change” (UNFCCC, 2018).

The UN also promoted the **Capacity for Disaster Reduction Initiative (CADRI)**, which is a “global partnership composed of 15 UN and non-UN organizations that works towards strengthening countries’ capacities to prevent, manage and recover from the impact of disasters” (CADRI, n.d.). In this initiative the aim was to create a partnership that would combine the efforts of non-UN & UN organizations that would lead to a better prevention and recovery of the consequences a natural disaster may have had in a country and it’s population.

\* Access the following link to find the **complete list** of UNISDR milestones and resolutions: <https://www.unisdr.org/who-we-are/history>

### *POSSIBLE SOLUTIONS*

1. Create a multidisciplinary disaster prevention and aftermath program that integrates various elements, among which there should be considered the following:
  1. hazard identification and risk assessments
  2. Education and awareness of hazards
  3. Mitigation, reduce impact of disasters
  4. Preparedness for recovery
  5. Prediction and warning
  6. Learning from disasters
  7. International cooperation

(The National Academies Press, 1991)

This program will aid countries in the prevention labor of disasters/hazards to diminish the harmful effects they have after their incidence and also to have an organized and coherent strategy to manage their resources to solve the effects the hazards have in their territory.

2. An Implementation of an international strategy for redevelopment after a natural disaster, in which the main focus would be identifying the economic base, as well as social and economic factors, that are specific to each region

in order to build or increase resilience. There should be a major focus on economic potential of each country so this way there can be a creation of jobs in a specific area, thus helping the citizens that may have been affected by a natural disaster and in order to maximise the speed of recovery after a hazard for a country.

3. Propose a Conjunction of the UNISDR with the Global Facility for Disaster Reduction and Recovery which “ provides technical assistance, capacity building, and analytical work to help vulnerable nations improve resilience and reduce risk” (GFDRR, 2017) and encourage countries to be a part of this platform to share information about disaster management experience. This way helping countries to foresee natural hazard and in order for each country to take necessary measures to reduce significantly the consequences of a hazard.

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