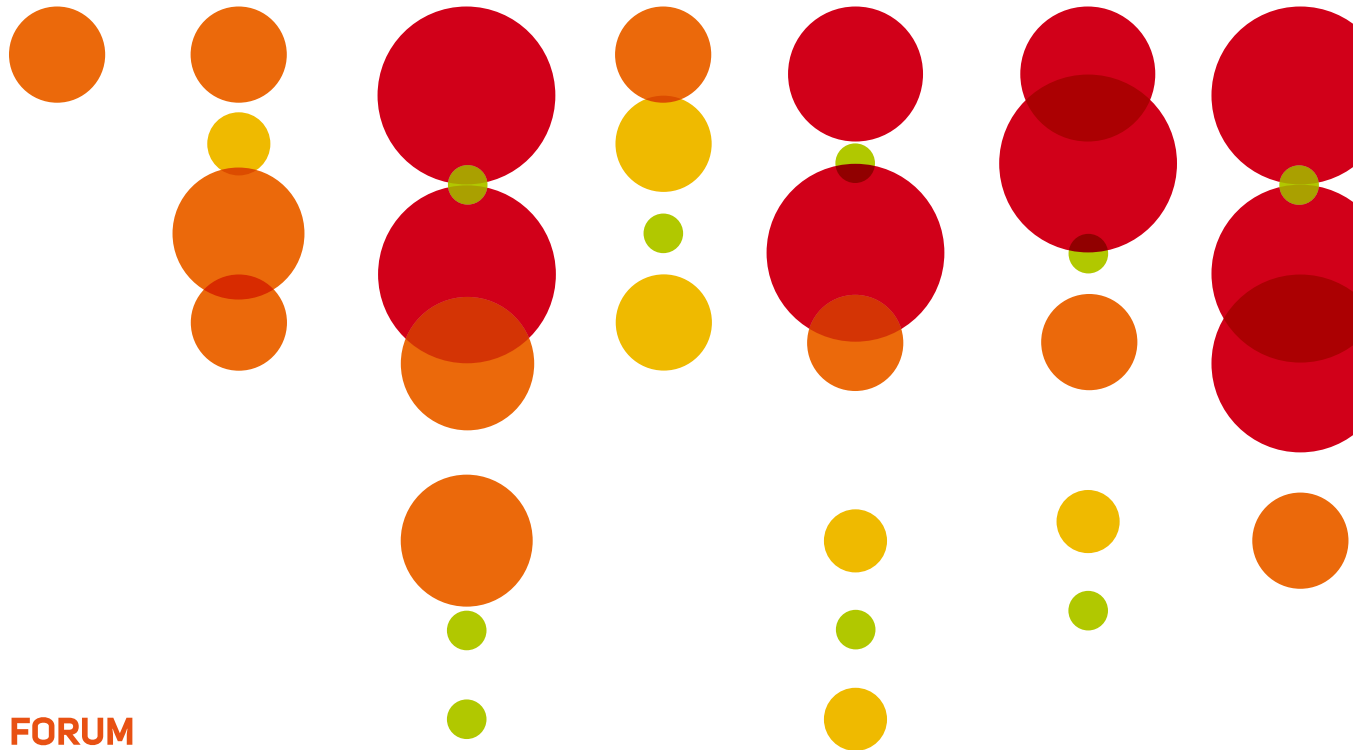


# CLIMATE VULNERABILITY MONITOR 2010

The State of the Climate Crisis

## EXECUTIVE SUMMARY



CLIMATE VULNERABLE FORUM

# CLIMATE VULNERABILITY IN NUMBERS

Estimated figures are based on scientific research or expert assumptions in a world marked with uncertainty. The real numbers could be higher or lower.

\*All estimated mortality statistics or deaths are representative of more widespread harm. Every 100,000 deaths would normally indicate several million cases of illness or disability (DALYs), or people displaced, injured or in need of emergency assistance.

NEARLY  
**1 MILLION**

CLIMATE CHANGE DRIVEN  
DEATHS\* ESTIMATED EVERY  
SINGLE YEAR FROM 2030 IF  
ACTION IS NOT TAKEN

SOME  
**5 MILLION**

CLIMATE DEATHS  
ESTIMATED OVER THE NEXT  
TEN YEARS IN ABSENCE OF  
AN EFFECTIVE RESPONSE

ALREADY  
**350,000**

CLIMATE DEATHS  
ESTIMATED EACH  
YEAR TODAY

ALMOST  
**80%**

OF ALL CLIMATE DEATHS ARE  
REGISTERED ONLY AMONG  
CHILDREN LIVING IN SOUTH  
ASIA OR SUB-SAHARAN AFRICA

OVER  
**99%**

OF ALL MORTALITY  
OCCURS IN  
DEVELOPING  
COUNTRIES

AROUND  
**150 BILLION**

DOLLARS IN LOSSES  
TO TODAY'S ECONOMY  
ESTIMATED TO BE CAUSED  
BY CLIMATE CHANGE

MORE THAN  
**HALF**

OF THE TOTAL  
ECONOMIC LOSSES  
TAKE PLACE IN  
INDUSTRIALIZED  
COUNTRIES

SOME  
**170**

COUNTRIES -- OR MOST OF  
THE WORLD -- HAVE HIGH  
VULNERABILITY TO CLIMATE  
CHANGE IN AT LEAST ONE KEY  
IMPACT AREA ALREADY TODAY

OVER  
**50**

HIGHLY EFFECTIVE MEASURES INCLUDED  
IN THIS REPORT ARE READILY AVAILABLE  
TO LIMIT VIRTUALLY ALL HARM CAUSED  
BY CLIMATE CHANGE -- JUST A GLIMPSE  
OF THE MANY MORE OPTIONS AVAILABLE

**“** *The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures.*

1992 UNITED NATIONS FRAMEWORK  
CONVENTION ON CLIMATE CHANGE

The Climate Vulnerability Monitor aims to advance understanding of the impacts of climate change on human society and actions needed to address these effects. It combines a series of measures, ranging from human health and extreme weather to desertification, sea-level rise and stresses on natural resources and productive sectors of the economy. These indicators provide a probable picture of the current state of the climate crisis for 184 countries around the world both today and for 2030. This global assessment provides the first comprehensive overview of vulnerability to climate change in an internationally comparable form. The 2010 Monitor's Adaptation Performance Review further highlights over 50 effective measures that can be readily taken to reduce the identified impacts of climate change.

COUNTRIES:  
**184**

TIME FRAMES:  
**2010  
AND  
2030**

## CLIMATE IMPACT AREAS

- ♥ HEALTH IMPACT - additional mortality due to climate sensitive diseases
- 🌀 WEATHER DISASTERS - additional mortality and damage in storms, floods and wildfires
- 🏠 HABITAT LOSS - additional loss of human habitat to rising seas, and degrading arid lands
- 📊 ECONOMIC STRESS - extra losses in the primary/agricultural sectors of the economy and to key natural resources

## CLIMATE VULNERABILITY FACTORS

- ACUTE (most vulnerable category)
- SEVERE
- HIGH
- MODERATE
- LOW (least vulnerable category)

# WHAT IS THE CLIMATE VULNERABILITY MONITOR?

A NEW TOOL FOR  
ASSESSING THE  
VULNERABILITY  
OF TODAY'S WORLD  
AND ITS NATIONS  
TO CLIMATE CHANGE

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# CLIMATE VULNERABILITY MONITOR 2010 EXECUTIVE SUMMARY

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# PREFACE

**“ Climate change  
is the most urgent  
challenge of our time.**

The Climate Vulnerability Monitor lays bare the sheer scale and breadth of the impacts we already face. It breaks ground in pinpointing our vulnerabilities to climate change all around the world. It shows how each country is vulnerable in different ways -- some due to health reasons or extreme weather patterns, and others as a result of economic factors or because of land loss from expanding deserts or rising sea-levels. It explains why many nations at the climate frontline feel the impacts of climate change more intensely. And it demonstrates how quickly vulnerability is accelerating almost everywhere, so that ultimately climate change could threaten the livelihoods, if not the survival, of all nations and peoples. The fate of the world is tied to the fate of the most vulnerable.

This report also identifies just how inexpensive it is to limit the majority of the negative impacts of climate change seen today, from the effects of the most violent storms and floods, to epidemics, severe drought, desertification, and even rising seas.

But let us be frank: time is running out. A near doubling in warming is unavoidable in the next 20 years or so as the lag in the planet's greenhouse effect catches up with us. We must

meet this growing challenge. If not, the Monitor estimates that by 2030, over 130 countries will be highly vulnerable to climate change; while over 50 countries will suffer the kinds of acute impacts that just a handful of particularly fragile states are experiencing today. According to the scientific consensus, we must also begin reversing our patterns of emissions within the next five years to avoid even greater temperature change and greater harm.

As with every study of this kind, the Monitor lacks complete certainty, but highlights enough threats of serious, or even irreversible, harm that inaction is unconscionable.

There is still time to act and it is well within our power to solve the climate crisis. A world free from pollution would be healthier for everyone; technologies could bring energy to many who have no access today; protecting communities against climate impacts will bolster the fight against poverty; and everybody would enjoy a safer, more prosperous world.

The Climate Vulnerability Monitor is our contribution to the global debate. We hope that you will find it useful in your efforts. ”



**MOHAMED NASHEED**  
President of the Maldives  
Founding Chair,  
Climate Vulnerable Forum



**JOSÉ MARÍA FIGUERES**  
Trustee, DARA  
Former President of  
Costa Rica (1994-1998)



# FINDINGS AND OBSERVATIONS

## CHILDREN & THE POOR

### A HOTTER EARTH IS ALREADY CAUSING WIDESPREAD DAMAGE AND DEATH.

Worldwide, the annual toll of climate change is already a staggering 350,000 deaths, 130 billion dollars in losses, and over 2 million people threatened by aggravated desertification.

### MOST IMPACTS ARE HIGHLY CONCENTRATED ON CHILDREN AND THE POOR.

The world's poorest groups and particularly children living in developing countries around the world suffer the brunt of each of the main negative effects of climate change.

### LOW HUMAN DEVELOPMENT INCREASES VULNERABILITY TO CLIMATE CHANGE WHILE CLIMATE CHANGE THREATENS KEY DEVELOPMENT GOALS.

Analysis shows a very strong correlation between the degree of human development and the degree of vulnerability to climate change, while the most severe climate impacts almost exactly mirror the greatest lag areas in global development progress.

## ALREADY

## DEVELOPMENT NEXUS

### MUCH DAMAGE CAUSED BY CLIMATE CHANGE IS STILL READILY PREVENTABLE.

Multiple cost-effective measures can still be taken to reduce the impact of every main climate stress, while greater damage continues to be avoidable through ambitious reductions of greenhouse gases that are the main trigger of climate change.

## PREVENTABLE

## EVERY COUNTRY

### ALMOST EVERY COUNTRY HAS HIGH VULNERABILITY TO ONE MAJOR CLIMATE IMPACT.

While the worst effects of climate change are highly concentrated on the world's poorest groups, the range of impacts is large and almost every single country is experiencing heightened risks to life, property and income or the environment as a result of climate change.

### UNLESS MEASURES ARE TAKEN, THE NEXT 20 YEARS WILL SEE EXPLOSIVE GROWTH IN EVERY MAJOR CLIMATE IMPACT.

If measures are not taken to limit climate impacts and reduce the vulnerability of populations, the scale of every main impact will grow by over 100% in just 20 years and could result in nearly 1 million climate-related deaths each year from 2030.

## GROWTH

## OPPORTUNITY

### TACKLING CLIMATE CHANGE IS A MAJOR OPPORTUNITY.

Enhancing the ability of vulnerable communities to deal with climate stresses would help improve the situation of the world's poorest groups, while reducing greenhouse gas emissions by tapping into renewable sources of energy production could usher in a new wave of productivity and human progress.

**DANGER IS PRESENT.  
➤ RESPONSES  
ARE COST-EFFECTIVE.  
INACTION IS  
UNCONSCIONABLE.**

Given the estimated loss of life and other socio-economic impacts of climate change, immediate measures should be carried out on the basis of common but differentiated responsibilities in order to tackle the negative effects of largely human-induced climate change.

**➤ INVEST  
IN FILLING URGENT  
RESEARCH GAPS.**

Climate vulnerability and the underlying science of climate change are still frontier fields of research requiring much greater investment to support improved accuracy of studies into the prevailing crisis.

**➤ EXPAND  
HUMAN AND GENDER  
DEVELOPMENT EFFORTS  
IN MOST VULNERABLE  
COUNTRIES.**

Equitable and sustainable development reduces the vulnerability of populations by enabling them to better deal with multiple risks including climate change and should be boosted in those countries suffering severe impacts.

**WIDELY  
➤ DISSEMINATE  
THE CLIMATE  
VULNERABILITY  
MONITOR'S FINDINGS.**

The general public and senior decision-makers remain sceptical of the scientific consensus of climate change and deserve to be informed of the possible consequences of inaction.

**IMMEDIATELY  
➤ REINFORCE  
RESPONSES TO MAJOR  
CLIMATE SENSITIVE  
HEALTH CONCERNS:  
MALNUTRITION,  
DIARRHEAL INFECTIONS,  
AND MALARIA.**

Responses to climate change must increase focus on tackling those diseases which make up virtually all climate-related mortality and currently figure only marginally in adaptation programming.

**REINFORCE NATIONAL  
➤ PLANS  
TO LIMIT  
CLIMATE IMPACTS.**

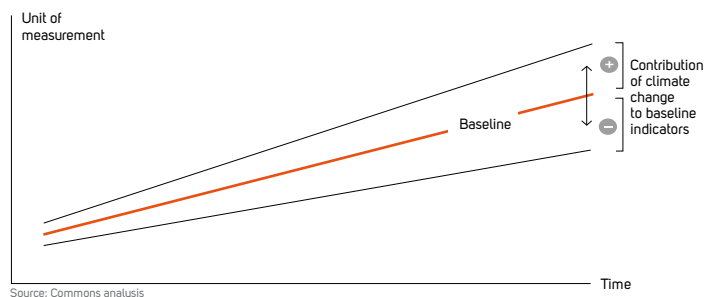
Current plans for nationally adapting to climate change are largely inadequate for dealing with the scale of today's climate impacts and should be expanded to close the adaptation gap this shortfall creates between effects and recursive actions.

# RECOMMENDATIONS

## MAPPING CLIMATE IMPACTS GLOBALLY

The Monitor combines a series of indicators of negative and positive effects that climate change has on the world's nations. It looks at pre-existing characteristics of society that are knowingly affected by climate change – such as exposed coastlines, populations living in arid regions, and climate sensitive diseases. Then, according to the effect real or projected changes in the climate will have on those characteristics, it maps the level of vulnerability and expected impacts. The Monitor draws on established scientific models or expert estimates to ascertain a probable climate effect. National variations of climate sensitive socio-economic characteristics, or a community's underlying vulnerabilities, determine more the ultimate scale of impacts across countries than an estimated climate effect.

### A CLIMATE EFFECT



## INDICATORS BY IMPACT AREA AND VULNERABILITY FACTOR FOR 2010 AND 2030









The Monitor is built around four distinct "Impact Areas" that attempt to capture the majority of the consequences of changes to our climate. These Impact Areas include: human health (termed: "Health Impact"), extreme weather ("Weather Disasters"), desertification and sea-level rise ("Habitat Loss"), as well as stresses on the economic sectors of agriculture and natural resources ("Economic Stress"). The Monitor measures 5 different levels of impacts, termed vulnerability Factors, from Low to Acute. Vulnerability Factors calculated for each Impact Area by country for the years 2010 and 2030 are comparable across nations. The Monitor's findings provide a contrast to the majority of existing climate vulnerability assessments that focus on 2050-2100 timeframes.

## THE 2010 MONITOR PROVIDES THE FIRST RESULTS OF AN ONGOING RESEARCH ENDEAVOUR

The Monitor was commissioned as an independent effort to provide guidance on vulnerabilities to climate change and to pinpoint who faces them, when, where and to what degree. Just one of many possible approaches to gauging vulnerability to climate change, the Monitor's current methodology was developed by DARA with critical input from scientists and policy specialists active in the fields of climate change, the environment, development assistance and humanitarian relief. The Monitor is a constant work in progress in tandem to ongoing scientific and data developments, and continues to be subject to refinements and review. DARA issued the results of the research effort to date in its 2010 edition, which is co-published by the Climate Vulnerable Forum.

**“The Climate Vulnerability Monitor is a precious input to the burning international debate on achieving a better differentiated treatment of developing countries.**

**PIERRE ENCONTRE, CHIEF OF SPECIAL PROGRAMMES, UNCTAD**

- + Acute+  Health impact
- Acute-  Health impact
- + Severe+  Weather disasters
- Severe-  Weather disasters
- + High+  Habitat loss
- High-  Habitat loss
- Moderate  Economic stress
- Low  Economic stress

# HOW DOES THE MONITOR WORK?





**AN ASSESSMENT OF WHAT THE SCIENCE OF CLIMATE CHANGE ALREADY IMPLIES FOR COMMUNITIES AROUND THE WORLD**



## ACUTE





COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
	2010	2030	2010	2030	2010	2030	2010	2030
AFGHANISTAN	+	+	+	+	+	+	●	-
ANGOLA	+	+	●	-	-	+	-	-
BANGLADESH	-	+	+	+	●	-	-	+
BELIZE	-	-	+	-	+	-	+	+
BHUTAN	-	+	+	+	+	+	-	-
BURKINA FASO	+	+	●	●	+	+	+	-
CHAD	-	+	●	-	+	+	-	+
DJIBOUTI	-	+	+	+	-	+	-	-
EQUATORIAL GUINEA	-	+	●	●	+	+	-	+
ERITREA	-	-	●	●	+	+	+	-
ETHIOPIA	+	+	●	-	-	-	+	-
GAMBIA	-	+	-	+	+	+	-	-
GUINEA-BISSAU	+	+	●	●	+	+	+	+
GUYANA	-	-	-	-	-	+	-	+
HAITI	-	+	+	+	+	+	●	●
HONDURAS	-	-	+	+	-	-	-	+
INDIA	+	+	●	●	+	+	-	-
KAZAKHSTAN	●	●	●	●	-	+	+	+
KENYA	-	-	●	●	-	-	-	-
KIRIBATI	●	●	●	●	+	+	-	+
LIBERIA	+	+	●	●	+	-	+	-
LIBYA	●	●	●	●	-	+	-	+
MADAGASCAR	+	-	●	-	-	+	+	+
MALAWI	-	+	-	-	●	●	+	+
MALDIVES	-	+	●	●	+	+	-	+
MALI	+	+	●	●	-	+	-	+
MARSHALL ISLANDS	●	●	●	●	+	+	-	+
MAURITANIA	-	+	●	●	+	+	+	-
MICRONESIA	●	●	+	+	+	+	-	-
MOROCCO	●	-	+	-	-	+	-	+
MOZAMBIQUE	+	+	+	-	+	+	+	+
MYANMAR	-	+	+	+	+	+	-	+

## ACUTE

COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
	2010	2030	2010	2030	2010	2030	2010	2030
NAMIBIA	●	-	+	-	+	+	-	+
NICARAGUA	-	-	-	+	-	+	-	+
NIGER	+	+	●	●	+	+	-	+
NIGERIA	-	+	●	●	+	-	-	+
NORTH KOREA	-	+	-	+	-	-	●	●
PAKISTAN	+	+	-	-	+	+	-	-
PAPUA NEW GUINEA	-	+	●	●	+	-	-	+
SAMOA	●	●	+	+	+	-	-	-
SAO TOME AND PRINCIPE	-	-	●	●	+	+	●	-
SENEGAL	+	+	●	●	+	+	-	+
SIERRA LEONE	+	+	●	-	-	+	-	-
SOLOMON ISLANDS	-	+	-	+	+	+	+	+
SOMALIA	+	+	+	+	+	+	+	-
SUDAN	-	+	-	-	+	+	-	+
SURINAME	-	-	-	-	+	+	+	-
TANZANIA	+	+	●	●	-	-	+	+
TIMOR-LESTE	-	+	●	●	-	+	-	+
UGANDA	+	+	●	●	●	●	+	+
VANUATU	●	-	-	-	+	+	-	+
VIETNAM	●	●	+	-	+	+	+	+
YEMEN	+	+	-	+	●	-	-	-
ZIMBABWE	-	-	●	●	-	+	+	-
ALGERIA	-	-	-	+	●	-	+	+
ANTIGUA AND BARBUDA	-	-	+	-	-	+	●	-
BAHAMAS	●	●	-	+	+	+	-	-
BENIN	+	+	●	●	●	-	-	+
BOLIVIA	-	+	-	+	●	●	-	+
BOTSWANA	-	+	●	●	+	+	+	+
BURUNDI	+	+	●	●	●	●	+	-
CAMBODIA	+	+	+	-	-	-	+	+
CAMEROON	+	+	●	●	●	+	+	-





## SEVERE



## SEVERE


COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
	2010	2030	2010	2030	2010	2030	2010	2030
CAPE VERDE	-	-	●	●	-	-	+	-
CENTRAL AFRICAN REPUBLIC	+	+	●	●	●	●	-	+
CONGO	-	+	●	●	●	●	-	+
COTE D'IVOIRE	+	+	●	●	●	●	+	+
DRC CONGO	+	+	●	●	●	●	+	-
GRENADA	-	+	-	+	-	-	●	-
GUINEA	+	-	●	●	-	+	-	+
IRAQ	-	+	●	●	-	-	●	-
MONGOLIA	●	●	-	-	+	+	●	●
NEPAL	-	+	-	-	●	●	●	-
RWANDA	+	+	●	●	●	●	+	-
SEYCHELLES	●	-	-	+	●	●	-	+
SOUTH AFRICA	●	-	●	●	+	+	+	-
SWAZILAND	-	+	●	●	-	-	+	-
TAJIKISTAN	●	●	+	-	●	●	+	+
TOGO	-	+	●	●	●	●	-	-
TUNISIA	-	-	●	●	-	+	+	-
TUVALU	●	●	●	●	+	+	-	+
ZAMBIA	-	+	●	●	●	-	-	+
ALBANIA	●	●	●	●	●	●	+	+
ARMENIA	●	●	●	●	●	●	+	+
AZERBAIJAN	●	●	●	●	●	●	+	+
BELARUS	●	●	●	●	●	●	+	+
BOSNIA AND HERZEGOVINA	●	●	●	●	●	●	+	+
BULGARIA	●	●	●	●	●	●	-	+
CHINA	●	●	●	-	+	+	●	●
COMOROS	-	+	●	●	-	+	●	-
CROATIA	●	●	●	●	●	●	-	+
CUBA	●	●	+	+	●	●	-	-
DOMINICA	●	-	+	-	-	+	●	●
DOMINICAN REPUBLIC	-	+	-	+	●	●	-	-

## HIGH

## HIGH

COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
	2010	2030	2010	2030	2010	2030	2010	2030
ECUADOR	-	-	+	+	●	●	+	-
EGYPT	-	-	●	●	●	●	+	+
EL SALVADOR	-	-	-	-	●	●	-	+
ESTONIA	●	●	●	●	-	+	-	-
FIJI	●	●	-	+	+	+	-	-
GABON	-	+	●	●	-	+	+	-
GEORGIA	●	●	●	●	●	●	+	+
GHANA	+	-	●	●	●	●	-	+
GUATEMALA	+	-	-	+	●	●	-	+
HUNGARY	●	●	●	●	●	-	-	+
INDONESIA	-	-	●	-	●	●	+	+
IRAN	●	●	-	+	-	-	●	-
JORDAN	●	●	●	●	-	+	-	-
KYRGYZSTAN	●	●	●	●	●	●	+	+
LAOS	-	-	●	-	●	●	-	+
LESOTHO	●	-	●	●	●	●	-	+
LITHUANIA	●	●	●	●	●	●	+	+
MACEDONIA	●	●	●	●	●	●	-	+
MAURITIUS	●	-	●	●	●	●	+	+
MOLDOVA	●	●	-	+	●	●	+	+
PALAU	●	●	●	●	+	+	-	-
PANAMA	●	-	-	-	●	-	-	+
PERU	+	-	-	-	●	●	+	-
PHILIPPINES	●	-	-	-	●	●	+	+
ROMANIA	●	●	-	-	●	●	-	+
RUSSIA	●	●	●	●	●	●	+	+
SAINT VINCENT AND THE GRENADINES	-	-	-	+	+	-	●	-
SLOVAKIA	●	●	●	-	●	●	+	+
SLOVENIA	●	●	●	●	●	●	+	+
SPAIN	●	●	●	●	+	+	●	●
SYRIA	●	●	●	●	+	+	-	-
THAILAND	●	-	-	-	●	●	-	+

	COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
HIGH	TONGA	●	●	●	●	+	-	●	●
	TURKMENISTAN	●	●	●	●	●	●	+	+
	UKRAINE	●	●	●	●	●	●	+	+
	UNITED STATES OF AMERICA	●	●	●	●	-	-	-	-
	UZBEKISTAN	●	●	●	●	●	●	+	+
	VENEZUELA	●	●	+	+	●	●	-	+
MODERATE	ARGENTINA	-	+	●	●	●	●	-	-
	AUSTRALIA	●	●	●	●	-	+	●	-
	BAHRAIN	●	●	●	●	●	●	-	-
	BARBADOS	●	-	●	●	●	●	●	-
	BRAZIL	-	+	●	●	●	●	-	+
	BRUNEI	●	●	●	●	●	●	+	-
	CANADA	●	●	●	●	●	-	●	-
	CHILE	●	-	●	-	●	●	-	+
	COLOMBIA	●	●	-	+	●	●	+	+
	COSTA RICA	●	●	-	-	●	●	-	+
	CYPRUS	●	-	●	●	●	●	●	●
	CZECH REPUBLIC	●	●	●	●	●	●	+	-
	ICELAND	●	●	●	●	+	-	●	●
	ISRAEL	●	●	●	●	●	-	-	-
	JAMAICA	-	+	-	-	●	●	●	-
	KUWAIT	●	●	●	●	●	●	●	-
	LATVIA	●	●	●	●	●	●	-	-
	LEBANON	●	●	●	●	●	●	-	-
	MALAYSIA	●	●	●	●	●	●	+	+
	MEXICO	●	-	●	-	●	●	-	-
	OMAN	●	●	-	+	●	●	-	-
	PARAGUAY	●	-	●	●	●	●	-	-
	POLAND	●	●	●	●	●	●	+	-

	COUNTRY	 2010 2030		 2010 2030		 2010 2030		 2010 2030	
MODERATE	QATAR	●	●	●	●	●	●	-	-
	SAINT LUCIA	●	-	●	●	●	-	●	●
	SAUDI ARABIA	●	●	●	●	●	●	-	-
	SINGAPORE	●	●	●	●	●	●	+	-
	SOUTH KOREA	●	●	●	-	●	●	●	●
	SRI LANKA	-	-	-	-	●	●	-	+
	TRINIDAD AND TOBAGO	●	-	●	●	●	●	●	●
	TURKEY	●	●	●	●	●	+	-	-
	UNITED ARAB EMIRATES	●	●	●	●	●	●	-	-
	URUGUAY	-	-	●	●	-	-	-	-
LOW	AUSTRIA	●	●	●	●	●	●	●	-
	BELGIUM	●	●	●	●	●	●	●	-
	DENMARK	●	●	●	●	●	●	●	●
	FINLAND	●	●	●	●	●	●	●	-
	FRANCE	●	●	●	●	●	●	●	-
	GERMANY	●	●	●	●	●	●	●	-
	GREECE	●	●	●	●	●	●	●	●
	IRELAND	●	●	●	●	●	●	●	●
	ITALY	●	●	●	●	●	●	●	-
	JAPAN	●	●	●	●	●	●	●	-
	LUXEMBOURG	●	●	●	●	●	●	-	-
	MALTA	●	●	●	●	●	●	●	●
	NETHERLANDS	●	●	●	●	●	●	●	-
	NEW ZEALAND	●	●	●	●	●	●	●	-
	NORWAY	●	●	●	●	●	●	●	●
	PORTUGAL	●	●	●	●	●	●	●	●
	SWEDEN	●	●	●	●	●	●	●	●
	SWITZERLAND	●	●	●	●	●	●	-	-
	UNITED KINGDOM	●	●	●	●	●	●	●	●

# WHO SUFFERS?

A SEVERE AND WIDESPREAD IMPACT IS ALREADY BEING FELT TODAY

## CLIMATE SUFFERING IS GLOBAL

The impact of climate change is global, even today, and it is worsening virtually everywhere. Rich countries are not spared from its effects with almost every country in the world registering a vulnerability Factor of High or above in at least one of the Impact Areas of climate change.

## IT AFFECTS POOR, LOW-EMITTING COUNTRIES THE MOST

Vulnerabilities to climate change are overwhelmingly higher where socio-economic development is lower: over 99% of all climate mortality occurs in developing countries. Least developed countries suffer one third of all climate mortality but contribute only about 1% to global emissions of greenhouse gases that trigger climate change.

## THE BULK OF IMPACTS ARE HIGHLY CONCENTRATED IN JUST A FEW COUNTRIES

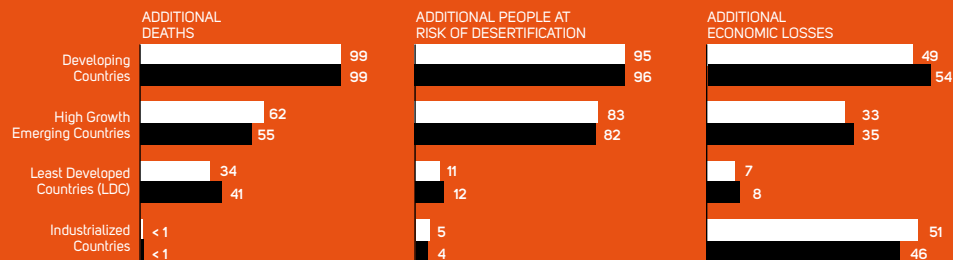
A very large proportion of the total consequences of climate change for each Impact Area are shared among just 5-10 countries in every case. India, for instance, accounts for around a third of all climate-related mortality. The US and China suffer half of all damage costs due to extreme weather. India and China account for around three quarters of the world's population at risk from desertification.

## RELATIVE IMPACTS IN MOST VULNERABLE COUNTRIES ARE EXTREME

In large countries, localized impacts may go almost unnoticed by the majority of the population even when a heavy toll is felt among those directly affected. Elsewhere, small total impacts on a global scale mask extreme proportional effects which cannot be ignored. The South Pacific as a region, for instance, is already being stripped of nearly 4% of its GDP potential each year due to sea-level rise stresses alone.

### SHARE OF TOTAL CLIMATE CHANGE IMPACT ON SOCIOECONOMIC REGIONS

% of total impact, Additional Deaths, Additional People at Risk of Desertification, Additional Economic Losses





# A FAST GROWING IMPACT

**RAPID GROWTH OF ALL CLIMATE IMPACTS IS EXPECTED OVER THE NEXT 20 YEARS AND HINTS AT A FAR MORE DAMAGING ACCELERATION OF HARM POST-2030**

## A COMPREHENSIVE EXPANSION OF EVERY SINGLE CLIMATE RISK IN JUST 20 YEARS

Climate change is accelerating. From 2010 to 2030, every single climate stress will grow significantly. Each Impact Area shows more than a 100% growth in effects in the next 20 years. The fastest growth was estimated in desertification - set to increase by more than 250%.

## LARGE INCREASES WILL BE SEEN IN TOTAL EFFECTS

Climate mortality today is estimated at around 350,000 deaths per year. That figure should stand at close to 1 million deaths per year from 2030 if measures are not taken. Economic costs could reach nearly a third of a trillion dollars per year, up from just over 100 billion today.

## A MAJOR SHIFT IN THE VULNERABILITY OF THE WORLD'S NATIONS

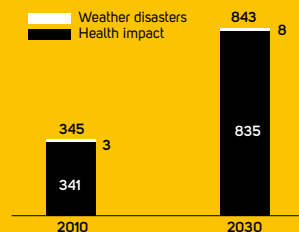
By 2030, over 130 countries will reach an overall vulnerability Factor of High compared with around 90 today. The number of countries suffering Acute effects due to climate change will more than triple.

## INDIVIDUAL COUNTRIES FACE SIGNIFICANT SURGES IN CLIMATE RISKS

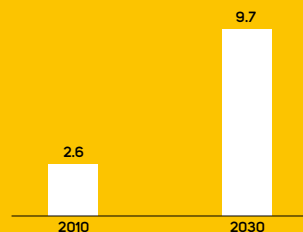
Desertification, for instance, is estimated to increase by nearly 100% in Namibia by 2030. Economic Stress is expected to hit some small island states with nearly 80% increases in losses over that time. In absence of preventive measures, Myanmar and Honduras face an almost 40% increase in Weather Disaster effects. Parts of Africa could see a 30% increase in mortality from the Health Impact.

### GLOBAL CLIMATE CHANGE IMPACT

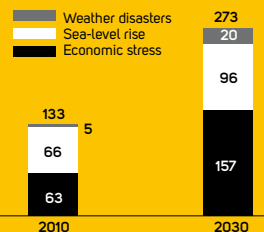
Climate-related mortality. Additional deaths (1000) average per year



People at risk from climate-related desertification. Additional (millions) average per year

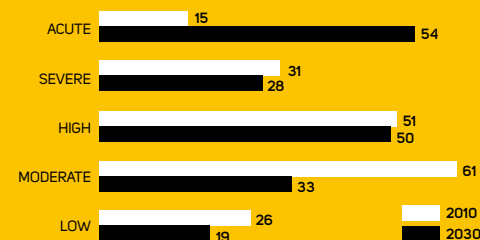


Climate related economic costs (billion USD PPP) average per year



### GLOBAL VULNERABILITY TO CLIMATE CHANGE

Number of countries per climate vulnerability factor

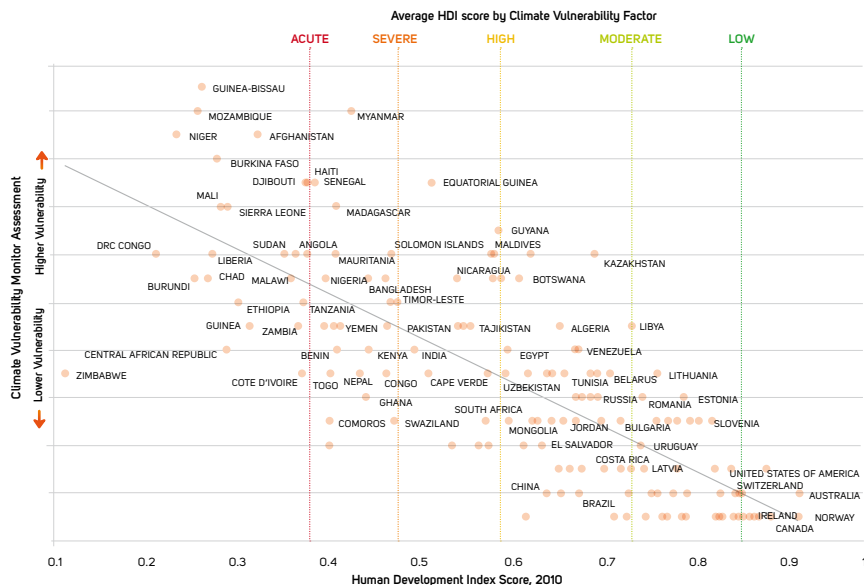


# A CLIMATE-DEVELOPMENT NEXUS

**POVERTY WORSENS CLIMATE IMPACTS WHICH IN TURN UNDERMINE DEVELOPMENT**

## CLIMATE VULNERABILITY AND HUMAN DEVELOPMENT

Correlation between the Climate Vulnerability Monitor assessment and Human Development Index score



## THE MILLENNIUM DEVELOPMENT GOALS FOR 2015

GOAL 1	Eradicate extreme poverty and hunger	GOAL 5	Improve maternal health
GOAL 2	Achieve universal primary education	GOAL 6	Combat HIV/AIDS, malaria, and other diseases
GOAL 3	Promote gender equality and empower women	GOAL 7	Ensure environmental sustainability
GOAL 4	Reduce child mortality	GOAL 8	Develop a global partnership for development

## CLIMATE VULNERABILITY FOLLOWS HUMAN DEVELOPMENT

Analysis of the Monitor's findings against indicators of human development, such as the UN Development Programme's Human Development Index, demonstrates a clear link between climate vulnerability and socio-economic development. Highly developed countries virtually all have Low or Moderate factors of vulnerability. Acute and Severe Factor countries are almost exclusively least developed countries. Every increase in vulnerability is followed by an accompanying decrease in socio-economic development and vice versa.

## THE MAIN CLIMATE IMPACTS EXACTLY MATCH CHIEF MDG LAG AREAS

The 2015 achievement of the world's most internationally recognized poverty reduction objectives, the Millennium Development Goals (MDG), is most threatened by lack of progress on two goals – Poverty and Hunger (Goal 1) and Child Health (Goal 4) – and three regional groups, namely: Sub-Saharan Africa, South Asia and small island countries. Climate impacts worsen above all hunger, child mortality and extreme poverty in precisely these parts of the world, as if the adverse effects of climate change were surgically targeting MDG progress.

## CLIMATE DRIVEN POVERTY, HUNGER AND CHILD MORTALITY

Each year, climate-aggravated Malnutrition claims nearly a quarter of a million lives, mainly among children. The proportional economic impact of climate change – through sea-level rise and agricultural and resource stresses – can be over 10 times more significant in the poorest countries compared to the highly developed – levels that should seriously exacerbate extreme forms of poverty. Africa, South Asia and small islands are clearly worst off as a result of climate change, with around 80% of all climate deaths occurring in these regions alone.

# HOW TO RESPOND?

**LIMITING THE NEGATIVE EFFECTS OF CLIMATE CHANGE ON PEOPLE WORLDWIDE WILL REQUIRE MORE EFFECTIVE TARGETING AND INTEGRATED RESPONSES**

## FOCUSING RESPONSES ON IMPACTS

Much can be done to minimize the bulk of the human impact of climate change today and in the near future. The most effective responses in terms of reducing impacts will be those that are targeted at these same impacts. The Monitor provides a broad, comparative estimate of impacts across countries, which should be verified against sub-national analysis for each of the key Impact Areas. A focus on impacts would help avoid gaps in adaptation policies, as is currently the case with certain areas, particularly health effects: projects addressing health make up just 3% of priority adaptation projects in vulnerable countries despite large-scale mortality estimated to be triggered by climate change.

## COMPARING VULNERABILITIES

The Monitor's overall vulnerability Factor for countries only provides an indication of the extent to which a given nation is suffering from multiple stresses. It does not provide a comparable level of impact or vulnerability, as is possible across individual Impact Areas. Calculating a country's overall vulnerability level involves the difficulty of combining impacts such as loss of human life with dollar amounts of economic costs, which can only be based on value judgments.

**“The findings of the Climate Vulnerability Monitor remind us that climate change hits the most vulnerable people the hardest. A strong focus on adaptation can help protect people's livelihoods and strengthen their resilience in an uncertain climate future. It is therefore vital that adaptation is built into national development strategies.**

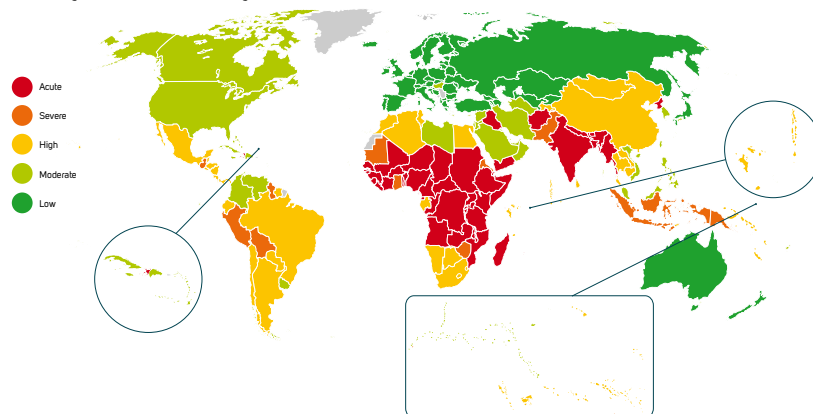
**HELEN CLARK, UNDP ADMINISTRATOR**

## AN INTEGRATED RESPONSE

A differentiated set of responses will be needed to address key impacts and vulnerabilities. Concrete intervention projects must be relied upon to stem immediate effects. However, systemic vulnerabilities will lead to recurring problems. For instance, as long as there is any significant burden of Malaria or Malnutrition – diseases largely eradicated in wealthy countries – climate change will likely have an exacerbating effect on its prevalence and mortality rate. Fighting systemic vulnerabilities such as these will also require broader policy-only responses, including legislation or fiscal tools. The impacts of climate change must be taken into account by economic and development planning to ensure an effective diversification against key climate risks. Any socio-economic improvements that reach the most vulnerable groups will also significantly limit climate impacts.

### GLOBAL VULNERABILITY TO CLIMATE HEALTH IMPACT

Countries by overall climate vulnerability for health



# ADAPTATION PERFORMANCE

HIGHLY EFFECTIVE MEASURES  
FOR ADAPTING TO CLIMATE  
CHANGE ALREADY EXIST

## THE ADAPTATION PERFORMANCE REVIEW

The 2010 Climate Vulnerability Monitor assessed over 50 key actions that address each climate Impact Area reviewed against a uniform set of criteria covering: cost-effectiveness, co-benefits, scalability and feasibility.

## EFFECTIVE MEASURES FOR DEALING WITH EVERY MAJOR CLIMATE STRESS ARE AVAILABLE FOR IMMEDIATE IMPLEMENTATION

Half or more of actions reviewed for each Impact Area received a rating of High or Very High. Actions can be taken against even the most challenging climate stresses, and include arid zone conservation programmes targeting desertification, coral restoration projects to fight reef bleaching, and drip irrigation and salt resistant crops for agricultural sectors of the most water stressed regions. All actions examined are already proven to function or being implemented in vulnerable regions of the world.

## HEALTH IMPACT IS THE HIGHEST PERFORMING RESPONSE AREA

Actions addressing human health were clearly the highest performing Impact Area of the Review. 70% of all health-targeted actions received a Very High rating and no actions received the lowest rating of Medium effectiveness. Actions tackling Malnutrition, such as supplying oral rehydration therapy (a water-salt solution) or insecticide-treated anti-malarial bed nets, cost in some cases less than 10 dollars per person and reduce mortality with a high success rate.

## INTENSIFICATION OF CLIMATE CHANGE COULD RENDER ADAPTATION REDUNDANT

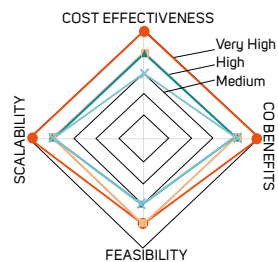
As the planet heats up, the costs of adaptation could escalate out of all proportion or force very difficult decisions over what to protect and what not. Tackling sea-level rise is possible but highly costly. Actions addressing fishery impacts had the lowest level of performance of any remedial actions reviewed. If certain water temperatures are reached, it is expected that the world's coral reefs will no longer be viable despite the best conservation programmes. In some regions, natural resources such as water or threatened species may require unrealistic protection efforts, or else may simply disappear.

*"This report shows that a dual strategy is imperative. On the one hand global warming needs to be limited to 2°C, or even less. On the other hand it becomes crystal clear that without massively reducing vulnerability by appropriate adaptation measures the future will not be manageable."*

HANS JOACHIM SCHELLNHUBER,  
FOUNDING DIRECTOR OF THE  
POTSDAM INSTITUTE FOR  
CLIMATE IMPACT RESEARCH

ACTIONS WERE RATED VERY HIGH, HIGH OR MEDIUM, WITH ACTIONS RATED BELOW MEDIUM NOT INCLUDED IN THE FINAL ANALYSIS.

## REVIEW FINDINGS



● Health impact  
■ Weather disasters  
▲ Habitat loss  
× Economic stress



# THE ADAPTATION GAP

AN ADAPTATION GAP IS CREATED WHEN REMEDIAL ACTIONS DO NOT KEEP PACE WITH CLIMATE STRESSES

## THE PREVAILING GAP

Climate impacts estimated by the Monitor reveal an “adaptation gap” representing harm caused by climate change that communities have not yet adapted to and therefore lessened. Closing the adaptation gap means reducing these impacts through the wide range of responses currently at our disposal. On a country-by-country basis, the Monitor estimates absolute and relative adaptation gaps across the different Impact Areas for each nation.

## POVERTY INHIBITS RESPONSES TO CLIMATE IMPACTS

Climate impacts are at their most intense among poor communities possessing the least resources to address climate stresses. The approximately 7 billion dollars of annual assistance to vulnerable developing countries agreed between the UN climate summits at Copenhagen and Cancun is clearly not of a scale capable of tackling impacts as currently estimated. With annual economic losses alone at around 20 times that amount and most of the countries worst hit least responsible, valid questions of justice do arise.

## PROACTIVE LOCAL MEASURES WILL COUNT

If vulnerable countries fail to take autonomous action to close the gap left by inadequate external assistance, climate change could begin to seriously undermine confidence in country-specific development prospects around the world. Affirmative local action cannot revoke any unfulfilled transnational responsibilities, but a freeze on local action will lead to an entrenchment of suffering worldwide.

**“***Vulnerability and adaptation to long-term climate change are new challenges to all countries. This report offers thoughtful analysis of the types and degrees of vulnerability and of possible adaptation responses. It should be read by policy-makers involved both in implementing national adaptation plans and in funding adaptation actions in other countries.*

MICHAEL ZAMMIT CUTAJAR, FORMER EXECUTIVE SECRETARY OF THE UNFCCC



# FRAGILE NATIONS

## FRAGILITY OF NATIONHOOD AND CLIMATE VULNERABILITY GO HAND IN HAND

### HIGHLY FRAGILE AND HIGHLY VULNERABLE TO CLIMATE CHANGE

The list of most vulnerable countries is dominated by fragile states. Of the world's 12 most fragile states according to Foreign Policy and the Fund for Peace, most have an overall Factor of Acute vulnerability, and the rest Severe. Similarly, all UN Peace Operation countries assessed, barring Cyprus and Lebanon, register either Acute or Severe vulnerability.

### EXTREME CLIMATE STRESSES FLARE IN CONFLICT-STRICKEN COUNTRIES

Ongoing conflict, intensive foreign armed combat operations and peacekeeping programmes are the shared characteristics of a core group of countries suffering some of the most extreme climate impacts. Afghanistan, DRC Congo, Somalia and Sudan, for instance, are among the top-10 countries worst affected by Health Impact and Weather Disasters. Somalia is also in the top-10 worst affected countries for Habitat Loss. A deficit of robust state institutions and social safety nets limit the effectiveness of responses to climate impacts which themselves are so severe they are likely to further undermine prevailing security situations in these countries.

#### 2010 FAILED STATE INDEX

TOP-12 COUNTRIES	OVERALL CLIMATE VULNERABILITY
1. SOMALIA	● Acute
2. CHAD	● Acute
3. SUDAN	● Acute
4. ZIMBABWE	● Acute
5. DRC CONGO	● Severe
6. AFGHANISTAN	● Acute
7. IRAQ	● Severe
8. CENTRAL AFRICAN REPUBLIC	● Severe
9. GUINEA	● Severe
10. PAKISTAN	● Acute
11. HAITI	● Acute
12. CÔTE D'IVOIRE	● Severe

Source: Fund for Peace/Foreign Policy and DARA

#### UN PEACEKEEPING OPERATIONS

AFGHANISTAN	● Acute
CYPRUS	● Moderate
CÔTE D'IVOIRE	● Severe
DRC CONGO	● Severe
HAITI	● Acute
LEBANON	● Moderate
LIBERIA	● Acute
SUDAN	● Acute
TIMOR-LESTE	● Acute

Source: UN and DARA

**“It is crucial to have a tool like this to get through the message that the vulnerabilities of poor and fragile nations are manifold and need addressing, each and every one of them.**

**JOSE RAMOS-HORTA, PRESIDENT OF TIMOR-LESTE**





NASA/GSFC/MET/ERSD/C2/JAROS, and U.S./Japan ASTER Team

# SMALL ISLAND DEVELOPING STATES

THE ISLAND  
FRONT-LINE OF  
CLIMATE CHANGE

## A RISING TIDE

Low-income small island states are more exposed than any other group to the relentless rise of the world's oceans. Half of the top-10 countries worst affected by Habitat Loss include low-lying nations such as Kiribati, Marshall Islands and the Maldives. The cost of rising seas for the Pacific region alone is estimated at nearly 4% of GDP potential a year on average – climbing to nearly 6% by 2030.

## EXTREME TROPICAL WEATHER

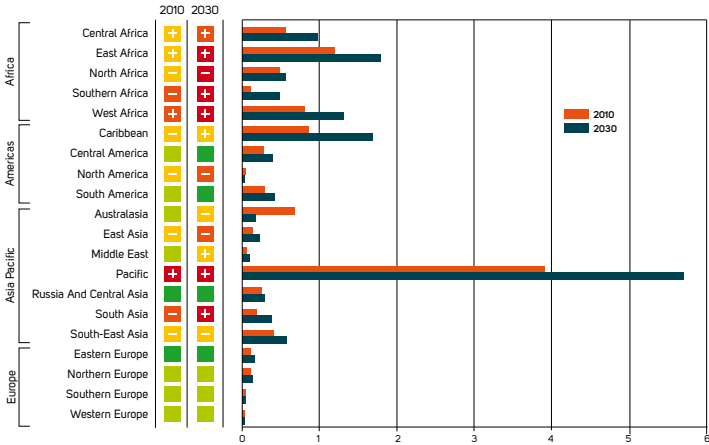
A majority of island countries are also highly exposed to more intense tropical storms. The Caribbean and Pacific are by far the regions worst affected by Weather Disasters with both high mortality rates and steep economic losses. The top-10 countries worst affected include the island nations of Micronesia, Haiti, Grenada and Samoa.

## FACING COMPOUNDED STRESSES AND EXISTENTIAL THREATS

Sea-level rise erodes coastlines and hastens immersion of low-lying land, some of which will disappear beneath the sea before the end of this century. Rising seas also increase vulnerability to tropical storms and tsunamis, since tidal waves gain elevation. A combination of water stress, salt-infused soils and higher temperatures affects agricultural yields, food security, and health. Tropical regions are expected to experience the most significant loss of fishery yields due to extreme sea temperatures, ocean acidification and widespread coral bleaching all linked to climate change.

### SEA-LEVEL RISE IMPACTS AROUND THE WORLD

The regional and socio-economic distribution of sea-level rise costs relative to GDP in 2010 and 2030  
Additional losses (percent of GDP)



“The Maldives stands at the climate change frontline. So it has always been crystal clear to us what must be done. But what happens to the Maldives today, will happen to others tomorrow. The Monitor helps to bring that clarity of vision to the entire world.

**MOHAMED NASHEED,**  
PRESIDENT OF THE MALDIVES



# AFRICA

## THE CONTINENT WORST AFFECTED BY CLIMATE CHANGE

### A CONTINENT OF CLIMATE SUFFERING

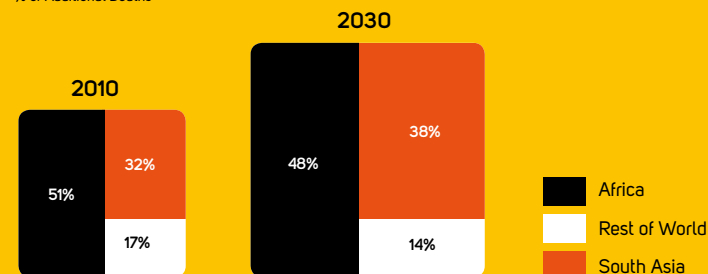
Consistently high vulnerabilities across virtually every African country cause entire sub-regions of the continent to register Acute and Severe Factors of vulnerability to climate change. Central, East and West Africa are the worst off, although every single region of Africa registers elevated climate impacts far above the global norm.

### COMBINED CLIMATE SHOCKS

Virtually all the main negative effects of climate change come to bear at high levels of impact across the continent. Health Impact, Habitat Loss and Economic Stress are the principal concern areas, with East Africa also registering Severe effects for Weather Disasters. The fast acceleration of a number of these stressors is further compounded by the continent's rapid population growth, exposing additional numbers of people to accentuated environmental risks.

### TOTAL MORTALITY DUE TO CLIMATE CHANGE

% of Additional Deaths



# SOUTH ASIA

## HIGHLY POPULATED SOUTH ASIA IS REMARKABLY VULNERABLE TO A RANGE OF CLIMATE IMPACTS

### DANGEROUS CLIMATE RISKS

South Asia relies heavily on rivers fed by shrinking Himalayan glaciers and a weakening monsoon wet season. It has faced the world's most deadly tropical cyclones and had to cope with the most severe of flooding events and heat waves. The coastal lands of the region's heavily-populated low-lying deltas and island atolls are increasingly affected by salt intrusion and inundated by tidal surges. Many areas of South Asia have also suffered from years of unsustainable resource consumption, which affects water supplies and erodes a local capacity to withstand climate change.

### LARGE-SCALE CONSEQUENCES

Home to around one quarter of the world's population and including a large share of the world's poorest groups, the human consequences of climate change in South Asia are significant on global scales. In fact, just over half of all climate mortality occurs in South Asia alone. Afghanistan, Bangladesh, India, Nepal and Pakistan figure consistently among the top-10 hardest hit countries across every Impact Area except Economic Stress. Low-lying Maldives has among the highest vulnerability levels to sea-level rise of any country and ultimately faces possible submersion and disappearance during this century.



UN Photo/Gijs van't Klooster



# EMERGING MARKETS

**STRONG ECONOMIC GROWTH  
DOES NOT NECESSARILY PROTECT  
POPULATIONS FROM CLIMATE IMPACTS**

## EMERGING ECONOMIES SUFFER THE LARGEST SHARE OF TOTAL IMPACTS

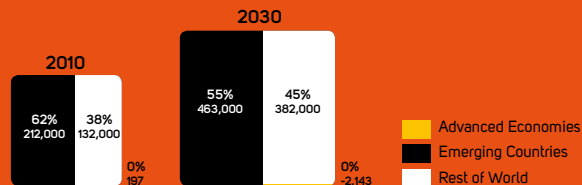
China, India, Brazil and a dozen other fast-growing developing countries experience approximately half of the total climate stresses estimated for each main Impact Area. Key emerging economies make up between five and seven of the top ten affected countries in total terms for every single Impact Area. Emerging economies also experience around 90% of all desertification pressures on populations worldwide, due in particular to severe degradation in China and India.

## ADAPTATION FOR THE PROTECTION OF VULNERABLE GROUPS

In emerging economies climate impacts tend to be both large in total terms but often less significant in relative terms because of the sheer scale of countries like China, Iran and Egypt. Bangladesh, India, Nigeria, Pakistan and Vietnam, however, all register in the top two vulnerability Factors – of Acute or Severe – overall, implying also significant effects in comparison to other countries worldwide. Rapid economic growth on a national level alone does not necessarily guarantee diminished national climate vulnerability. Growing inequalities alongside economic expansion may even exacerbate vulnerabilities and impacts, while effective adaptation would increase protection for the most disadvantaged groups.

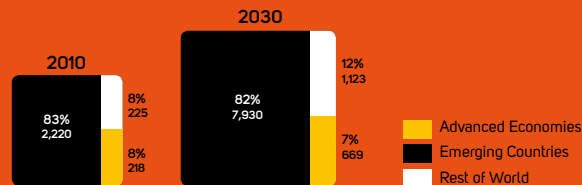
## TOTAL CLIMATE MORTALITY

% and Deaths average per year



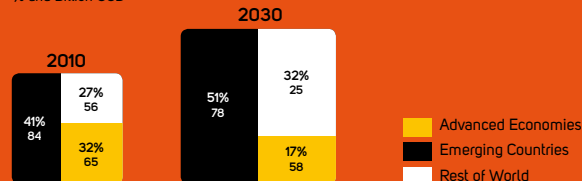
## TOTAL POPULATION AT RISK - DESERTIFICATION

% and total population (1000) at risk of desertification



## TOTAL ECONOMIC COSTS

% and Billion USD



# ADVANCED ECONOMIES

**HIGHLY DEVELOPED NATIONS ARE NOT LEFT UNTOUCHED AND BEAR ONE THIRD OF ALL ECONOMIC COSTS DUE TO CLIMATE CHANGE**

## HIGH ECONOMIC COSTS DUE TO CLIMATE CHANGE

With the greatest share of the world's wealth, advanced economies also have more of it to lose due to climate change, or one third of the total estimated economic impact. On average though, such effects would not exceed a quarter of one percent of GDP. So they are felt much less than in low-income countries where impacts can reach several percentage points of GDP on an annual basis. Advanced economies also have a much greater capacity to respond.

## THE UNITED STATES AND SPAIN: MOST VULNERABLE AMONG DEVELOPED NATIONS

The US and Spain are the only advanced economies to register an overall vulnerability Factor of High in a category together with developing countries such as Gabon, Laos and Turkmenistan. The US suffers the most economic losses of any country at close to 30 billion dollars a year today. The US is also among the top-10 countries worst affected by desertification and sea-level rise. Spain is also highly affected by desertification due in particular to a warming and drying

of the Southern Mediterranean. But the US and Spain are not alone. Germany and Japan, for instance, while registering lower overall vulnerability, each also figure among the top-10 worst affected countries worldwide for both Weather Disasters damage and Economic Stress.

## CLIMATE MORTALITY AND WEALTHY COUNTRIES

Advanced economies are expected to benefit slightly from lower burdens of sickness associated with shorter/warmer winters. No advanced economies have significant burdens of the key climate sensitive diseases: Malnutrition, Diarrheal infections, Malaria and Dengue Fever. However, climate mortality is still a major concern as demonstrated by the estimated 70,000 additional deaths caused by the unusually strong 2003 European heat wave – typical of the type of phenomena projected to become more prevalent as the planet continues to warm. The US for its part is also particularly exposed to increased mortality due to more severe tropical cyclones and to wildfires.

**“Not enough people yet are scared enough about climate change.**

**JOHN ASHTON, UK FOREIGN OFFICE SPECIAL REPRESENTATIVE FOR CLIMATE CHANGE, SPEAKING AT THE LAUNCH OF THE CLIMATE VULNERABILITY MONITOR, LONDON, DECEMBER 2010**



“ *The fate of the most vulnerable will be the fate of the world.* ”

2009 DECLARATION OF THE CLIMATE  
VULNERABLE FORUM

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María Lasa, Iago Álvarez.



## PARTNERS

The Climate Vulnerability Monitor benefits from the collaboration of its two lead partners, DARA and the Climate Vulnerable Forum at the core of the Climate Vulnerability Initiative. DARA brings specialist expertise and independent objectivity to the endeavour, building on its experience as a critical evaluator of development and humanitarian aid effectiveness. The Climate Vulnerable Forum and its members, particularly its initiating chair (the Maldives), have contributed prescient thought leadership to the project, as well as expertise from inside the climate frontlines.

## DARA

DARA is an independent international organization committed to improving the quality and effectiveness of aid for vulnerable populations suffering from conflict, disasters and climate change. It carries out this mandate through research, evaluations, technical assistance and knowledge sharing. DARA was founded with the compelling vision of Silvia Hidalgo to enhance the impact of international assistance for the benefit of the world's most vulnerable groups. DARA created the Humanitarian Response Index, which is the premier evaluation tool for donor effectiveness in humanitarian assistance.

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## CLIMATE VULNERABLE FORUM

The Climate Vulnerable Forum convenes governments from Africa, Asia, the Americas, and the Pacific, representing some of the countries most vulnerable to the adverse impacts of climate change. The Forum first convened in the Maldives in November 2009 and adopted a declaration that expressed alarm at the pace of change to the Earth caused by climate change and committed to demonstrating leadership aimed at tackling what for some nations is becoming an existential challenge. The Climate Vulnerable Forum brings to the Monitor its strategic leadership engagement and facilitates access to key expertise.

## COMMONS CONSULTANTS

Commons Consultants is the principal research and production partner involved in the development of the 2010 Monitor. Commons Consultants is a management consulting and research firm with expertise in policy analysis and strategy development. Its focus industries are energy and environment, climate change, health, and responsible financial services.



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**“This report provides a basis for discussion and debate on key vulnerabilities resulting from climate change, thereby enabling policy makers and the public to bring the issues of impacts and vulnerabilities into the mainstream of policymaking. Against that objective this report makes a major contribution.**

**RAJENDRA PACHAURI**, CHAIRMAN OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) AND DIRECTOR GENERAL OF THE ENERGY RESOURCES INSTITUTE (TERI)