



STUDY

Climate change, Debt and COVID-19

Analysing the Triple Crisis with a New Climate
Disaster and Debt Risk Indicator and Building
Forward for a Resilient Recovery,
Based on Climate Justice

Imprint

Publisher

Brot für die Welt
Evangelisches Werk für Diakonie
und Entwicklung e. V.
Caroline-Michaelis-Straße 1
10115 Berlin
Phone: +49 30 65211 0
kontakt@brot-fuer-die-welt.de
www.brot-fuer-die-welt.de

Lead Author

Thomas Hirsch (Climate and
Development Advice)

With contributions from

Eva Hanfstängl and Sabine Minninger
(Bread for the World);
Jürgen Kaiser (erlassjahr.de);
Vera Hampel and Miklós Veszprémi
(Climate and Development Advice);
Kerstin Pfliegner, Joanna Smith
and Helena Sims (The Nature
Conservancy);
Sara Jane Ahmed (Finance Advisor
at the Global Centre on Adaptation);
Vera Künzel and Laura Schäfer
(Germanwatch);
Elena Cedillo and Sophie Gebreyes
(Lutheran World Federation);
Marivone Vorachak (Cooperation
Committee with Laos);
Maina Talia (Climate justice
consultant, Tuvalu)
Editor Sven Recker

This publication contains guest articles
that are in the sole responsibility of the
guest authors and do not necessarily
reflect the opinion of Bread for the World
and erlassjahr.de

Responsible according to

German Press Law Klaus Seitz

Photos Jens Grossmann (title: *Debris
in front of the Bethany Hospital in the
City of Tacloban City in Leyte/Philippines
due to the devastating damages Typhoon
Haiyan caused in 2013.*/p. 42),
Christof Krackhardt (p. 23),
Karin Schermbrucker (p. 16),
SIGA (p. 9), Sara Jane Ahmed (p. 32),
Sophie Gebreyes (p. 51),
Manivone Vorachak (p. 63),
Maina Talia (p. 69), Elena Cedillo (p. 76)

Layout Katja Tränkner (Write Now)

Art. No. 129503190

Donations

Brot für die Welt
Bank für Kirche und Diakonie
IBAN: DE10 1006 1006 0500 5005 00
BIC: GENODED1KDB

March 2021

Member of
actalliance

STUDY

Climate change, Debt and COVID-19

Analysing the Triple Crisis with a New Climate
Disaster and Debt Risk Indicator and Building
Forward for a Resilient Recovery,
Based on Climate Justice

Table of Contents

List of Figures	1
Abbreviations	2
Glossary	3
Foreword	4
Executive Summary	5
Introduction	6
PART I: Addressing Multiple Climate, Pandemic and Debt Risks	8
Overview of topics	8
On the way to a new sovereign debt crisis	8
Effects of the COVID-19 crisis	10
The climate crisis – expensive losses and the threat of losing control	11
Interactions between debt, climate and pandemic crises	13
How climate and other disaster risks increase debt	14
When debt grows, resilience decreases	17
SIDS are on the frontline of the climate, COVID-19 and debt crises	17
Beyond SIDS: The risk of over-indebtedness caused by climate-induced damages	19
The COVID-19 pandemic: Crisis-catalyser or momentum for a turnaround?	19
Interim conclusion: The climate change and sovereign debt impact chain	22
Applying the Climate Disaster and Debt Risk Index to five sample countries	22
Solution approaches	25
Equity, responsibility, legitimacy – addressing the crisis with justice for the poor	25
Debt moratorium and state insolvency proceedings, when debt-carrying capacity is exceeded	26
Debt conversion in support of investment into climate adaptation	28
Equalisation fund to cover vulnerable countries’ climate-induced extra credit risk	30
Setting up a Global Resilience Investment Facility	31

Climate change and debt management: Supporting the V20’s climate prosperity32

Making polluters pay35

The Warsaw International Mechanism’s possible role in the debt and climate crisis.... 36

Conclusions and recommendations 38

PART II: Countries Caught Between Debt, COVID-19 and Climate Change 41

Measuring the combined climate, pandemic, disaster and debt risk 41

Ethiopia 46

Sri Lanka 53

Lao People’s Democratic Republic 58

Papua New Guinea 64

El Salvador 71

Bibliography 78

List of Figures

Figure 1	Number of developing countries breaching at least one critical debt risk indicator
Figure 2	The climate change and sovereign debt impact chain
Figure 3	The multi-dimensional Climate Disaster and Debt Risk Index of five sample countries
Figure 4	Susceptibility to climate change of Moody's rated sovereigns
Figure 5	Public debt to GDP ratio in Grenada
Figure 6	Debt sustainability analyses
Figure 7	Classification of disaster risk
Figure 8	Classification of average annual climate-induced losses
Figure 9	Classification of climate-induced loss trend
Figure 10	Classification of multi-hazard relative average annual loss
Figure 11	Classification of losses as a percentage of social expenditure
Figure 12	Classification of size of the financing gap in case of a 100-year extreme event
Figure 13	Classification of financing gap return period
Figure 14	Classification of loss and damage risk
Figure 15	Debt risk scoring
Figure 16	Classification of debt risk
Figure 17	Classification of multi-dimensional risk
Figure 18	Map of Ethiopia
Figure 19	Climate-induced losses in Ethiopia (2010–2017)
Figure 20	Map of Sri Lanka
Figure 21	Climate-induced losses in Sri Lanka (2010–2017)
Figure 22	Map of Lao PDR
Figure 23	Climate-induced losses in Lao PDR (2010–2017)
Figure 24	Map of Papua New Guinea
Figure 25	Climate-induced losses in PNG (2010–2017)
Figure 26	Map of El Salvador
Figure 27	Climate-induced losses in El Salvador (2010–2017)

Abbreviations

AOSIS	Association of Small Island States
BftW	Bread for the World/Brot für die Welt
CAN	Climate Action Network
CCDSF	Climate Change and Disaster Survival Fund (of Tuvalu)
CCRT	Catastrophe Containment and Relief Trust (of the IMF)
CRI	Climate Risk Index (Germanwatch)
CVF/V20	Climate Vulnerable Forum/Vulnerable 20
DRMKC	Disaster Risk Management Knowledge Centre (European Commission)
DRR	Disaster Risk Reduction
DSSI	Debt Service Suspension Initiative (of the G20)
ExCom	Executive Committee of the Warsaw International Mechanism
G7	Group of Seven
G20	Group of Twenty
GAR	Global Assessment Report (on Disasters, published by UNDRR)
GCF	Green Climate Fund
GDP	Gross Domestic Product
GNI	Gross National Income
HDI	Human Development Index
HIPC	Heavily Indebted Poor Countries Initiative
IFIs	International Financial Institutions
IMF	International Monetary Fund
Lao PDR	Lao People's Democratic Republic
LDCs	Least Developed Countries
MDRI	Multilateral Debt Relief Initiative
MIC	Middle Income Country
NDC	Nationally Determined Contributions
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
PA	Paris Agreement
PNG	Papua New Guinea
PPP	Purchasing Power Parity
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
TFCA	Tropical Forest Conservation Act
TNC	The Nature Conservancy
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
WIM	Warsaw International Mechanism for Loss and Damage (under UNFCCC)

Glossary

A **Global Debt Register** has been proposed by *erlassjahr.de* to create transparency across all states' public debt obligations.

The **London Club** is an informal ad-hoc group of creditor banks, which convenes in order to renegotiate claims of individual debtor countries. The first meeting in the London Club format took place in 1976.

The **Paris Club** is a cartel of creditor governments, founded in 1956, in order to coordinate their negotiations with debtor countries. It has 22 members, most of them OECD member states.

Debt Carrying Capacity is defined as the level of debt a debtor can service and repay in full and on time. It has not had a generally binding definition so far. The question of what sustainable levels of debt are has been approached variously within discussions of national debt crises. Various levels have been applied in negotiations. The **analysis of historical debt carrying capacities** studies past situations in which debt payments became unsustainable. It allows the deduction of levels of debt that were, as a matter of historical fact, not sustainable. The **analysis of existence-securing debt carrying capacities**, akin to private insolvency provisions, aims to guarantee a minimum level of funds to debtor states, which must not be claimed by creditors. The **political analysis of debt carrying capacities** deduces the carrying capacity of a creditor from the willingness of the debtor to forgo payments. The debt that cannot be forgiven is considered sustainable from the point of view of the creditor.¹

Debt swaps are debt reliefs with the provision that the debtor's resources, freed up by the relief, must be invested in productive investment, development, environmental protection (**debt for nature swaps**) or climate change mitigation efforts (**climate swaps**).

Debt Conversion Facility (Schuldenumwandlungsfazilität) is a German stimulus program created in 1992 to cancel outstanding development aid credits under the condition that the respective states, mostly in the Global South, commit to invest equivalent sums with or without discount, in their national currencies, in environmental protection and development projects.

EM DAT is a database on disaster related economic and humanitarian losses, based in Belgium.

A **fair, independent and transparent sovereign debt workout for states** would grant over-indebted states the opportunity of fair and transparent insolvency proceedings overseen by independent decision-making bodies. *erlassjahr.de* and the global Jubilee movement have been promoting them.²

INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters led by the Joint Research Centre of the European Commission and managed by the Inter-Agency Standing Committee Reference Group on Risk, Early Warning and Preparedness in collaboration with the Disaster Risk Management Knowledge Centre of the European Commission.

RCP 8.5 is a Representative Concentration Pathway (RCP) describing the worst-case scenario of the future development of GHG emissions, leading to a temperature increase of about 4.3°C on average globally, by the year 2100. It refers to the concentration of carbon that delivers global warming at an average of **8.5** watts per square meter across the planet. Other RCPs are RCP2.6 (likely to keep global warming below 2°C), RCP4.5 and RCP6.

¹ <https://erlassjahr.de/themen/schuldentragfaehigkeit/>

² <https://erlassjahr.de/themen/staateninsolvenzverfahren/>

Foreword

The year 2020 shows the enormous vulnerability of people struggling against the effects of two crises, the health crisis and the climate crisis, at the same time.

In particular, the poorest populations in the Global South are struggling simultaneously against the as yet unforeseeable consequences of the coronavirus and the impacts of climate change. They urgently need support in building resilience to the health and climate crises, and in dealing with the inevitable and increasing impacts of climate change.

Lack of food and clean water, lack of access to health care, no reserves for emergencies: Poverty makes people vulnerable both to the impacts of climate change and to the current health crisis caused by the novel coronavirus. Both factors can easily become existential threats to particularly vulnerable people in the countries of the Global South. The coronavirus is not comparable to climate change but it is currently causing the kinds of disruptions we might also face in the future.

Even the tools for mitigation can only be compared on an abstract level: Good education, a reliable health care system, access to information and good governance would help, for example.

The interplay between these two crises is currently emulsifying into a toxic cocktail for affected populations in various regions of the Global South. In the process, it is becoming clear how brutally one crisis reinforces the other. They hit the poorest and weakest hardest, acting as disaster multipliers and forcing people into extreme poverty.

Even though ongoing climate change affects everyone and the coronavirus infects many people worldwide, people in poverty are much more vulnerable to both crises. They simply lack the resources to adequately prepare and protect themselves from the consequences.

Nevertheless, we can still do something about it.

Primarily, we need to reduce the vulnerability of those most affected, strengthen their resilience to climate impacts and, most importantly, help them cope with unavoidable consequences.

Those responsible for the climate crisis are clearly defined: Under the polluter pays principle, industrialized countries are obliged to support poorer and severely affected countries cope with the consequences of climate change. But high-emission, emerging economies, whose prosperity is sufficient to support people in the poorest countries – and who have not contributed to the climate

crisis but are already suffering from it – must also make their contribution.

With the commitment of industrialised countries to providing USD 100 billion annually for climate mitigation and adaptation starting 2020, industrialised countries and other rich and high-emitting nations should also commit to establishing an adequately funded mechanism to address climate-related damages by 2025, at the latest. Even though the next climate summit, COP26 in Glasgow, has been postponed until 2021, further pathways for additional funding for the poorest and most vulnerable states to address the climate crisis must be established there.

Since it is precisely these states that are becoming increasingly indebted, in part due to the climate crisis, a debt moratorium or debt relief following an extreme weather event was proposed even before the COVID-19 crisis. The need for such a moratorium and other debt relief is further increased by the pandemic, especially in poor countries that are barely able to cope with climate damages. In this paper, we show that it could work, and for whom.

The provision of climate finance by developed countries and, increasingly, other rich countries, as well as debt relief for the poorest countries, are now important tools for meeting the world's Sustainable Development Goals and the Paris Agreement climate targets.

We wish you an interesting read.

JÜRGEN KAISER

Co-ordinator
erlassjahr.de

DR. DAGMAR PRUIN

President
Brot für die Welt

Executive Summary

The COVID-19 pandemic has come on top of the climate crisis, the existential threat of our time. Debt is pushed to new heights at a moment when debt levels were already historically high. This triple climate change, debt and COVID-19 crisis has catalysed a situation where vulnerable nations are being squeezed between financial, economic, climate and health risks. Neither can they afford huge investments in recovery programs, nor can they invest in resilience at the levels required to reduce their future risks. As a result, not only sovereign debt but also climate-induced loss and damage will further rise, with vulnerable frontline communities paying the highest price.

This study provides an analysis of the linkages between multi-hazard exposure, lack of resilience, resulting disaster risk with related loss and damage, sovereign debt risks, and the lack of investment into resilience building. It argues that a growing resilience gap results from the triple crisis, which is too big to be handled by the affected countries alone. It shows why the need for solidarity action is so urgent, to get an inclusive and equitable transition to a sustainable, climate resilient and carbon neutral future on its way. It argues that a swift and structured debt relief process as well as the reform of the international financial architecture are key priorities of a green recovery, as well as targeted investments in resilience building and an accelerated economic transformation. While many stakeholders and decision-makers agree on these demands, the question to be answered is: How to walk the talk?

Resilience is the key approach to managing risks and people's rights should come first. Based on these principles, the study develops a set of proposals how to build forward for a resilient recovery:

- Supporting countries to assess their multiple risks as a base for targeted action and support;
- A Global Resilience Investment Facility additional to committed climate finance and ODA;
- Development of a framework for debt conversion in the event of climate-induced disasters;
- Debt conversion for climate resilience and conversation;
- Debt moratorium and state insolvency proceedings, when debt has become unsustainable;
- Equalisation Fund to cover vulnerable countries' climate-induced extra credit risk;
- Facilitate multi-stakeholder dialogues on a resilient and green recovery.

There is no one-fits-all approach, because the specific risks of countries vary. But how to assess countries' risks? The Association of Small Island States (AOSIS) has proposed utilising a *multi-dimensional vulnerability index*, to drive a collective and sustainable response for addressing sovereign debt distress. Because such an index was not yet available, we have developed a multi-dimensional risk index, in response to the AOSIS call. We call it *Climate Disaster and Debt Risk Index*. It can measure a country's multidimensional risk, considering 16 indicators. The formula and the open source databases used are disclosed.

The Climate Disaster and Debt Risk Index is applied to five low- and middle-income countries, each of them representing one of the five most-at-climate-risk regions of the world: El Salvador (Central America and the Caribbean), Ethiopia (Sub-Saharan Africa), Sri Lanka (South Asia), Lao PDR (South East Asia) and Papua New Guinea (Oceania).

Results reveal that each country's risk profile is unique, due to very specific national circumstances, which is why their respective recovery strategies should be specific, too. Ethiopia is exposed to the highest climate, COVID-19 and other disaster risks. Nevertheless, the relative loss and damage risk is highest in PNG, closely followed by Lao PDR. The debt risk is highest in Sri Lanka, followed by El Salvador; it is currently lowest in PNG. The multiple risk is highest in PNG and Lao PDR. These results indicate that links between the different types of risk are complex and that it is worth taking a nuanced approach in assessing a specific country's risks. The information provided by our approach can be used as an early warning instrument. The approach allows for the identification of specific risk drivers, the measurement and comparison of the severity of risks and the identification and prioritisation of areas where risks should be reduced.

Introduction

The climate crisis is “the existential threat of our time, jeopardising the health and well-being of every family in every community around the world,” – this is how G7 speakers and heads of parliament put it, in a joint declaration named “Addressing the Climate Crisis with Economic and Environmental Justice for All.” They called for particular attention to be paid to justice for vulnerable front-line communities.³ Just how threatening the situation is, can be seen in new scientific report from the global insurer, Swiss Re Group, which warns that more than half of global GDP – totalling USD 42 trillion – is in peril, as climate change brings biodiversity to a tipping point and puts 20 per cent of the world’s countries at risk of ecosystem collapse.⁴

And now the COVID-19 pandemic has come on top of the threat of climate change. It has profoundly disrupted life for virtually everyone around the globe. However, the most vulnerable communities and at-risk populations have been disproportionately hurt. Apart from the health and social crisis, the pandemic is causing the worst global recession in a century with a likely loss in global income amounting to USD 12 trillion by the end of 2021, according to UNCTAD.⁵ That economic crash pushes up to 100 million more people into extreme poverty, and the UNDP has predicted that human development will decline in 2020, for the first time since the Human Development Index (HDI) was introduced.⁶

The pandemic has pushed debt to new heights. Compared to the end of 2019, average 2021 debt ratios are projected to rise by 10 per cent of GDP in emerging market economies, and by about 7 per cent in low income-countries, coming on top of debt levels that were already historically high before COVID-19. However, the debt indicators we refer to in this study still reflect the situation at the end of 2018. This was the data available when this study was written. It is clear that the debt situation has worsened over the course of 2020, due to the recession triggered by the COVID-19 pandemic. Based on forecasts in IMF debt sustainability analyses and other sources, *erlassjahr.de* assesses that debt risk in El Salvador, Sri Lanka and Ethiopia, three of our sample countries, will have worsened to “very critical” by the end of 2020.

The triple challenge – climate change, COVID-19 and the debt crisis – reveals a huge resilience gap, the urgent need for solidarity and a swift transition to a new development paradigm. A green recovery plan is needed that is aligned with SDGs and the goals of the Paris Agreement. Without such a plan, the world is heading for

a lost decade and the fight against climate change will be lost. A swift and structured debt relief process as well as the reform of international financial architecture must be among the key priorities of a green recovery, as well as targeted investments in resilience building and an accelerated economic transformation towards decarbonisation and sustainability.

Rethinking risk, resilience and debt relief is critical. There is no shortage of ideas for green stimulus packages, structural reforms leading to more transformative pathways, and more resilience – but there is a shortage of action. Overcoming the debt crisis is essential to unlock investments and to take action, particularly in critically indebted low- and middle-income countries and, above all, in those countries which have not only been hit disproportionately by the pandemic but also by climate change or other natural risks, such as Small Island Developing States (SIDS) and other high-risk countries.

Our study puts a particular focus on these countries. It aims at improving understanding of the links between climate change, multiple risk susceptibility, loss and damage, debt and resilience. It introduces an indicator-based approach to measure the aggregated multi-dimensional risks they face. It discusses possible actions and solutions, then concludes with policy recommendations.

Solutions spotlighted by this study go far beyond climate finance in the narrow sense of financing drawn from public, private and alternative sources in OECD countries that contribute to the USD 100 billion commitment (as of 2020) by the Global North to support climate mitigation and adaptation in developing countries, so these countries are able to fulfil their commitments under the Paris Agreement.

Standing on the edge of the abyss, vulnerable people and humankind as a whole cannot afford to wait any longer. Mobilising finance to trigger investments in solutions to the crisis we are facing is an immediate need. Debt suspension and emergency financing have been very important but developing countries will require additional finance. As the crisis continues, unsustainable debt comes to the forefront of the debate. It needs to be

³ https://www.speaker.gov/sites/speaker.house.gov/files/20200912_G7_SpeakersDeclaration.pdf

⁴ <https://www.swissre.com/media/news-releases/nr-20200923-biodiversity-and-ecosystems-services.html>

⁵ TWN Info Service on Trade, Finance and UN Sustainable Development 24 September 2020

⁶ https://stories.undp.org/far-reaching-fallout?utm_source=email&utm_medium=newsletter&mc_cid=6e093068e9&mc_eid=d50bc47c4db

tackled with large and speedy debt relief – to benefit affected countries and people, and eventually for the benefit of all.

The present study is structured in two parts. PART I starts with an overview of each of the three topics at stake: the sovereign debt crisis, the COVID-19 pandemic and climate change, with the latter specifically focussed on loss and damage. Key facts and trends for each of these topics are introduced. In a next step, interactions between hazard exposure, vulnerability, disaster risk, resulting losses and rising sovereign debt are analysed. Impact chains are shown, and key indicators identified. The specific risks for SIDS are explained and the question of how far the COVID-19 pandemic may mobilise the political momentum needed to incentivise an accelerated transformation is discussed. Interim conclusions are then made, highlighting the nature of the multi-dimensional risk many countries currently face, and the downward spiral that will develop, if it is not stopped. The following chapter introduces the multidimensional *Climate Disaster and Debt Risk Index* that was developed for this study, and presents the results of its application to five sample countries. This overview shows nuanced differences in the risk profiles of different countries, suggesting that each may need different approaches to reduce risk. In the following, various solution-oriented approaches are introduced – for example, debt relief models and other financial instruments that de-risk investments in resilience by taking steps to make these investments less risky or less likely to involve a financial loss. Solving the current triple debt, climate and pandemic crisis also raises questions of legitimacy and responsibility, which are reflected in this chapter too. Finally, conclusions will be explained and policy recommendations made.

PART II starts with an explanation of our *Climate Disaster and Debt Risk Index* which allows the measurement of the combined disaster, loss and debt risk. It considers 16 indicators (five for disaster risk, six for loss risk and five for debt risk). The formula to calculate the multiple risk of any country and the open source databases used are disclosed. Following this, the risk index is applied to five low- and middle-income countries, each of them representing one of the five most-at-climate-risk regions of the world: El Salvador (Central America and the Caribbean), Ethiopia (Sub-Saharan Africa), Sri Lanka (South Asia), Lao PDR (South East Asia) and Papua New Guinea (Oceania). The resulting country risk

profiles provide quite a variegated picture of the specific risk combination each country has, reflecting its different national circumstances. The analytical aspect is supplemented with short interviews with civil society actors from these countries. They reflect on the consequences of the combined climate, COVID-19 and debt crisis for their people and their country's sustainable development perspectives.

PART I and PART II can be read independently from one another. We recommend readers in a hurry to restrict themselves to the following chapters:

- Interim conclusion: The climate change and sovereign debt impact chain
- Applying the *Climate Disaster and Debt Risk Index* to five sample countries
- Conclusions and recommendations.

The study was written between May and November 2020. The information on the confirmed COVID-19 cases is dated early November 2020. By February 17, 2021, the number of confirmed cases has risen globally to 109,580,074 (2,421,075 deaths). The figures for the sample countries changed as follows: Ethiopia 148,490 confirmed cases; Sri Lanka 77,184; El Salvador 58,023; PNG 955; and Lao 45.⁷

The deeply worrying Tigray crisis in Ethiopia started after the country chapter had been written.

⁷ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda759474ofd40299423467b48e9ecf6>

PART I: Addressing Multiple Climate, Pandemic and Debt Risks

Overview of Topics

On the way to a new sovereign debt crisis

Every year, erlassjahr.de analyses where in the world sovereign debtors are reaching or even exceeding critical debt levels. Out of 154 non-OECD, UN member states on the radar, the Global Sovereign Debt Monitor 2020 found that 124 countries were breaching at least one of three critical thresholds, which were set for each of five debt indicators being used by the Debt Monitor.⁸ This was based on data available up to December 31, 2018. This is an alarmingly high percentage of developing and emerging market sovereigns. However, even more alarming is the very clear upward trend, which annual evaluations have shown increasing over past years.

when too many borrowers without sufficient economic potential had loans. In order not to let more banks and financial institutions go bust after the Lehman Brothers crisis, the U.S. government felt compelled to recapitalise problematic institutions and generally flood capital markets with dollars at the lowest possible interest rates. One of the many consequences of this “quantitative easing” policy was the downturn of global interest rates. This baisse spelled trouble for anybody who had fixed-rate payment obligations – for instance, pension funds, large insurance companies and others – not only in the U.S. but also in Europe and any other important financial centre. In times when domestic – that is, in the U.S., Europe and Japan – interest rates hovered around zero, these institutions were in urgent need of higher returns and eagerly looked for alternatives. They found these in the developing world.

Figure 1: Number of developing countries breaching at least one critical debt risk indicator

Year	2013	2014	2015	2016	2017	2018
Number of countries	83	108	116	119	122	124

Source: Global Sovereign Debt Monitor, erlassjahr.de

This rise is not the result of new, formerly unaffected country groups entering critical terrain, but rather reflects a broader trend, which has now spread to many low- and middle-income countries on all continents. In fact, as we shall see below, a few factors can be identified. These did not cause the new wave of debt crises but have certainly aggravated it.

After the “debt crisis of the Third World” of the 1980s and 1990s had finally been defused through instruments such as the Brady Plan for middle-income countries, the Heavily Indebted Poor Countries Initiative (HIPC) and the Multilateral Debt Relief Initiative (MDRI) for poor countries, as well as a larger number of individual debt conversions, the fundamental reason behind the new wave cannot be traced to a single “shock”. To a large extent it cannot even be attributed to the affected countries themselves. Rather, it is due to economic failures, especially in the Global North.

The 2008 collapse of the housing bubble in the U.S. – that is, banks’ sleight-of-hand financing of private real estate building and buying with such confidence that real estate prices could only rise – necessarily led to a collapse,

After the extensive debt relief under the HIPC/MDRI initiatives, several African countries managed to access global capital markets for the first time in their histories. Before HIPC, South Africa was the only African nation with access to the Eurobond market. In 2018, 14 African countries mobilised capital through the placement of sovereign bonds in order to close budget gaps or to invest into their own infrastructure. However, these bond placements, as well as ongoing recourse to traditional syndicated loans, only partially enhanced governments’ finances. To some extent, they simply substituted the reduction in concessional financing from official sources, which some countries suffered from because official development assistance (ODA) was shrinking or had been redirected to countries that were not considered eligible for capital market access. As an important consequence

⁸ Debt indicators relate a debt parameter to one of economic capacity. Different combinations help to assess different types of threats to debt sustainability. The five indicators we use are: External debt / GNI, External Debt / export earnings, External Debt service / export earnings, Total public debt / GNI and total public debt / state revenue. All data, methodology and analysis can be found at: <https://erlassjahr.de/en/news/global-sovereign-debt-monitor-2020/>



A village school in Sierra Leone moves lessons outdoors. In many African countries, children had to forgo their educations because their schools were closed for over a year.

of this combination of less concessional financing and more financing at commercial rates, borrowing became more expensive in general. This was not considered to be a problem though, as long as overall debt indicators remained relatively low due to earlier debt relief as well as reasonable growth rates after the post-2008 global downturn. Still, indicators kept creeping slowly but steadily above the thresholds that *erlassjahr.de*'s Global Sovereign Debt Monitor, or the IMF in its debt sustainability analyses, applied.

This debt, building up slowly rather than making a big bang, led to a surprising degree of complacency among global creditors as well as International Financial Institutions (IFIs), whose task it would have been to ring alarms as early as possible. Everybody wanted to believe that positive growth-interest-differentials and a continuous supply of fresh capital sufficient to roll-over existing payment obligations would prevent a serious crisis – even when the IMF already considered nine out of 70 low-income countries and small island developing states (SIDS) to be in debt distress and another 24 to be at high risk. What in fact was already a structural problem of much too extensive and too easily attained – and often low quality – lending into poorer countries, was considered a problem for only a few countries (in fact, 33 out of a group of 70 by July 2019).

What became clear, however, was that the whole system had become a lot more sensitive to any external shock – even if one continued to close one's eyes to an already quite obviously, broad-based crisis. Individual shocks, which would push countries over the edge, materialised: In 2019, these included the oil price slump for the Republic of Congo, political strife and instability in Zimbabwe and extensive corruption in Mozambique.⁹ This has only broadened with the sudden and extreme recession, which the COVID-19 pandemic triggered in early 2020.

Since mid-2020, language from the IFIs as well as from other major creditors, that also set the rules of global financial architecture (the G20), has become ever more alarming. Ahead of the 2020 annual meeting of the World Bank and the IMF, World Bank President David Malpass warned¹⁰ against a modern debtors' prison, in which many poorer countries in the Global South would find themselves languishing without major debt relief – something totally unheard of from a World Bank president, since the early days of the HIPC initiative. While the IMF had already started a smaller debt relief initiative on its own in April¹¹ and the G20 had at least provided some breathing space with a temporary debt moratorium¹², Malpass called for an action plan for IDA countries in unsustainable debt scenarios. This was presented in October 2020 but fell short of expectations.

The next debt crisis, long heralded by leading academics, the UN and some NGOs, including Bread for the World, is undeniably already here. Three characteristics make it additionally worrisome for affected debtors:

- There is a coordination gap among bilateral creditors. The last debt crisis was resolved – albeit belatedly and at unduly high costs to indebted sovereigns – upon initiatives by the G8, which also actually designed and pushed through the HIPC/MDRI initiatives between 1996 and 2005. Today, by far the single biggest bilateral creditor to almost all the countries in the Global South is China. This creditor stands outside the G8, has no tradition of multilateral coordination in financial issues and finds itself in rivalry with the leading G8 power, the United States. China does not participate in Paris Club arrangements. Within the G20, it was hard to convince China to participate in the DSSI and, at the time of writing, China had tried to tacitly withdraw a substantial part of its own claims – those to the Chinese Development Bank – from the moratorium. Indebted countries in the Global South, which do not have a say in G20 discussions, have good reason to feel like the grass upon which elephants are fighting.
- The present crisis is not a regional one, nor one that only affects countries with a common but specific vulnerability. It is not like some wealthy part of global society can come to the rescue at low cost and with a well-stocked war-chest. Decisions for debt relief have to be made by and with creditors, who themselves are under enormous economic stress.
- Finally, critically indebted countries tend to face not only one, but often several external threats to their economic and fiscal stability: Extreme dependence on more and more volatile commodity markets; the proliferation of extractivism as a development model, which is ecologically and socially highly problematic; political instability as a consequence of globalisation and its repercussions through backward-looking traditionalism, including religiously motivated terrorism; and last but not least, the ever-growing threat of unhampered climate change, which we will discuss extensively in this paper.

Effects of the COVID-19 crisis

The COVID-19 pandemic which has unfolded since the beginning of 2020, is the worst global pandemic of the

last century or more. By the middle of November 2020, 55 million confirmed cases and 1.3 million global deaths had been counted. Six out of the twelve most affected countries are developing countries, including India and five Latin American countries.¹³ In early October 2020, the head of emergencies at the World Health Organisation (WHO) estimated, based on study results, that as much as 10 per cent of the world's population had been infected, suggesting that the real number of cases exceeded the number of confirmed cases by more than 20 times.¹⁴ It can be assumed that the real case numbers in the developing world are far higher than confirmed cases, mainly because of very limited testing capacities and lack of access of billions of people to the health system in a large majority of those countries as well as non-democratic regimes that refuse to acknowledge COVID as a major threat to their people. Thus, the COVID-19 case numbers we are showing in our country analysis should be taken under advisement.

Apart from the global health tragedy, the pandemic has also caused a global economic crisis, which is the worst economic crash in a century. Economic consequences in other world regions are little better. The pandemic has revealed the vulnerability of our societies and of the global economic system. No nation can deal with a crisis of this magnitude by itself. The world economy is too interdependent for any one country to be able to escape.

The United Nations Development Program (UNDP) projects the losses in income caused by lockdowns in developing countries between March and June 2020 to

⁹ For details see: Kaiser, J., M.Wittmann (2019): Schuldenskandal in Mosambik. Eine Bestandsaufnahme; [erlassjahr.de-Fachinfo61](https://erlassjahr.de/Fachinfo61); <https://erlassjahr.de/produkt/fachinformation-61/>

¹⁰ Malpass, D. (2020): Address at the Frankfurt School of Economics, Oct. 5th 2020.

¹¹ The IMF enhanced the existing Catastrophe Containment and Relief Trust, originally set-up to help contain the Ebola pandemic in West Africa, into a global debt cancellation facility of the poorest countries affected by Covid 19. The CCRT pays the debt service due to the IMF in the place of the eligible (so far 28) countries. For details see: <https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/49/Catastrophe-Containment-and-Relief-Trust>

¹² The Debt Service Suspension Initiative (DSSI) postpones the 2020 debt service to G20 and Paris Club members. However, these payments have to be made with interest in 2022-2024. As of this writing 46 eligible countries have claimed the moratorium. The G20 discuss enhancements of the DSSI with regard to eligible countries, time, coverage of participating creditors and the transformation of the moratorium into real debt relief.

¹³ <https://gisanddata.maps.arcgis.com/apps/opstdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

¹⁴ <https://abcnews.go.com/Health/wireStory/10-worlds-people-infected-virus-73427817>

amount to at least USD 220 billion.¹⁵ The world's poorest could be thrown back by five to ten years in terms of development progress. The United Nations World Food Program (WFP) has warned that up to 130 million people in three dozen countries could die of starvation. In ten of these countries, a million people each were already under acute threat of starvation in May 2020, because they had lost the basis of their existence.¹⁶ This number could increase greatly.

The IMF has counted five global recessions since World War II: in 1975, 1982, 1991 and 2009. Of these, the last was by far the worst, with a decrease of 2.9% in global GDP in 2009. The recession caused by COVID-19 will dwarf that figure. As early as late March 2020, the Centre for Economics and Business Research in Britain projected a decrease in global GDP of at least 4 per cent as a result of this crisis.¹⁷ Seven months later, this estimation remains valid: The IMF projected a shrinkage of 4.4 per cent.

As a fallout of the economic crisis, a financial crisis is underway, which especially impacts developing countries, as they lose massive amounts of income from exports, tourism and remittances from migrant workers. Ultimately this leads to a sharp drop in fiscal revenues. Already before the pandemic, 124 out of 154 of the developing countries and emerging economies examined were rated as critically indebted, with external debts amounting in absolute terms to USD 7.81 trillion.¹⁸ The one year debt moratorium for 77 highly indebted countries, announced by the G20 in April 2020, would allow these countries to spend an extra USD 12 billion on COVID-19 countermeasures. This represents only a small fraction of the financial loss caused by the pandemic in these countries. The head of the International Monetary Fund (IMF), Kristalina Georgieva, has cautioned that:

“We will need to step up even more. As you know, we project a deep recession in 2020 and only a partial recovery in 2021. To help countries steer through the depth of the recession and support their recovery, we are prepared to use our full toolbox and USD 1 trillion firepower [...]. Second, to assist our low-income countries, we plan to triple our concessional lending. [...] Third, we will concentrate both lending and policy support to reduce the scarring of the economy caused by bankruptcies and unemployment, in order to support a speedy recovery. And, [...] to help our members steer through this crisis and come out of it more resilient.”¹⁹

Already by April 15, 2020, USD 8 trillion had been earmarked for recovery programs worldwide to overcome the global recession caused by the pandemic.²⁰ This sum went up to USD 12 trillion in October. Without this, the largest economic stimulus program in history, an unfathomable number of companies will go bankrupt, hundreds of millions of jobs will be lost and the fate of millions will look grim. The hardest hit are countries in the Global South, where most jobs are in the informal sector, where social safety nets are at best rudimentary, where people have either no or insufficient savings and where global supply chains – for example, in the textiles industry – have been the first to break. To support those economies is not only an ethical but also an economic imperative in this globalised world. Without international support, numerous developing countries won't be able to recover quickly enough to avoid a humanitarian catastrophe.

The climate crisis – expensive losses and the threat of losing control

The global climate crisis remains the overwhelming long-term threat of our times, even amid all the losses and fear caused by COVID-19.²¹ The fact that the climate crisis not only bears enormous risks in itself, but that it has become a threat multiplier in the case of pre-existing vulnerabilities, affecting human security, livelihoods, business models, financial stability, ecology and biodiversity, makes it an emergency. When this report was written, California was on fire, just like the Arctic and Brazil. Antarctic ice shelves were melting at an unprecedented pace. At the same time, Asian countries, as well as countries at the Horn of Africa, witnessed record flooding. In Sudan, the Nile River rose by almost 17.5 meters and destroyed more than 100,000 homes. A plague of locusts threatened food security in eastern Africa while a drought exposed millions of people in southern Africa to starvation.²²

As global warming rapidly accelerates, the risks created by climate change have increased sharply. In the last four decades, the number of extreme weather events and associated damages have quadrupled. Today the world spends USD 158.6 billion per year on them.²³ These sums endanger the attainment of SDGs, mostly in developing countries, and especially in small island developing states (SIDS) and least developed countries (LDCs)

(IPCC, 2018). Of the ten countries that were most affected by extreme climate events in the past 20 years, four have been in South East Asia and three each in both South Asia and the Caribbean (Germanwatch, 2019). Most of them are low- or lower-middle income countries.

Climate-induced loss and damage is projected to increase in decades to come, with the loss range varying according to the level of additional temperature increase. It is important to note that, besides extreme climate events, slow onset climate change events will also lead to increased damage, for instance, in the form of sea level rises, glacier melts, thawing permafrost, species extinction and soil salinity (IPCC, 2019a, 2019b). Future loss and damage for developing countries is estimated at USD 428 billion annually in 2030, and at USD 1.67 trillion in 2050, if global temperatures rise by 3°C. For Africa, by 2050, losses are projected to reach USD 100 billion in a below 2°C scenario, doubling to USD 200 billion annually in a 4°C rise scenario (for more information, see Bread for the World, 2019b). Total global costs caused by climate change may reach USD 5.4 trillion by 2070, according to latest research by University College London and the Carbon Disclosure Project.²⁴ This would be equivalent to 4 per cent of global GDP in 2019. Modelling by the Potsdam Institute for Climate Impact Research (PIK) and the Mercator Research Institute for Global Commons (MCC) arrives at similar results: A temperature increase of 3.5°C by 2100 would reduce global economic output by between 7 and 14 per cent by 2100, and possibly even by up to 20 per cent in tropical and poor regions. Based on these estimates, they calculate the social cost of carbon from temperature-induced productivity losses in the order of between USD 73 and USD 142/tCO₂ in 2020, rising to USD 92 to USD 181/tCO₂ in 2030, not including non-market damages and damages from extreme weather events or sea-level rise.²⁵ This shows how under-priced carbon is, considering that the carbon price in the European emissions trading system currently fluctuates between €20 (around USD 25) and €30 (around USD 37).

Although the entire world suffers from these climate-induced losses and damages, it is the vulnerable and risk-exposed developing countries that suffer *additional* financial threats, ones which are likely to increase indebtedness. These are predominantly of two types. Firstly, climate change leads to premature write-downs of assets (for example, of coastal infrastructure). Secondly, risk premiums on credit caused by the elevated

danger of future climate risks, increase capital costs, estimated in a range of USD 150 to USD 170 billion for the decade of the 2020s for climate vulnerable countries (for more information, see Bread for the World, 2019a).

COVID-19 is changing the world and undermining our societies in a way that parallels climate change. The difference, however, is that there is no end to climate change in sight, unlike COVID-19 which will eventually subside as a vaccine becomes available. To deal with climate change, the only choice is containment.

Thus, the choice we must make now is to link strategies that deal with the three crises – coronavirus, climate change and debt – together. Any attempt to deal only with the former by relying on established approaches to monetary, fiscal, industrial or economic policy, thereby ignoring the imperative for transformation in the face of climate change, will inexorably end in defeat. Firstly because every further delay in undertaking ambitious climate action further diminishes the small window of time in which containment (that is, limiting global warming to 1.5°C) is possible at all. Secondly because the global costs involved in a recovery strategy for COVID-19 will be so high and will lead to so much additional debt that it will scarcely be possible to make similar or higher investments into climate change mitigation in the near future. This is why recovery packages are needed that focus on promoting sustainable, future-proof business models. The ambitions for climate policies must be raised, not lowered, and the transformation in the energy, transportation and agricultural sectors must be accelerated, not delayed. Finally, recovery programs must be coupled with short term emergency packages and long

¹⁵ https://www.undp.org/content/undp/en/home/news-centre/news/2020/COVID19.Crisis_in_developing_countries_threatens_devastate_economies.html

¹⁶ <https://edition.cnn.com/2020/04/10/asia/coronavirus-food-supply-asia-intl-hnk/index.html>

¹⁷ <https://cebr.com/reports/a-world-recession-is-now-almost-a-certainty-with-global-gdp-set-to-decline-twice-as-much-as-during-the-financial-crisis-the-challenge-now-is-to-prevent-the-recession-from-turning-into-a-1930s-style/>

¹⁸ <https://erlassjahr.de/news/schuldenmoratorium-fuer-77-laender-im-kampf-gegen-COVID-19/>

¹⁹ <https://www.imf.org/en/Home>

²⁰ Quelle recovery text

²¹ <https://www.theguardian.com/environment/2020/oct/05/the-guardians-climate-promise-we-will-keep-raising-the-alarm>

²² <https://www.yahoo.com/lifestyle/africa-experiencing-worst-climate-disasters-204800584.html?guccounter=1>

²³ <https://www.munichre.com/de/risiken/klimawandel-eine-herausforderung-fuer-die-menschheit.html>

²⁴ NZZ, 5.10.2020

²⁵ <https://www.sciencedirect.com/science/article/pii/S0095069620300838?via%3Dihub>

term structural reform. This crucial decade could become a decade of transformation. We could contain the crisis in biodiversity, protect planetary boundaries and put an end to harrowing increases in global inequality. If this opportunity is taken advantage of right now, humanity will one day be able to look back at the pandemic and the climate crisis and know we were stronger and more resilient. Our success, however, depends on designing the right strategy. The 2015 Paris Agreement (PA) and SDGs provide the long term vision and short to mid-term elements to shape such a strategy.

Regarding loss and damage, the PA institutionalised this issue in Article 8 as well as in the so-called Warsaw International Mechanism for Loss and Damage (WIM, established 2013). In Article 8, signatories to the Paris Agreement recognised the importance of avoiding, mitigating and addressing loss and damage due to climate change (United Nations, 2015), including explicit damages resulting from extreme weather events, as well as the aforementioned gradual changes (Slow Onset Events, §8.1). Furthermore, signatories are expected to identify their climate-related loss and damage and to promote countermeasures and support for people impacted through the WIM and other channels, with support and cooperation (§8.3). Eight areas of action are mentioned, including “risk insurance facilities, climate risk pooling and other insurance solutions” (§8.4(f)).

At the 21st Conference of Parties (COP21) of the United Nations Framework Convention on Climate Change (UNFCCC), where the Paris Agreement was adopted, another decision was made as well. The U.S. made it a condition of its adoption of the PA, that signatories stated in §51 of 1/CP21 that the PA's Article 8 did not imply liability and compensation for loss and damage caused by climate change. That was politically controversial. Indeed, a core tension in international climate politics is the extent to which the historically largest contributors to climate change are obligated to compensate other countries for residual losses and damages caused indirectly by their emissions. Ever since the beginning of international climate politics in the 1990s, this question of liability and financing has been at the crux of loss and damage negotiations. One might expect that the lines of conflict between negotiating positions would run between developing and developed countries. However rapidly increasing greenhouse gas emissions in China, India and Saudi Arabia have made those countries equally responsible for the climate crisis, and have led to

a variety of positions within the developing states block. The SIDS, LDCs and the Climate Vulnerable Forum (CVF) have been the most vocal in pushing for the sharing of financial burdens caused by climate change to become fairer and more aligned with polluter-pays principles. The chief representatives of the opposite position are the U.S., Australia and Japan, as well as, implicitly, Germany and the E.U. because of their silence on the issue. They all categorically rule out liability. The compromise that was eventually found is reflected in Article 8 in combination with the disclaimer of liability. Unfortunately, the hope that this compromise would lead to fewer far-reaching and conflict-prone arguments in favour of more pragmatic and technical approaches to questions of Loss and Damage has not been realised. Five years since the signing of the PA, the WIM has not been able to clearly identify and mobilise funding sources and instruments to address climate-related loss and damage. However, in view of the triple-headed COVID-19, climate and debt crisis, pressure will increase to find answers to the burning question of how to avoid even bigger emergencies, caused by a self-accelerating spiral of economic turmoil, over-indebtedness, humanitarian disaster and climate-induced losses and damages. It is a crucial matter of risk management to analyse, understand and address the links between climate change, the pandemic and indebtedness. If that doesn't happen, there is an immediate threat of a loss of control, leading to disastrous and partially irreversible effects.

Interactions between Debt, Climate and Pandemic Crises

Climate change is triggering more frequent and more intense meteorological, climatological and hydrological extreme events. Slow onset events are triggered too. Exposure to these hazards largely vary, depending on geographical location.

The level of susceptibility to these physical climate change risks also vary with the specific level of resilience of a country, region or local community. Resilience (or, conversely, vulnerability) is predominantly the result of pre-existing socioeconomic and political factors, as well as of the quality of infrastructure. Thus, resilience depends on the level of disaster preparedness, success of adaptation measures, wealth and income, quality of social security systems, levels of education, public health,

savings, indebtedness and political leadership, among other factors.

There is a considerable overlap of resilience building factors that are crucial to determine the susceptibility to climate change risks and those that are relevant in view of other natural, pandemic and human disaster risks. Having said this, it becomes clear that climate change and COVID-19 risks may mutually reinforce each other, leading to higher human and economic losses and damages.

The lower the level of resilience, the higher the economic and non-economic losses and damages. The poorer and smaller a country, the more serious the damage. That explains why LDCs and SIDS are particularly threatened by climate risks, a pandemic, or at worst, a multiple disaster.

Losses and damages require compensation. Destroyed infrastructure needs to be reconstructed, livelihoods need stimulus to recover, and public health and social safety nets need strengthening. This incurs additional costs to public financiers. At the same time, in the event of a disaster, government revenues also decline. As a result, the state is forced to borrow and debt rises. While this chain of impacts is currently a large part of the public debate, there are two other, far less discussed effects that are no less important.

Firstly, countries that already suffer from climate-induced loss and damage, and which are likely to be hit hard again due to their risk exposure, will be forced to pay higher interest rates, because ratings agencies and lenders will downgrade their credit ratings, arguing that this is due to the critical susceptibility of these countries to climate change. Thus, the expectation of accelerating climate change risks future increases of capital costs for these countries, as well as increasing their debt risks and restricting sovereign access to capital markets.

Secondly, in case a country is already critically indebted, or in the event of rising capital costs, it becomes very likely that the public sector will cut expenses. That comes at the expense of investments necessary to increase resilience to future shocks, be it a flood, drought, cyclone or another pandemic. Thus, indebtedness as well as rising capital costs limits the ability of states to enhance resilience and to lower the risk of future external shocks. Critical indebtedness makes it very likely that future losses and damages will grow, triggering a vicious downward spiral, often at the expense of the most vulnerable, making the attainment of SDGs more distant.

In this study we will therefore test the following hypotheses about the interactions between climate change and debt, and also include the COVID-19 pandemic as a further contextual factor.

- (1) *Climate change increases debt and blocks development.*
- (2) *Debt lowers the adaptation capacity and increases climate damages.*

In the first step, key factors on the impact chain will be identified and measurable indicators assigned to them. In the second step, an indicator-based risk assessment system will be tested in case studies. They will be drawn from critically indebted countries exposed to high climate risks: Sri Lanka, Lao PDR, Papua New Guinea, El Salvador and Ethiopia. These countries also represent regions that will be most affected by climate change if the goal of limiting global warming to 1.5°C is not achieved: South and South East Asia, the Pacific, Central America and the Caribbean, and Africa.

How climate and other disaster risks increase debt

Among sudden onset events, floods and droughts are those hazards that lead to the most loss-intense and costliest disasters, followed by cyclones, wildfires and landslides. This order varies by geographical location. Heat waves cause most climate-induced deaths. Sea level rise, accompanied by salinity intrusion into sweet water and soils, is the number one slow onset climate change risk, leading to the most severe consequences for people and the economy.

The COVID-19 pandemic is currently the deadliest, socially most harmful and economically expensive disaster risk altogether. While the exact origins of the virus remain unclear for the time being, it can be assumed that the virus was transmitted from wild animals to humans. Shrinking space for wildlife and the loss of biodiversity, caused by human action, may not be the only cause but it is certainly an important factor, one that makes further pandemics more likely.

Conflicts, earthquakes, tsunamis and volcanic eruptions are the most disastrous human and natural hazards. Their levels of intensity and frequency have remained stable over past decades, the biggest difference between them and the risks posed by climate change.

However, loss and damage are not only driven by geographical risk exposure and the dynamic of underlying hazards. Risk susceptibility and loss intensity are also determined by the level of resilience to climate, pandemic or other potential disaster risks. Resilience, generally defined as the “*quality of being able to return quickly to previous good conditions after problems*”²⁶ is comprised of a human’s, or a social system’s, response to an external shock and its ability to recover quickly.

There are many approaches to measuring and comparing resilience, particularly for the purpose of disaster risk reduction (DRR). Resilience is usually composed of levels of *vulnerability* and (lack of) *coping capacity*. Both factors consist of a number of measurable indicators.

For our study, we chose the set of indicators that has been developed by the Disaster Risk Management Knowledge Centre (DRMKC) of the European Commission in its INFORM Risk Index as a global, open-source risk assessment instrument for humanitarian crises and disasters:

- *Vulnerability* encompasses *socio-economic vulnerability* (development and deprivation weighted with 50 per cent, inequality with 25 per cent, aid dependency with 25 per cent) and *vulnerable groups* (displaced people and other vulnerable groups). Each of these underlying variables is assessed and rated by using indices and benchmarks. Inequality, for instance, factors in a country’s ranking on the GNI²⁷ and the Gender Inequality index;²⁸ displaced people include refugees, returned refugees and Internally displaced persons (IDPs); “other vulnerable groups” consider health, food security and age status, amongst other factors.
- (Lack of) *coping capacity* factors in *institutional capacities* (disaster risk reduction, governance) as well as *infrastructure* (communication, physical infrastructure, access to health system). The range of factors that count in terms of coping capacity is broad, from DRR response capacity and governance effectiveness to risk of corruption.

The level of resilience, composed of these factors, has a big impact on the disaster risk a country, region or community faces, when exposed to climate or health hazards. The lower the resilience, the higher the loss and damage caused by a disaster will be.

Loss and damage can be measured. Our priority is on financial losses and additional costs. In a first step, in order to get meaningful results regarding the *severity of*

the risk of loss and damage, it is particularly important to choose the right indicators: Total losses do not provide an accurate picture. They need to be assessed within the right perspective, considering a country’s specific national circumstances. Therefore, we work with *loss figures shown in USD-PPP (Purchasing Power Parities)*.²⁹ Furthermore, we also consider other factors like the *climate-induced loss trend over time*, the *multi-hazard relative average annual loss* (in relation to GDP) and the *annual losses as a percentage of social welfare expenses* to calculate a country’s loss and damage risk.

Loss and damage need to be compensated. As long as compensation is not provided by external sources – for instance, by making polluters pay for it – recovery costs put a strain on government finances. Depending on the budgetary capacity, new borrowing by the sovereign will result in higher indebtedness. This budgetary capacity, or flexibility, varies greatly among countries. Another indicator we picked to measure the budgetary extra burden caused by an extreme shock is the *financing gap caused by 100-year extreme events*. The *return period of the financing gap* indicates how often disaster-related funding gaps are likely to recur in the future. The combination of the financing gap and the frequency of its occurrence provide clear indications to which degree loss and damage caused by a climate disaster impacts the debt situation of a country.

Climate-induced losses impact on the debt situation of vulnerable countries. A correlation analysis between the 20 countries with the highest climate-induced losses per unit of GDP between 1998 and 2017, and the rating of the debt situation of these countries³⁰ reveals that 17 of the 20 countries are highly indebted (for the other three, no data was available). It stands out that 13 of them are SIDS, mostly from the Caribbean. In case a disaster strikes, they have to take on additional credit on top of the country’s pre-existing debt load and thus, further increase their risk of over-indebtedness.

According to the data for the years 1998 to 2017 used for the Climate Risk Index (Germanwatch, 2019), these 20 countries lost USD-PPP 207.44 billion in total over this period, or 3.8 per cent of their annual GDP on average. GDP loss was highest in Dominica (21.2 per cent), followed by other SIDS (Tuvalu 8.3 per cent; Grenada 7.1 per cent; Kiribati 6.2 per cent. For 14 of these countries, the IMF provides debt data:³¹ Belize, Bosnia-Herzegovina, Dominica, Fiji, Grenada, Haiti, Honduras, Nicaragua, St. Lucia, St. Vincent and the Grenadines, Thailand,

Tonga, Vanuatu and Samoa. Apart from Bosnia-Herzegovina (Europe), Thailand (Asia) and the three Central American countries, Belize, Honduras and Nicaragua, nine countries are SIDS (five from the Caribbean, four from the South Pacific). Apart from Fiji, all of these countries are critically indebted (or at least, slightly critically) but none belongs to the group of Heavily Indebted Poor Countries (HIPC). By the end of 2018, their external debt amounted to USD 208.719 billion (Thailand was highest with USD 164.24 billion). *Annual average loss and damage* (1998 to 2017) of these countries amounted to USD-PPP 9.979 billion, or 4.8 per cent of the total debt. This is significant. It can be taken as a strong indication that climate-induced losses already severely impact the debt-carrying capacity of most of these countries – and hence, that investments in resilience become difficult.

As a second indicator, we compare the *relationship between losses per unit of GDP and annual interest payments as a percentage of GDP*. This reveals that climate-induced losses exceed annual interest payments in all those countries with the only two exceptions, Bosnia-Herzegovina and St. Lucia.

As a third indicator, we look at the *average annual climate-induced loss* (1998 to 2017) as a *percentage of total debt* (2018) and it seems to become obvious that, for those countries in particular, debts are especially driven by extreme climate events. They are often highly vulnerable to hurricanes. In the case of Grenada, annual climate-induced losses are equivalent to 12.65 per cent of total debt, in Fiji 14.08 per cent, in Haiti 18.91 per cent, and in the case of Dominica, as much as 65.59 per cent.

These figures indicate that climate-induced loss and damage is an important driver of debt – at least, in the case of climate vulnerable countries. It can be assumed that debt, driven by climate change, very likely results in budget cuts that restrict financial flexibility to invest in adaptation and resilience building. Further, it can also be assumed that this impact chain is probably strongest in SIDS. Hence, those countries hit relatively hard by climate extremes are also those most susceptible to a widening resilience gap caused by debt, which in turn will lead to more loss and damage, and eventually to a worsening spiral of climate threats, loss and damage and indebtedness.

Risks of severe loss and damage also determine to a certain extent the interest rates – that is, the capital costs of a country. Credit rating agencies work up a range of ratings factors to take into account the impacts of climate change on a sovereign borrower's ability and

willingness to repay debt (Moody's Investors Service, 2016). Researchers (Buhr/Volz, 2018) suggest that for every USD 10 paid in interest by these countries, an additional dollar will be dedicated to climate vulnerability. This study further shows that over the past decade alone, a sample of developing countries have had to pay USD 40 billion in additional interest payments just on government debt. Econometric modelling suggests that climate vulnerability has already raised the average cost of debt in a sample of developing countries by 1.17 per cent and a further increase is almost certain, given that underlying climate risks will intensify. Accordingly, it is estimated that climate change-induced additional capital costs are set to rise to between USD 146 billion and USD 168 billion over the next decade (for more information see Bread for the World, 2019a).

These extra climate-induced costs amount to the total external debt service of already highly indebted



Climate change has a severe impact on Zimbabwe, particularly in the east, where farmers' harvests are threatened by the growing number of cyclones and increased risk of drought.

²⁶ <https://dictionary.cambridge.org/de/worterbuch/englisch/resilience>

²⁷ https://en.wikipedia.org/wiki/Gini_coefficient

²⁸ <http://hdr.undp.org/en/content/gender-inequality-index-gii>

²⁹ <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm>

³⁰ Data taken from Germanwatch 2919 and <https://erlassjahr.de/en/information/map-highly-indebted-countries-worldwide/>

³¹ The database for the following figures is <http://datatopics.worldbank.org/debt/ids/>

countries. They worsen the *relationship between annual debt servicing and annual export earnings*, one key indicator to measure debt risk. Particularly SIDS, but also other low- and lower middle-income countries and even some economically more advanced developing countries will face worsening conditions in terms of access to international markets. This has become a huge concern for them. They feel they are being penalised by the financial markets for being climate vulnerable (Ibid).

Climate, COVID-19 and other disaster-related risks lead to loss and damage that increases the indebtedness of developing countries. Debt relief or other internationally sponsored risk financing schemes are one potential way to compensate for those losses, to the benefit of poor and vulnerable nations. This enables them to make necessary investments to increase their risk-bearing capacity. Improving resilience against external shocks through risk prevention and adaptation is the only way that, in the short and long term, countries are protected against loss and damage. This eventually also lowers debt risk. However, as long as countries are locked into a critical debt situation, they are hindered in mobilising the so-called *resilience dividend*³², a precondition to creating sustainable and inclusive societies, as we will show in the next chapter.

When debt grows, resilience decreases

Investing in resilience creates a dividend in the form of lower vulnerability and better preparedness, leading to lower losses. Vice versa, growing debt has a high risk of widening the resilience gap, if tight budgets lead to cuts in investments, high vulnerability and low risk preparedness. As a consequence, loss and damage will rise together with the increased frequency and magnitude of hazards, driven by unabated climate change. According to the World Risk Index 2020, three of our sample countries bear a very high (PNG, rank 8) or high risk (El Salvador, rank 17 and Ethiopia, rank 68). Given the fact that they are critically indebted, there is little reason to believe that they will manage to invest in resilience in the years to come as they should, in order to close the resilience gap. Given that climate risk exposure is growing dynamically in these countries, the adverse effects of climate change are very likely to be felt more by these people, decreasing their chances of making progress on SDGs. The World Economic Forum also identified

extreme weather events as well as climate action failure as the risks with the most negative impact on the global economy, as shown in the World Economic Forum's 2020 Global Risk Perception Survey (Farand, 2020). Breaking the cycle of climate change susceptibility, lack of resilience and indebtedness is a prerequisite for achieving the SDGs and climate goals agreed to in Paris. Freeing up funds for resilience building that are currently bound to servicing debt is an important part of this.

Taking targeted adaptive measures to increase the level of resilience is the most important step to reduce loss and damage, apart from eliminating causes of disaster. Adaptation, according to the UNFCCC,³³ refers to "*adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices and structures to moderate potential damages*".

Costs of adaptation are significant but estimates vary widely. In the long run, they also depend very much on the results of climate mitigation action, which determine future levels of global warming. Regardless of the methodology applied, current climate finance pledges of USD 100 billion by 2020 – for both mitigation and adaptation – would fall far short of estimated global adaptation costs.³⁴ Bread for the World estimates the international financial support needed by developing countries to compensate the costs of loss and damage alone at USD 50 billion per year, rising to USD 300 billion annually by the 2030s.

SIDS are on the frontline of the climate, COVID-19 and debt crises

While SIDS are not a homogeneous group, they have similar characteristics that lead to high climate risks, as Thomas et al (2020) show, drawing on findings from over 140 recent scientific publications. One of these characteristics is that SIDS frequently experience massive loss and damage and other adverse long-term effects caused by single extreme events. Yet, a systematic approach to minimise these losses through dedicated adaptation strategies has yet to be developed in most SIDS.

The COVID-19 pandemic comes on top of climate risks and has developed rapidly from a health to a development crisis with strong links to the debt crisis, as stated by the Alliance of Small Island Developing States in July 2020.³⁵ Many SIDS – because of their size and their

strong economic dependency on global markets and a few economic sectors, like tourism (accounting for 40 per cent of GDP in many SIDS) – expect GDP contractions of 8 per cent or more, that is, at least double the magnitude of the global average. Given the projection that it will take at least two years to get back to pre-pandemic levels, development might be hindered by years, or even a decade, given the additional indebtedness that will result from the pandemic and its economic fallout. Islands that are hit by a climate disaster in these critical times, as was the case with Vanuatu when it was devastated by Category 5 Cyclone Harold in April 2020, may even lose decades.

SIDS' external debt stocks reached USD 50.4 billion in 2019. Since 2009, debt has increased by 70 per cent. In 2019, external debt obligations amounted to 172 per cent of export revenues, another critical debt indicator that has doubled within ten years.³⁶ Either financing the COVID-19 recovery or the recovery from an extreme climate event exceeds the debt carrying capacity of most SIDS. Thus, AOSIS calls for action and debt relief. Their statement on debt relief reads as follows:³⁷

“We support the calls made by the UN Secretary General and UN Conference on Trade and Development for debt relief. We support the actions adopted by the international community for debt service suspension for poor developing countries. Unfortunately, these are insufficient to address the challenges facing SIDS during this pandemic. Our Alliance calls on all relevant major stakeholders, inter alia, the World Bank Group, the International Monetary Fund, multilateral and regional development banks, bilateral creditors and other private creditors, to take immediate and substantial actions that will allow SIDS to manage the unfolding crisis caused by the COVID-19 pandemic and address our grave socio-economic impacts, while preserving our sustainable development achievements and commitments, and reinforce our resilience to climate change. These actions should include the design of new and the enhancement of existing financial instruments to provide debt relief including through debt cancellation, debt suspensions, debt rescheduling and restructuring, as well as other support measures.”

AOSIS specifically calls for debt suspensions from public and private creditors for a minimum of two years, followed by a medium term debt workout mechanism to reduce external debt to sustainable levels. This program, according to AOSIS, should also include innovative instruments like debt swaps, tools that de-risk future

investments and the alignment of recovery packages with the Paris Agreement:³⁸

“While the pandemic and climate change are two different crises, what is required to build resilience and recover better to the former can dually serve SIDS in building resilience to face the unrelenting and growing impacts of climate change most severely dealt to SIDS. The massive global economic restructuring underway right now has presented us with a chance for transformation which ought to be better for people and planet. We must make the best use of this unique opportunity to pursue a holistic approach to address the numerous challenges we face simultaneously, while advancing our sustainable development aspirations in order to make the most efficient use of our resources.”

AOSIS strongly rejects business-as-usual approaches as a response to the current crisis, re-emphasising SIDS' decades-long argument that rising economic losses due to disasters, and the subsequent cost of recovery and reconstruction, deplete public financing earmarked for development. Accordingly, the systemic nature of risk is stressed and the corresponding need to invest in risk prevention and resilience building is stressed, together with a call for finance:³⁹

“Business as usual has placed us in the precarious situation that we are in today, and our recovery efforts should aim to take us to a more sustainable and resilient future. (...) SIDS need a Compact; a Compact to deliver debt relief and increase resilience financing.”

In October 2020, AOSIS again stressed the need for a SIDS Compact, as a targeted financing window, including better access to concessional financing, to address the peril of the pandemic and climate change on the progress in SIDS towards achieving SDGs, complimented by the required systemic (debt-related) reforms. The call for a specific window results from their specific vulnerability:⁴⁰

³² <https://reliefweb.int/report/world/global-platform-disaster-risk-reduction-2019-proceedings-resilience-dividend-towards>

³³ <https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/what-do-adaptation-to-climate-change-and-climate-resilience-mean>

³⁴ <https://www.tandfonline.com/doi/abs/10.1080/17565529.2020.1711698?journalCode=tcltd20>

³⁵ <https://www.aosis.org/wp-content/uploads/2020/07/AOSIS-Statement-on-Debt-ver.June-29.pdf>

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ https://www.aosis.org/wp-content/uploads/2020/10/5.-Sustainable-Development-inclcl-SAMOA-Pathway-AOSIS-Statement_Final.pdf

“We are all in the same storm, but sitting in different boats, with some of us being in a leaky dory (...) The precarious debt position of SIDS is no secret (...) SIDS had to weather the pandemic and disasters during this year’s cyclone and hurricane season. This has escalated sovereign debt distress in many countries, further setting back the prospects of economic growth and sustainable development.”

AOSIS proposes utilising a *multi-dimensional vulnerability index* to drive a collective and sustainable response for addressing sovereign debt distress in the long term. The risk index developed in this study is multi-dimensional and may serve that purpose for SIDS.

Beyond SIDS: The risk of over-indebtedness caused by climate-induced damages

Small islands’ high-risk exposure and vulnerability is mostly a matter of geography, size and relatively one-sided economies, as we have seen. That leads to potentially massive climate-induced losses. The amount of annual damage in most SIDS reaches an order of magnitude that exceeds the annual debt service payments, as shown. That leads to the question of how much other developing countries are also at risk of being pushed into over-indebtedness by climate-induced damages and if there are indicators that can serve as a kind of early warning system to identify countries with such a high risk of exceeding debt carrying capacity due to losses thanks to climate events and other natural hazards.

Climate-induced losses exceed annual interest payments to external creditors in 18 of the 20 countries with the highest climate-induced losses per unit GDP, as we have seen (with the exceptions of Bosnia-Herzegovina and St. Lucia). This restricts investments in resilience-building, as we have argued. But do climate-induced losses also trigger quick increases in sovereign debt in non-SIDS developing countries?

For our five sample countries – Ethiopia, Sri Lanka, Lao PDR, PNG and El Salvador – we compared the development in foreign debt and climate-induced losses (in terms of both, totals in USD-PPP and losses per unit GDP) for the years 2010 to 2017. A clear correlation could not be found. There do not seem to be any simple, mono-causal connections which would allow one to argue that climate-induced losses are the drivers of over-indebtedness of climate vulnerable countries to external

creditors (with the exception of SIDS) – at least not for these countries, within the time period 2010 to 2017.

However, our findings do not exclude the potential for the countries to face a huge increase in external debt, caused by high recovery costs after one or more extreme climate events. Something that happens more frequently in the case of SIDS can also happen to non-SIDS from time to time. A recent example is Mozambique, the sixth poorest country in the world, that was hit by two extremely damaging hurricanes, Idai and Kenneth, in March and April of 2019. They left the country devastated, with crop damage on 715,000 hectares, 225,000 homes destroyed and 2.5 million people dependent on humanitarian aid.⁴¹ Recovery costs exceeded fiscal capacity, leaving Mozambique reliant on international support. However, the call to compensate Mozambique for climate-induced losses in the form of grants remained unanswered. In the end Mozambique had to borrow USD 118 million for its recovery.⁴² Although the concessional loan was provided interest-free, this additional debt comes on top of an already critical level of debt, likely pushing the country further into over-indebtedness.⁴³

As explained above, it is not enough to measure annual losses with totals and relatively, to assess the impact of loss and damage for over-indebtedness. Taking the lessons learned in Mozambique’s case and other similar cases, we consider *the size of the financing gap in the national budget caused by a 100-year extreme event* to be an important indicator to assess loss and damage risk and its impact on the country’s debt situation. Mozambique was hit by two such extreme events within six weeks. Therefore, we chose the *projected return period of such a financing gap* as another important indicator. Data for both indicators can be taken from a UNDRR database, as we will detail below. Our five country case studies will reveal quite a differentiated picture, regarding the loss and damage risks, and how they impact respective debt risks.

The COVID-19 pandemic: Crisis-catalyser or momentum for a turnaround?

On the one hand, the COVID-19 pandemic further catalyses a situation where “vulnerable nations are being squeezed between mounting debt to respond to the economic and health impacts of the coronavirus pandemic, and the need for longer term investments to address the climate crisis,” as analyst C. Farand puts it.⁴⁴

Fragile countries like Belize, Mozambique or Fiji, to which we referred to as highly climate vulnerable and critically indebted cannot afford to invest even one per mil of the USD 12 trillion mobilised for stimulus packages by industrialised countries and emerging economies. For them, the pandemic has translated into a steep recession, pushing millions of people back into poverty. Belize and Fiji, and most other SIDS, are middle-income countries and therefore not eligible for debt suspension under the G20 initiative. They feel locked in a deadly spiral of debt.

“The emergency expenditures that we are being forced to undertake right now are putting our debt numbers in a place where we’re going to have great difficulty accessing resources for continuing green investments in the medium to long term,” Carla Barnett, finance minister of Belize.⁴⁵

Even for poor and heavily indebted countries like Mozambique, the G20 summit of finance ministers in October 2020 didn’t bring much relief. Ministers failed to substantially address the debt crisis in the pandemic and climate context. Ministers agreed to “continuing to examine the financial stability implications of climate change” and committed to “leverage opportunities from current and emerging economic transformations in our recovery plans and guarding against negative consequences”, as if they could resolve a 100-year crisis with empty phrases. At least finance ministers allowed the poorest countries to suspend debt repayments until June 2021. This means debt payments are deferred, a measure that generates short term liquidity. However, it doesn’t reduce the balance nor does it cancel interest charges. Private creditors are not even part of this moratorium.

Warnings from the IMF and the World Bank that a long-term solution to the debt crisis is needed, remained mostly unheard by the G20. “Addressing the debt overhang facing the poorest countries is key to recovery,” David Malpass, president of the World Bank, tweeted.⁴⁶ The extension decision didn’t address the concerns of indebted developing countries. African finance ministers had called for a debt payment freeze of two to three years. Belize called for debt swaps and more grant-based climate finance.⁴⁷

All this indicates that the COVID-19 crisis is a loud wake-up call, firstly, not to return to pre-pandemic, environmentally unsustainable development paths, but instead to capitalise on the opportunity to build back better; and secondly, to revise a multilateral development

finance framework that is now “out-of-touch with the realities of the 21st century,” as Fiji’s prime minister Frank Bainimarama argued at the 75th session of the UN General Assembly in September 2020. “Whether the challenge is stopping the viral transmission or cutting carbon emissions, unilateralism and inaction threaten us most of all. If either win out, we lose everything (...) We small nations know that striving for the status quo means doubling down on a path that accelerates global warming,” he warned.⁴⁸

AOSIS, in its attempt to relate debt relief to a green and 1.5°C consistent recovery, made a strong case for aligning ambitiously revised Nationally Determined Contributions (NDC) with the countries’ climate pledges for 2020-2030, with green recovery stimulus packages. In the same statement, the AOSIS made renewed calls for a new mechanism or instrument for disaster-related funding, arguing that this was necessary due to the disproportionately high climate-induced losses SIDS suffer from:⁴⁹

“As a starting point, we need to see (...) commitments materialising in the form of new and revised NDC by the end of 2020, as well as long term greenhouse gas reduction strategies. These should be aligned with the response and recovery measures, to ensure that we are not just building back better, but building forward better. (...) These intersecting and layered crises have also revealed the urgent need to enhance the capacity of SIDS to prepare and respond to disasters. (...) SIDS continue to suffer disproportionately higher losses due to our specific vulnerabilities and challenges. We reiterate our call for the examination of the disaster-related funding and support environment for SIDS, with a view to the possible development of a targeted mechanism or financial instrument.”

⁴¹ <https://www.unicef.org/mozambique/en/cyclone-idai-and-kenneth>
⁴² <https://www.climatechangenews.com/2019/04/26/mozambique-faces-climate-debt-trap-cyclone-kenneth-follows-idai/>

⁴³ See [erlassjahr.de](https://www.erlassjahr.de) (2020) and <https://www.brettonwoodsproject.org/2019/07/imf-and-world-bank-complicit-in-climate-debt-trap-following-mozambique-cyclones/>

⁴⁴ <https://www.climatechangenews.com/2020/10/15/ballooning-debt-cripples-poor-countries-hopes-green-recovery-covid/>

⁴⁵ Ibid

⁴⁶ <https://twitter.com/DavidMalpassWBG/status/1316401689222504448>

⁴⁷ <https://www.climatechangenews.com/2020/10/15/ballooning-debt-cripples-poor-countries-hopes-green-recovery-covid/>

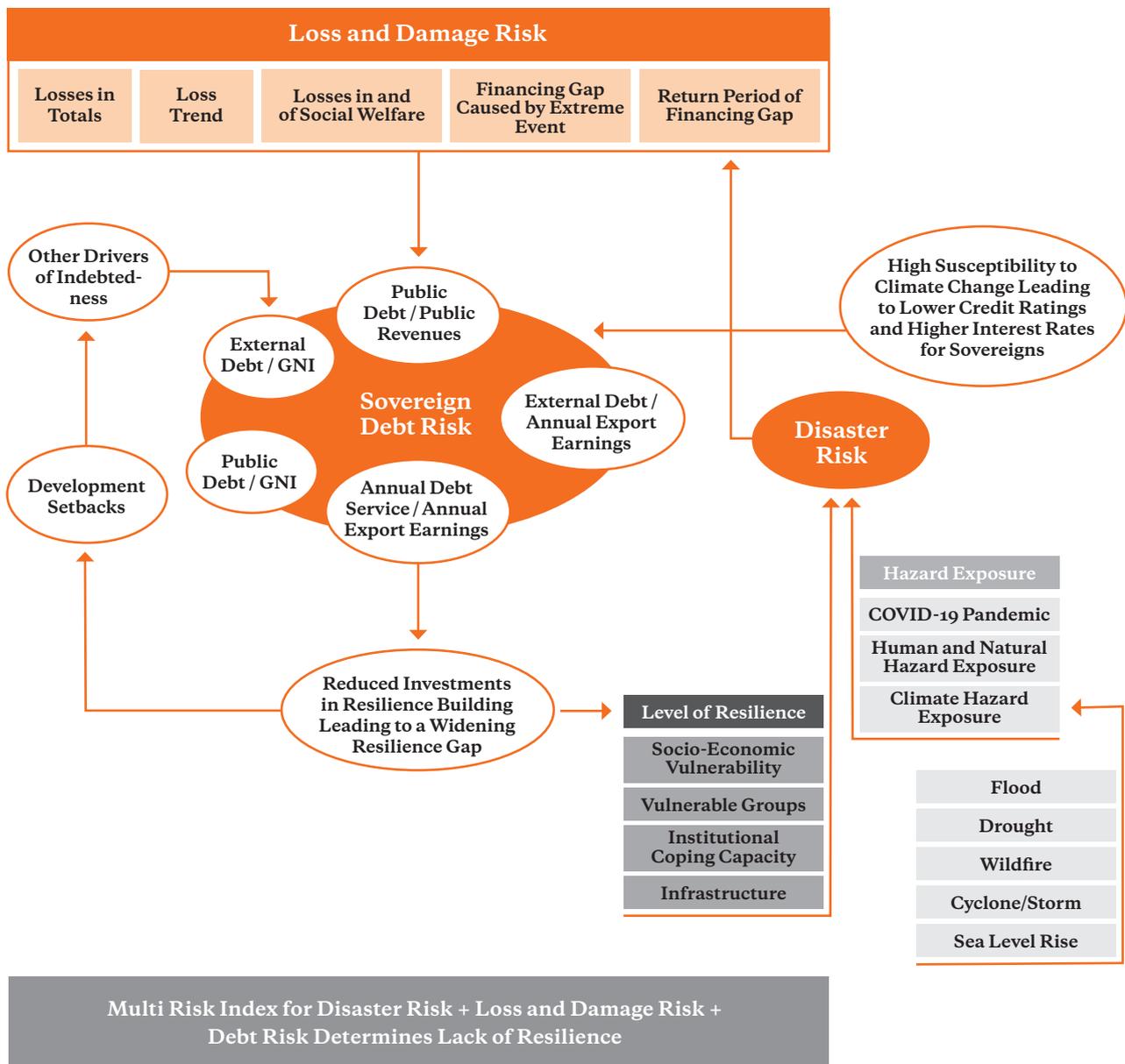
⁴⁸ http://www.xinhuanet.com/english/2020-09/30/c_139409104.htm

⁴⁹ https://www.aosis.org/wp-content/uploads/2020/10/5.-Sustainable-Development-incl-SAMOA-Pathway-AOSIS-Statement_Final.pdf

The COVID-19 crisis has sharpened risk perceptions of climate and pandemic risks on the one hand, and debt risks on the other, how they are mutually interlinked and how the recovery from the pandemic must be a green one. Today's discourse and actions are different from

those after the 2008–2009 global financial crisis. Business-as-usual does not seem to be an option any longer. That gives some hope that the tremendous suffering caused by the pandemic could at least have some positive results, too.

Figure 2: The climate change and sovereign debt impact chain



Source: Thomas Hirsch

Interim Conclusion: The Climate Change and Sovereign Debt Impact Chain

The developing world is on the precipice of a new sovereign debt crisis, originally triggered by strong capital market demand for high yield bonds issued by low- and middle-income countries. Increasing losses caused by climate change, in combination with creditors' increased awareness of potential capital failure in climate vulnerable countries, and then most recently the COVID-19 pandemic, have sharply reinforced that debt crisis.

While SIDS are hardest hit by risk from multiple disasters, loss risk and debt risk, research reveals that many low- and middle-income countries are also affected up to the point where they reduce investments in building resilience, and eventually face development setbacks, which then fuel the triple crisis. In *Figure 2* (on the left page) we summarise the impact chains that were reconstructed in Part I of the study.

Exposure to the pandemic, climate and other hazards, in combination with the given level of resilience, defines the disaster risk, which in turn determines the loss and damage risk. Losses and damages are one important driver of sovereign debt risk. Others include credit ratings that are also influenced by susceptibility to climate change. High sovereign debt can lead to reduced investment in resilience building, which triggers an ever-larger resilience gap, preventing countries from breaking out of this self-reinforcing spiral of multiple disasters, economic loss and debt.

To break the cycle, sufficient capital must be freed and de-risked in order to invest in resilience, thereby reducing vulnerability, limiting economic loss and regaining debt sustainability. We call these effects the *resilience dividend*.

One of the requirements for necessary additional investments in highly vulnerable and fiscally constrained countries is a revision of the multilateral development finance framework which we find to be out of touch with the realities of the current crisis. This goes far beyond a debt moratorium. It also goes beyond the provision of the USD 100 billion in climate finance committed to annually by the developed world under the Paris Agreement. The COVID-19 pandemic is the crisis of a century. It provides the political momentum through targeted recovery, to speed up the transformation towards a de-carbonised, more resilient and more equal and sustainable development pathway.

Before presenting concrete instruments to mobilise additional investment, in the next chapter we will show how the multiple risks a country faces can be measured and compared.

Applying the Climate Disaster and Debt Risk Index to Five Sample Countries

The climate, debt and COVID-19 crisis, together with other human and potential natural disasters, impacts countries differently, depending on their risk exposure, vulnerability and capacity to cope. The combination of these factors decides upon their level of resilience.

To assess the multiple risks countries are facing, and to make them comparable, we developed an indicator-based methodology to measure multi-dimensional risks. This approach factors in country-specific climate-related, COVID-19 and other risks, as well as disaster-related loss and damage and the level of indebtedness. It can be applied to all countries and allows them to be categorised in risk classes. In a nuanced way it shows the interplay of disaster, disaster-related losses, including implications for social safety nets and state budgets, and sovereign debt. All data is taken from open sources: The European Union's INFORM and UNDRR disaster risk databases and IMF debt data.

Four steps are necessary. In a first step, we assess the country's *disaster risk*, composed of five measurable factors, all of which we consider equally important: Climate hazard exposure, natural and human hazard exposure, COVID-19 risks, vulnerability and coping capacity. Our equation to calculate the disaster risk:

$$\text{Disaster risk} = \text{climate hazard exposure} + \text{natural and human hazard exposure} + \text{COVID-19 risk} + \text{vulnerability indicator} + \text{lack of coping capacity indicator} / 5$$

In a second step, the *loss and damage risk* is assessed, based on six indicators: Total climate-induced financial losses, the loss and damage trend, multi-hazard relative average annual loss, annual multi-hazard losses shown as percentage of national social welfare expenditures, size of the financing gap in the national budget caused by extreme events, and the frequency in which these financing gaps occur:

Loss and damage risk = climate-induced financial loss indicator + climate-induced loss trend + multi-hazard average annual loss + losses as % of social expenditures + size of financing gap thanks to a 100-year extreme event + financing gap return period / 6

In a third step, the *debt risk* is assessed, using the methodology, data and risk categorisation of the sovereign debt monitor of erlassjahr.de. The aggregated debt risk indicator considers five parameters: External debt as a percentage of GNI, external debt as a percentage of annual export earnings, annual debt servicing as a percentage of annual export earnings, public debt as a percentage of GNI and public debt as a percentage of public revenue.

In the final step, the resulting multiple risk is calculated based on the following equation:⁵⁰

Multiple risk = (disaster risk + loss risk + debt risk) / 3

We applied our *Climate Disaster and Debt Risk Index* to assess multiple risks in Ethiopia, El Salvador, Lao PDR, Papua New Guinea (PNG) and Sri Lanka. They have in common the danger of critical indebtedness and they are geographically located in the five world regions with the highest climate risk exposure: Sub-Saharan Africa, Central America and the Caribbean, South Asia, South East Asia and the Pacific. They are all categorised as critically impacted by the COVID-19 pandemic. All of them belong either to the group of Least Developed Countries (Ethiopia, Lao PDR) or to lower middle-income countries (El Salvador, PNG, Sri Lanka).

Assessed results reveal that each country's risk profile is unique, due to very specific national circumstances, which is why their respective recovery strategies be specific, too.

Ethiopia is exposed to the highest climate, COVID-19 and other disaster risks. Nevertheless, the relative loss and damage risk is highest in PNG, closely followed by Lao PDR. The debt risk is highest in Sri Lanka, followed by El Salvador; it is currently lowest in PNG. The multiple risk is highest in PNG and Lao PDR. These results indicate that links between the different types of risk are complex and that it is worth taking a nuanced approach in assessing a specific country's risks.

The information provided by our approach can be used as an early warning instrument. The approach allows for the identification of specific risk drivers, the measurement and comparison of the severity of risks and

the identification and prioritisation of areas where risks should be reduced. Figure 3 shows the summarised assessment results. A more detailed analysis of each of these countries is the subject of Part II of this study. There you find a detailed explanation how to calculate and rank indicators, too.



For many Ethiopian families, their cattle are the basis of their livelihood and survival. But extreme drought means they often lose large parts of their herds.

Classification of multi-dimensional risk

< 0.5:	uncritical
0.5–1.49:	slightly critical
1.5–2.49:	moderately critical
2.5–3.49:	critical
> 3.5:	very critical

⁵⁰We decided to weight the risks equally. Depending on the national circumstances, the formula can be calibrated.

⁵¹Debt Indicators reflect the end-2018 situation based on the World Bank's International debt Statistics 2020 and the IMF's World economic Outlook. In the course of 2020 the debt situation of all countries has worsened due to the recession triggered by the Covid-19 pandemic. Based on forecasts in IMF debt sustainability analyses and other sources, erlassjahr.de assesses the debt risk of El Salvador, Sri Lanka and Ethiopia to have worsened to "very critical" by end-2020. For details see: erlassjahr.de / Misereor: Schuldenreport 2021, forthcoming.

Figure 3: The multi-dimensional Climate Disaster and Debt Risk Index of five sample countries⁵¹

Indicator	Ethiopia	El Salvador	Laos	PNG	Sri Lanka
Climate hazard exposure	Critical (5.7)	Moderate (3.5)	Critical (4.9)	Moderate (3.4)	Critical (4.4)
Human and natural hazard exposure	Very critical (7.3)	Critical (5.3)	Moderate (3.8)	Critical (5.1)	Critical (4.1)
COVID-19 risk	Critical (5.9)	Critical (4.2)	Critical (4.6)	Critical (5.7)	Critical (4.3)
Vulnerability	Very critical (6.6)	Slightly critical (2.7)	Moderate (4)	Critical (5.1)	Moderate (3.0)
Lack of coping capacity	Very critical (6.8)	Critical (4.5)	Critical (5.8)	Very critical (7.3)	Moderate (4.0)
Disaster risk	Very critical (6.46)	Critical (4.04)	Critical (4.62)	Critical (5.32)	Moderately critical (3.96)
Climate disaster induced loss and damage (2010–2017)	\$2,600 million PPP Critical (4)	\$831 million PPP Moderately critical (2)	\$550 million PPP Moderately critical (2)	\$201 million PPP Slightly critical (1)	\$5,300 million PPP Very critical (4)
Climate induced loss and damage trend (losses 2014–2017 compared to 2010–2013)	Increase by 1,700% Very critical (4)	Decrease by 35% Uncritical (0)	Decrease by 88% Uncritical (0)	Increase by 180% Very critical (4)	Increase by 335% Very critical (4)
Multi-hazard relative average annual loss	Slightly critical (1)	Moderately critical (2)	Critical (3)	Moderately critical (2)	Slightly critical (1)
Annual losses as % of social welfare	Slightly critical (1)	Moderately critical (2)	Very critical (4)	Critical (3)	Slightly critical (1)
Financing gap of a 100-year extreme event	Slightly critical (1)	Moderately critical (2)	Critical (3)	Critical (3)	Slightly critical (1)
Return period of the financing gap	Moderately critical (2)	Critical (3)	Very critical (4)	Very critical (4)	Moderately critical (2)
Loss and damage risk	Moderately critical (2.2)	Moderately critical (1.8)	Critical (2.7)	Critical (2.8)	Moderately critical (2.2)
External debt / GNI (%)	33.4%	71.1%	90.2%	78.4%	60.8%
External debt / annual export earnings (%)	396.5%	225.4%	245.4%	166.5%	256.4%
Annual debt service / annual export earnings (%)	20.8%	45.8%	14.6%	26.1%	36.0%
Public debt / GNI (%)	61.4%	67.1%	63%	36.9%	84.1%
Public debt / public revenue (%)	467.9%	311 %	358.8%	206%	624.3%
External debt (USD)	28,027 billion	17,486 billion	15,588 billion	17,718 billion	52,626 billion
Total external debt service (USD)	2,009 billion	3,482 billion	926.1 million	2,771 billion	7,068 billion
Debt risk	Critical	Critical	Critical	Critical	Critical
Total risk	Critical (2.7)	Critical (2.7)	Critical (3)	Critical (3)	Moderately critical (2.3)

Source: Thomas Hirsch

Solution Approaches

Various solutions are available to address the problems in this study financially. This chapter provides an overview of some of them. As justice is a key anchor for the acceptance of solutions, we start with a short discussion of justice-related issues, which will be followed by the presentation of the instruments we favour. The chapter continues with a short reflection on carbon pricing as a source of finance to cover the costs of some of the instruments we propose, and an outlook as to how far the Warsaw International Mechanism under the UNFCCC can support the promotion of the proposed solutions.

Equity, responsibility, legitimacy – addressing the crisis with justice for the poor

In their common declaration, dated September 2020, on how to address the combined climate and pandemic crisis, the G7's Speakers of Parliaments called for economic and environmental justice for all, with particular attention paid to justice for vulnerable front-line communities.⁵²

But how to define justice in this context? Rawl's theory of justice, with regard to economic terms, defines it as the provision of fair access to basic necessities of life for all, assuming that the basic necessities, in terms of goods or financial resources are equal for all (Rawls, 1971). The welfare state would then be the institution to ensure justice in the form of fair and equal access. Amartya Sen (1980), in his critique of Rawl's theory of justice, highlights that it is not equal access to the same basic necessities, but access to equal opportunities that matter most. Applying this concept to the call for "justice for vulnerable front-line communities" that are highly susceptible to climate change or COVID-19 risks, reveals that they require a *different* set of actions or supportive measures to become resilient, thereby ensuring *equal opportunities*.

If this approach is applied to sovereign states facing multiple risks, which may greatly vary from country to country, it becomes obvious that different approaches are also needed to ensure their people's access to equal opportunities, including for future generations. If this train of thought is then related to the current debt debate, it becomes clear that there cannot be a one-size-fits-all approach, if the main aim is to bring justice to these countries. Each country faces its own set of multiple risks, and thus, different needs – or national circumstances – must

be factored into the design of solutions. As shown, there are, SIDS for example that face a disproportionately high risk and deserve particular support, even if they might be middle-income countries and do not belong to the poorest of the poor. This example also reveals that a high disaster risk is not just driven by poverty. Vulnerability and poverty are clearly not synonyms.

It is legitimate to apply this theory of justice to countries in order to align the debate with international human rights law. That approach brings into focus the picture of a state's obligations, related to ensuring that vulnerable people can enjoy their basic human rights, including economic and social human rights. While states are obliged to respect, protect and fulfil their people's human rights, other states might become responsible under human rights law too, once the home state has proved that all financial means to protect and fulfil those rights have been exhausted. It could be argued that debt levels that exceed debt-carrying capacity lead to exactly such a situation. The debtor state may then claim to be unable to service the debt without harming the fulfilment of the rights of their people. In this case, debt conversion is not only a legitimate request by the debtor but becomes a human rights responsibility for the creditor.

As far as this concerns other forms of voluntary financial support, provided, for example, as COVID-19 recovery support or as climate finance to enhance resilience, these are acts of *distributive justice*. This is different from applying the *polluter pays principle* to mobilise funds to redress climate-induced loss and damage (Bread for the World, 2019b). In the latter case, accountability would be the underlying principle to *realise compensatory justice*. The potential of this approach is further discussed below.

Whatever the approach is to mobilise finance to address the crisis, ensuring transparency and tracking provisions is essential. If not, double counting becomes a toxic issue. With regard to climate finance, Oxfam (2020) revealed that, against a backdrop of rising and unsustainable debt, only around 20 per cent of public climate finance was granted, but around 80 per cent was provided in the form of loans, and as much as half of it was non-concessional.⁵³ Of the total volume reported, only 25 per cent, or USD 9 billion per year, was spent for climate adaptation, a tiny margin of the total amount required to close the resilience gap, and to the attempts to achieve climate justice by providing equal access to opportunities for vulnerable people and nations.

Debt moratorium and state insolvency proceedings, when debt-carrying capacity is exceeded

By Jürgen Kaiser, erlassjahr.de

Jürgen Kaiser is the coordinator of erlassjahr.de

At first sight it seems logical that debt relief is an appropriate instrument for compensating the many negative consequences of climate change in countries of the Global South. Although this does not fit everywhere and every time, *grosso modo*, one can identify global net creditors with major polluters and global net debtors with the victims of climate change. However, this very clear-cut dichotomy doesn't work when one has to make decisions about which claim of which creditor on which debtor needs to be reduced. Here, an extreme example: Should an ethical bank in Germany, which does its best to stay out of any fossil fuel and other hazardous financing, lose its claims on a reforestation project in South East Asia, because its own host country – Germany – is a major polluter? If one tries to attribute negative impacts on the climate directly to individual lenders' involvement in GHG-emitting activities, one runs into a plethora of definition problems, something which could produce a high degree of insecurity regarding capital market access for southern countries. So why is that?

Decisions about extraordinary debt relief have to be made on the basis of one of two reasons:

- A creditor's claim is unjustified – that is, because the loan was made under doubtful conditions and circumstances; the claim is then *illegitimate*.
- The debtor is unable to service the debt, because he does not have the resources to do so; then a claim is *unsustainable*.

The logic outlined above builds on definitions of illegitimacy, which need to be confirmed diligently in each individual case.⁵⁴ This is why debt cancellation in order to finance climate mitigation and adaptation is rarely the instrument of choice. Instead, fresh money from polluting countries needs to be mobilised.

This is different with regard to situations of massive, climate-induced loss and damage: In the event of a major climate-induced natural disaster, an existing sovereign debt is likely to become unsustainable. Not always but very often, a debt cannot be serviced any longer without

either neglecting immediate needs for relief on the ground, or endangering the medium term fiscal and macroeconomic sustainability of the affected country, or both. In such cases a cessation of payments to external creditors is not only justified. In fact, it is one of the most efficient ways to provide external support because it mobilises resources that are already in the hands of the impacted state's authorities. They do not have to go through lengthy and sometimes questionable pledging exercises. Nor will they be guided by the views of external aid agencies, which may, or may not, appropriately assess needs on the ground in the immediate aftermath of a catastrophe. Instead the authorities will be able to use the funds in line with locally identified priorities.

Of course, the question of who exactly should forego what, is still not automatically answered under such circumstances. Jubilee Caribbean⁵⁵, representing civil society in one of the regions most severely affected by climate change, has presented a two-step proposal for organising necessary debt relief:

In a first step, a predefined independent body with the technical capacity to quickly assess the losses and damages declares that a catastrophe has indeed happened, because losses and damages exceed a predefined threshold and therefore an immediate and generalised moratorium is triggered, which affects all external payment obligations of the sovereign. The moratorium should last about six months and its purpose is two-fold: (1) It provides breathing space for the affected nation, so that it can get its public life and economy going again while at the same time (2) international institutions such as the IMF, UNCTAD and/or regional development organisations can individually or jointly assess the need for broader and genuine debt relief beyond the moratorium.

Such assessments are the basis for the second step, which is the restructuring of the entirety of the sovereign's external debt to the extent that it suffices to restore medium term debt sustainability with a sufficient degree

⁵² https://www.speaker.gov/sites/speaker.house.gov/files/20200912.G7_SpeakersDeclaration.pdf

⁵³ <https://www.theguardian.com/global-development/2020/oct/20/climate-finance-driving-poor-countries-deeper-into-debt-says-oxfam>

⁵⁴ In the classical odious debts doctrine, a debt is odious and therefore unenforceable if three of three conditions are fulfilled: (1) the loan has produced no benefit for the sovereign, who is expected to make the repayments; (2) it has been provided without a proper consent, normally through a duly diligent parliamentary or administrative process, and (3) both has been known by the creditor, when he made the loan.

⁵⁵ Statement from Jubilee Caribbean; Grenada March 5th 2018, available at <https://erlassjahr.de/wordpress/wp-content/uploads/2018/03/180315-Statement-Jubilee-Caribbean.pdf>

of probability. To that end, the restructuring has to comply with three essential prerequisites for fair and efficient debt conversion:

- It needs to include all external claims on the sovereign in one single negotiation process, which is transparent towards all participants, debtors and multilateral, bilateral-official and private creditors alike.
- It needs to build on an independent assessment of the debtor's future payment capacity, rather than a debt sustainability analysis by the IMF alone. History has shown that (de-facto) monopolies on defining and assessing debt sustainability tend to lead to sub-optimal results. The same is true if the independent expert is either a creditor themselves or too closely linked to the debtor.
- The assessment needs to lead to an equally independent decision about debt relief, or not. Presently decisions tend to be either made in an institution like the Paris Club, which is a cartel of traditional creditor countries, or through direct negotiations between the debtor and a larger group of private creditors, which first of all reflects power relationships – that is, opportunities to seize the debtor's assets, if conflicts are not resolved. Another critical aspect in this regard is the dependence of the debtor on continuous access to capital markets, from which they could be cut-off.⁵⁶

Such a process would be a substantial deviation from traditional ways and means to restructure sovereign debt. Therefore, it must be asked whether there is any realistic perspective for such an ambitious reform process. Out of many discussions between the Jubilee Caribbean network and its global supporters with IFIs, as well as with major creditor governments, the lessons learned have proven to be encouraging:

- *Hurricanes have already triggered debt relief efforts.* Private as well as public creditors have already included hurricane clauses, which automatically halt payments on specific instruments in case of a major natural disaster. There is no reason why this contractual logic could not also be applied ex-post to the entirety of the creditors – even more so as it would remunerate the pioneers, who have already introduced clauses with an enhanced repayment probability, due to relief from competing creditors.
- *Financial markets can handle unforeseeable risks.* Bonds with variable coupons that are, for instance, linked to the growth rate of the whole economy, are already being

traded on financial markets. They are still quite marginal compared to market size but they demonstrate that the existence of a risk-sharing mechanism does not necessarily drive investors away, as private sector representatives sometimes like to suggest in political debates.

- *Debt moratoria have already been granted as responses to natural disasters in the past – even upon initiatives from the creditors themselves.* The most prominent case in point is the Paris Club's debt moratorium, decreed for Indonesia and Sri Lanka after the 2004 tsunami in the Indian Ocean. The moratorium was implemented despite considerable reluctance from the Indonesian authorities, who feared that accepting it could impair their access to private capital markets. In fact, that never happened.
- *In the past, debt relief schemes have been successfully applied to countries that were under specific threat as to their debt sustainability.* The most prominent case in point is the Heavily Indebted Poor Countries Initiative (HIPC), originally founded in 1996 with the aim of resolving the debt problems of the world's poorest countries. Today, it is still in its implementation phase for recent late-comers. The important feature of this multilateral program for our discussions is that it was possible to single out a specific group of highly vulnerable countries and design a specific debt relief response to their situation, without having to consider all debtor countries worldwide. In the course of the HIPC initiative this has certainly led to some problematic unequal treatment of comparably indebted countries. However, it also clearly demonstrated that targeted debt relief operations are possible even in the absence of a statutory global framework. In 2020, the G20's Debt Service Suspension Initiative (DSSI) which provides up to 73 countries with a moratorium for a first-phase response to the COVID-19 pandemic, is another forceful example, that such group-wide approaches are feasible.

⁵⁶For a more detailed explanation of the negotiation process during the second step see: UNCTAD (2015): Roadmap and Guide for a Sovereign debt Workout.

Debt conversion in support of investment into climate adaptation

By Kerstin Pfliegner, Joanna Smith and Helena Sims, The Nature Conservancy (TNC)

Dr Kerstin Pfliegner is TNC's Germany Director, Dr Joanna Smith is TNC's Seychelles Marine Spatial Planning Science and Process Lead and Helena Sims is TNC's Seychelles Marine Spatial Planning Project Manager

One example of supporting countries that simultaneously incur both a high debt burden and a high risk of climate change is the debt conversion approach implemented by The Nature Conservancy (TNC) to support SIDS and coastal nations. This approach restructures a portion of a country's existing debt to create partial debt relief and cashflows to fund coastal and marine conservation and climate adaptation, on the condition that the country commits to placing as much as 30 per cent or more of their ocean under protection. Economies of SIDS and coastal nations are highly dependent on their coastal and marine resources both for tourism and fisheries income, as well as a source of livelihood and nutrition. In many instances, healthy coral reef and mangrove ecosystems protect shorelines against exposure from tropical storms, acting as an effective nature-based defence against climate hazards. Science shows that healthy coral reefs provide substantial protection against these natural hazards by reducing wave energy by 98 per cent on average (Ferrario et al 2014)⁵⁷ and mangroves by up to 66 per cent in the first 100 metres of forest width (Menéndez et al 2020; McIvor et al 2016)⁵⁸, thereby reducing the risk of damage to both infrastructure and people.

This approach is an evolution of the debt-for-nature swaps that emerged in the late 1980s, which were triggered by extensive foreign debt and degraded natural resources in developing nations, with the aim being to reduce debt obligations. These allowed for debt repayments in local currency, as opposed to hard currency, and generated funds for the environment. These debt swaps could involve commercial or private debt owed to banks, or bilateral debt owed to governments. The U.S. restructured, and in one case sold, debt equivalent to a face value of over USD 1 billion owed by Latin American countries.⁵⁹ This model for debt-for-nature transactions was used in the Tropical Forest Conservation Act (TFCA) to include countries around the world with tropical forests. TNC participated from 1988 to 1992 in commercial debt

for nature swaps totalling USD 50 million. Since 2001, TNC has participated in eleven of 17 TFCA transactions (in Belize, Jamaica, Costa Rica and Guatemala) resulting in USD 240 million in new funding for forest conservation.

Through its impact investing team, NatureVest, TNC applied this experience to develop a groundbreaking debt conversion transaction with the government of Seychelles. It is the first example of a debt conversion for marine conservation and climate adaptation and now serves as a model that TNC is pursuing with other developing nations through its Blue Bonds for Ocean Conservation program to restructure sovereign debt to support marine conservation and climate adaptation goals. Typically, the first and most important step in a debt conversion process is that a debtor country agrees to participate in a debt conversion and make a commitment to place a portion of their ocean area under protection, improve policies and invest in marine conservation and climate adaptation. The Seychelles government became interested in working with TNC to design a debt conversion in 2012, which was then closed in 2016, almost four years later.

The second step is to find a willing creditor to whom the country has an outstanding debt obligation. In this case, most of the Seychelles' external public debt was owed to members of the Paris Club. In 2008, due to the financial crisis, total public debt of the Seychelles amounted to over 150 per cent of GDP (external public debt was 95 per cent of GDP). After long negotiations with willing creditor countries of the Paris Club, it was agreed with Belgium, France, Italy and the U.K. that debt of USD 21.6 million be restructured for conservation. This debt was discounted to USD 20.2 million at a rate of 93.5 cents on the dollar. Although initial expectations of transaction volume and larger discount rates were not possible, this transaction is notable as the first time that Paris Club creditors supported a debt buyback designed to benefit the marine environment.

As a third step, TNC raises a combination of grants and loans capital to purchase the sovereign debt, which

⁵⁷ [https://www.nature.com/articles/ncomms4794#:~:text=Meta%2Danalyses%2oreveal%20that%20coral,of%20this%20energy%20\(86%25\)](https://www.nature.com/articles/ncomms4794#:~:text=Meta%2Danalyses%2oreveal%20that%20coral,of%20this%20energy%20(86%25)).

⁵⁸ <https://www.nature.com/articles/s41598-020-61136-6>; McIvor, Spencer, Müller, Spalding: Coastal Defense Services provided by mangroves. *Manag. Coast with Nat. Solut.* 24 (2016).

⁵⁹ <https://fas.org/sgp/crs/misc/RL31286.pdf> Manag. Coast with Nat. *Solut.* 24 (2016).

in the case of the Seychelles transaction consisted of USD 5 million in grants from philanthropic foundations⁶⁰ and a USD 15.2 million loan repayable at 3 per cent over ten years (totalling USD 20.2 million).

The fourth step is to form a new non-profit trust to extend a loan to government. The government purchases its debt from creditors and repays the trust on more favourable terms (for example, over a longer period and/or at a lower interest rate). The trust then uses the debt payments from the government to repay the initial capital raised and to fund climate adaptation and conservation programming.

In the case of the Seychelles, the Seychelles Conservation and Climate Adaptation Trust was formed with the following mandate: a) to hold the USD 5 million grant and USD 15.2 million loan capital, b) to lend USD 20.2 million to the Seychelles government to purchase USD 21.6 million in debt from creditors at a discount to face value, c) to hold two promissory notes issued by the Seychelles government on more favourable terms than the original debt⁶¹, d) to use the proceeds from the new notes to repay the USD 15.2 million loan (at 3 per cent over ten years for a total of USD 17.7 million) and e) to fund marine conservation and climate adaptation by investing USD 280,000 per year in local currency equivalents over 20 years, from a total of USD 5.6 million and finally, f) to capitalise an endowment investing USD 150,000 per year at 7 per cent, compounding interest over 20 years for a total of USD 3 million⁶².

While the resulting funding for programming may seem relatively small, the impact is large. The government commits to improved policy and increased investment in conservation and climate adaptation as a condition of the debt conversion, which results in additional funding flows and impact.

The fifth step is to develop conservation and adaptation commitments in negotiation with the government for inclusion into the loan agreement. The vice-president of the Seychelles committed to protecting 50 per cent of terrestrial and 30 per cent of all marine waters at the Rio+20 Conference in 2012. These commitments were further discussed in 2014 and 2015 and three milestones created to achieve the 30 per cent marine protection goal. This included the creation of a Marine Spatial Plan (MSP) for the full 1.35 million square kilometres of marine area under the Seychelles' jurisdiction by December 2020. The protected areas amount to roughly 400,000 square kilometres, an area the size of Germany. Half of

this area is for high biodiversity protection including for pelagic species like tuna, the other half is for sustainable use areas. The perpetual endowment will be managed by the trust fund to implement the MSP and provide funding to other conservation and climate activities such as reef restoration and fisheries enhancement projects.

Lessons learned for future considerations are that debt conversion for conservation and climate adaptation are very context specific and complex processes. They require extensive negotiations with many stakeholders and have high transaction costs. The complexity and transaction costs should be weighed against the investment and policy commitments from the participating government. A pre-condition for success is a government interested in expanding marine protections, improving ocean management and addressing climate change adaptation as well as creditors willing to sell debt owed by this country. Since increased debt levels in developing islands and coastal nations are correlated to natural shocks such as tropical storm events, a future consideration could be to include parametrically triggered catastrophe insurance to the debt structuring. This insurance would offset the debt re-payment for the sovereign, freeing up capital for recovery measures after a disaster.

TNC intends to work with other small island and coastal nations highly exposed to climate risks to structure debt conversions in support of climate adaptation strategies and to improve fisheries and coastal management. To aggregate the raising of loan capital, TNC, with support from the TED Audacious award, is exploring the potential for developing a blue bonds program in support of multiple debt conversions. While the present focus of TNC is on marine conservation and climate adaptation, debt conversions could also cover other development areas.

⁶⁰ including the Leonardo DiCaprio Foundation, Waitt Foundation, Oak Foundation, China Global Conservation Fund, Jeremy and Hannelore Grantham Environmental Trust, and the Turnbull Burnstein Family Charitable Fund as well as Lyda Hill.

⁶¹ average tenor of 13 years versus 8 years originally; repayments partially in local currency. Note 1: USD 15.2M at 3% over 10 years; Note 2: USD 6.4M at 3% over 20 years, with annual payments of USD 430K totalling USD 8.6M. The government may pay up to 68.5% of this note in local currency at the spot rate on the day payment is due. While the government takes currency risk, it is beneficial for payments to be in local currency rather than USD.

⁶² The endowment has an expected value of USD 6.6M.

Equalisation fund to cover vulnerable countries' climate-induced extra credit risk

By **Thomas Hirsch (Climate and Development Advice)**, **Eva Hanfstängl and Sabine Minninger (Bread for the World)**

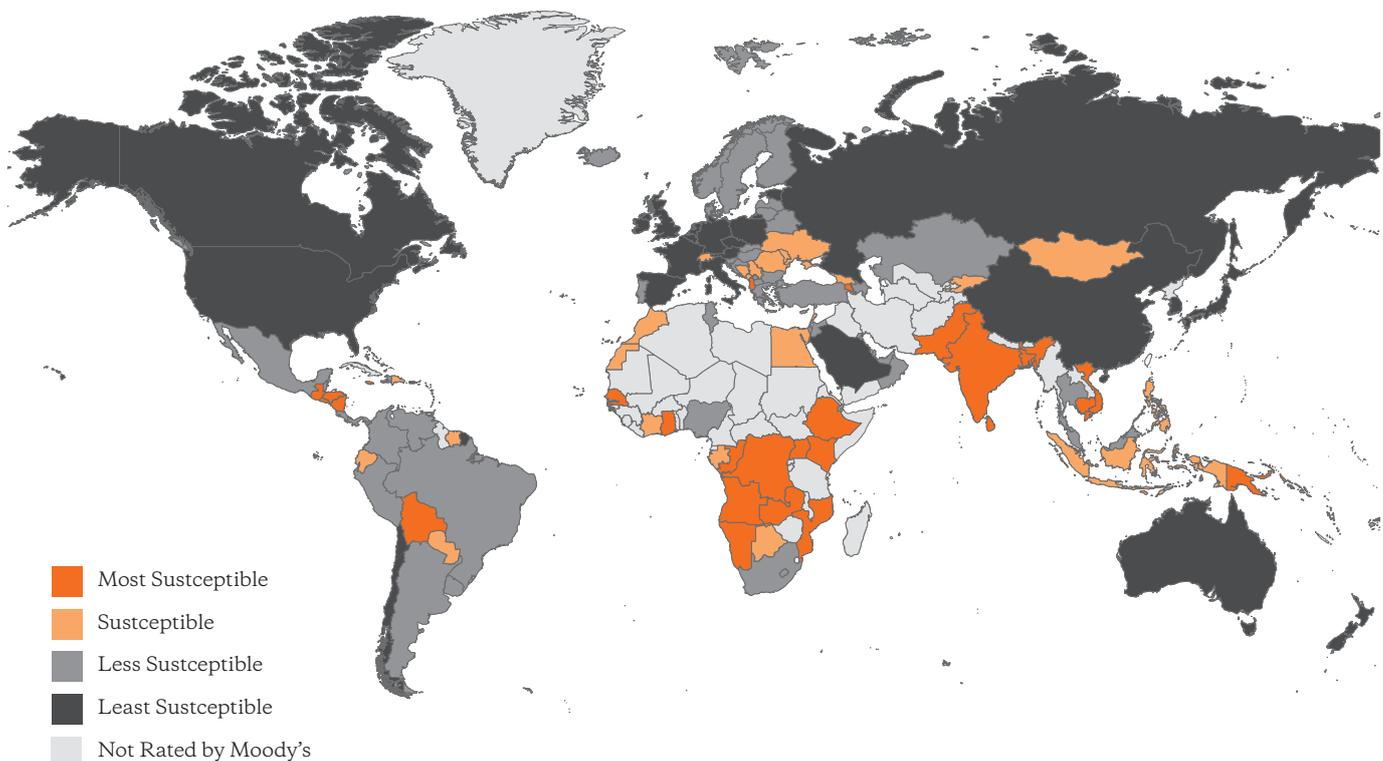
Thomas Hirsch is Founding Director of the Climate and Development Advice consultancy, Eva Hanfstängl was Development Finance Policy Lead at Bread for the World, Sabine Minninger is Climate Policy Lead at Bread for the World

Climate change poses a potential *systemic* sovereign credit risk. As with any other credit risk, it is captured by capital markets in the form of higher capital costs, as discussed in the second chapter. This is why physical risks resulting from climate change may have financial implications (AXA GROUP, 2019). In other words: Climate change adversely affects sovereigns' ratings. To which

degree that happens is calculated by credit rating agencies which have developed their own approaches to assess climate change risks for sovereign bond issuers (Moody's Investors Service, 2016). In any situation, integrating climate change in credit risk ratings is beset with challenges (Graduate School of Stanford Business, 2016). The figure below shows the susceptibility to climate change of Moody's rated sovereigns.

Having less access to capital markets is seen by those affected as a very unjust penalty for being climate vulnerable. Meanwhile polluters continue to access capital at very low or zero costs. Thus, climate change impacts lead to systemic risk, one that impacts countries very unevenly. It creates an extra financial burden of tens of billions of dollars per year in the form of higher interest rates, all coming on top of loss and damage caused by extreme climate events. This is why capital markets hinder investments in resilience building instead of facilitating it. This is dysfunctional.

Figure 4: Susceptibility to climate change of Moody's rated sovereigns



Source: https://www.moody.com/sites/products/ProductAttachments/Climate_trends_infographic_moody.pdf

To end this misallocation, a compensation mechanism is needed. A precedent is the Equalisation Fund ('Lastenausgleichsfonds') founded after World War II by the West German government to distribute war damage and consequent damage suffered by expellees and war victims as evenly as possible to all. Those who kept their property completely or in part had to pay taxes to the Equalisation Fund, from which compensation payments were made to the displaced and injured. Another possible precedent is the former commodity risk management that was established between the European Commission and the ACP Group of States in the All ACP Agricultural Commodities Program (2009). Its aim was to increase the resilience of countries and producers to the volatility of commodity prices, although at much lower financial level.

It is recommended that states together, with the IMF and World Bank as well as the private financial sector, initiate a dialogue on how to address and solve the increasing problem of rising capital costs for climate vulnerable countries. Without equalisation, based on the principle of fair burden sharing, the resilience gap will widen and debts, as well as climate-induced loss and damage, will grow further.

Setting up a Global Resilience Investment Facility

By Thomas Hirsch (Climate and Development Advice), Eva Hanfstängl and Sabine Minninger (Bread for the World)

COVID-19 demonstrates the vulnerability of the globalised world, despite all of the achievements of modernity. The consequences of the pandemic have caused economic empires to tremble and are threatening the incomes of billions of people. In addition to the health, economic, social and political consequences, the psychological impacts will also have lasting consequences. Until recently, the promise of a better future, forever improving, was taken for granted in many parts of the world. But this illusion of development moving in one direction only, towards progress and growth, has been seriously threatened by the COVID-19 crisis. The world is now experiencing what always has been and always will be possible. At any time, there could be another pandemic like this.

As shown in the first chapter, climate-induced loss and damage is projected to total USD 430 billion per year

by 2030, and around USD 1.6 trillion by 2050. So far, investments in resilience have lagged far behind what is needed. The USD 9 billion provided in the form of international climate finance for adaptation bears no relation to the actual need.

The COVID-19 crisis offers an opportunity to address this serious resilience gap. To recover and to "build back better" – or perhaps more appropriately, "to build forward" – which essentially means to improve resilience with respect to risks through preventative action, so that future damages and anticipated shocks can be absorbed. Health care systems must be improved. Social safety nets must be built up. Supply chains must be strengthened by the removal of one-sided economic dependencies. And building climate resilience is indispensable.

Debt distress has been a growing challenge in developing countries, and the impact of the COVID-19 global pandemic is increasingly turning this into an absolutely critical issue. A moratorium can be applied immediately to provide instant breathing space. It could be followed by debt cancellation or debt swaps. Debt relief might be accompanied by other tools to lower capital costs or to de-risk investments in resilience building, as discussed in this chapter. But this is not enough because demand is bigger and there are many countries that cannot afford to build their resilience on their current credit base, not even at lowered capital costs. When hurricanes Idai and Kenneth devastated Mozambique in 2019, the damage amounted to half of this country's national budget. The pledges made under the 2019 UN humanitarian appeal in favour of Mozambique didn't prevent the country from taking another USD 118 million loan from the IMF in order to deal with the emergency.

This is why it is high time to set up a Global Resilience Investment Facility, in addition to and on top of, both climate finance commitments under the Paris Agreement, existing pledges and commitments to development finance. Such a finance facility would unleash reliable and complementary investments to support developing countries building up their resilience against external shocks and disaster risks, be it climate, pandemic-related or other disasters. Support could be provided, depending on the project and the recipient, either in the form of grants or as very long term, interest-free loans, equity and guarantees. Other than public health and social safety nets, investment areas could include other critical infrastructure, early warning systems, disaster risk reduction and preparedness,

biodiversity protection and sustainable land and natural resource management.

A Global Resilience Investment Facility would be an important addition to short term aid, emergency credit and debt relief that is critical to ensure stability of societies and economies right now but which do little or nothing to make societies and economies more resilient in the long term. Such a facility would enable investments that are connected with longer-term goals. Investments made by the Facility should be consistent with National Adaptation Plans, NDCs, the SDGs and the Paris goals.

The initial capitalisation of the Fund should be at least USD 100 billion. Similar to the Marshall Plan after World War II, the fund must leverage substantial private and public support in the Global South to increase the investment volume. OECD countries should provide the initial capitalisation. For this, they can issue long term resilience bonds and pay the corresponding debt servicing from carbon fees (see below). Non-OECD members to the G20 should be invited to contribute too, in order to make the Facility inclusive.

Climate change and debt management: Supporting the V20's climate prosperity



Sara Jane Ahmed, an economist based in the Philippines, currently serves as a Finance Advisor in the Global Centre on Adaptation for the Vulnerable Group of Twenty (V20) ministers of finance. She developed and currently leads key V20 initiatives, such as the Sustainable Insurance Facility and the Accelerated Financing Mechanism.

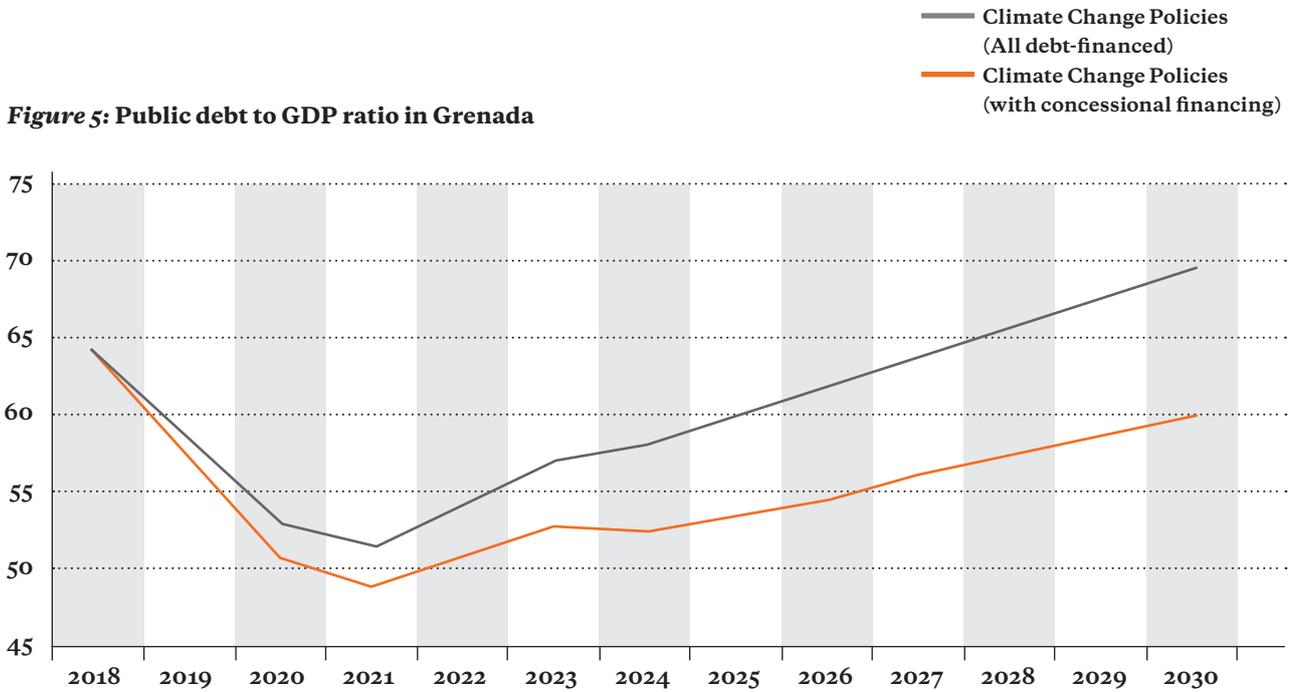
The ideas presented in section aim to inspire support for vulnerable developing countries. They are the views of the author and do not necessarily reflect institutions affiliated with the author.

Developing countries face a high cost of capital for a variety of reasons including climate vulnerability. The Vulnerable Group of Twenty (V20) ministers of finance of the Climate Vulnerable Forum (CVF)⁶³, representing

48 developing countries, commissioned a report on climate change and the cost of capital, which highlights that, in the past ten years, vulnerability to climate change has already raised the cost of debt by 117 basis points on average, for a sample of 25 V20 countries. This translates to more than USD 40 billion in interest payments on government debt alone. When considering both the higher sovereign borrowing rates and the cost of private external debt, the figure reaches USD 62 billion. As shown in previous chapters, climate change risks increase the borrowing costs of vulnerable developing countries by 10 per cent (Buhr et al., 2018). It is important to note that the cost of capital greatly changes the ability of a country to borrow. Low interest rates allow governments to service higher public debt, while high interest rates limit a government's ability to borrow, and thus, governments cannot borrow their way out of climate disasters or recovery.

Prior to the COVID-19 pandemic and the resulting economic lockdown, developing countries already needed USD 140 billion to USD 300 billion per year by 2030 for climate adaptation. Inability to invest in adaptation and to build resilience may translate to an undermining or reversing of any gains so far (Ahmed, 2020). According to Munich Re's NatCatSERVICE database, V20 countries suffered damages of at least USD 3.361 billion in 2018 alone (Munich Re, 2018). These climate-induced damages disproportionately affect developing countries and in addition to increasing their needs for adaptation and resilience, mean that climate vulnerable developing countries are likely to take on more debt. Effectively there is a "vulnerability penalty" faced by vulnerable developing countries in that they need to take on more debt to deal with climate impacts and at a higher cost for capital. Examples include Grenada in 2004, which was struck by Hurricane Ivan, and ended up with debt rising from 80 per cent to 93 per cent of GDP, and Fiji in 2016, which was hit by Severe Tropical Cyclone Winston, costing the country 5 per cent of its GDP.

⁶³The Vulnerable Twenty (V20) Group of Ministers of Finance, representing 48 developing countries, was founded in October 2015 by the Climate Vulnerable Forum. Its goal is to translate the political agenda for climate into real economy progress while mobilizing international support for scaling up financial resources for climate action in V20 states. The members of the V20 are: Afghanistan, Bangladesh, Barbados, Bhutan, Burkina Faso, Cambodia, Colombia, Comoros, Costa Rica, Democratic Republic of the Congo, Dominican Republic, Ethiopia, Fiji, The Gambia, Ghana, Grenada, Guatemala, Haiti, Honduras, Kenya, Kiribati, Lebanon, Madagascar, Malawi, Maldives, Marshall Islands, Mongolia, Morocco, Nepal, Niger, Palau, Palestine, Papua New Guinea, Philippines, Rwanda, Saint Lucia, Samoa, Senegal, South Sudan, Sri Lanka, Sudan, Tanzania, Timor-Leste, Tunisia, Tuvalu, Vanuatu, Vietnam and Yemen.

Figure 5: Public debt to GDP ratio in Grenada

Source: IMF (2019)

Figure 5 illustrates the case of Grenada, which needs to make large-scale infrastructure investments to reduce its vulnerability to climate change. Given the cost of capital and the upfront cost, Grenada will require USD 15 million in grants financing annually until 2030 in order to stay within a debt to GDP ratio of 60 per cent. If Grenada is unable to reduce the cost of capital or access grants, public debt is projected to rise to 70 per cent by 2030 (IMF, 2019e).

Debt sustainability

In 2013, Grenada introduced “hurricane clauses” into restructuring agreements with both the Paris Club as well private bondholders. The latter allows for the government to institute an immediate, albeit temporary, debt moratorium when any damages from a future disaster during the repayment period of the bonds cost over USD 15 million. The Paris Club’s hurricane clause, on the contrary, only allows Grenada to come back to Paris and negotiate again – something that any country with debts to Paris Club members is free to do anyway.

The most recent Debt Sustainability Analyses published by the World Bank and the IMF illustrate rising debt vulnerabilities: 35 out of the 48 V20 members are IDA countries, of which four have distressed debt, 13 have high debt, seven have moderate debt and six have low debt (IDA, 2019). Refer to Figure 6.

Figure 6: Debt sustainability analyses

Country	Risk of external debt distress
Afghanistan	High
Bangladesh	Low
Bhutan	Moderate
Burkina Faso	Moderate
Burundi	High
Cambodia	Low
Colombia	–
Comoros	–
Costa Rica	–

Democratic Republic of the Congo	Moderate
Dominican Republic	–
Ethiopia	High
Fiji	–
The Gambia	High
Ghana	High
Grenada	In distress
Guatemala	–
Haiti	High
Honduras	Low
Kenya	High
Kiribati	High
Lebanon	–
Madagascar	Moderate
Malawi	Moderate
Maldives	High
Marshall Islands	High
Mongolia	–
Morocco	–
Nepal	Low
Niger	–
Palau	–
Palestine	–
Papua New Guinea	High
Philippines	–
Rwanda	Moderate
St. Lucia	–
Samoa	High
Senegal	Moderate
South Sudan	In distress
Sri Lanka	–
Sudan	In distress
Tanzania	Low
Timor-Leste	Low
Tunisia	–
Tuvalu	High
Vanuatu	Moderate
Vietnam	–
Yemen	–

Source: World Bank, 2020

Debt sustainability is expected to worsen as the effects of the COVID-19 crisis begin to affect economic output and public finances. Fiji's debt has increased to 80 per cent of GDP and is projected to reach 100 per cent of GDP by mid-2021 (Prasad, 2020). Kenya's debt reached 66 per cent of GDP in 2020 and may reach 70 per cent by 2021; the government debt to revenue ratio is projected to reach 250 per cent in 2020 (Fitch Ratings, 2020a). Rwanda's debt rose to 63 per cent of GDP in 2020, and may exceed 70 per cent of GDP by 2021 (Fitch Ratings, 2020b).

Over the last decade, developing countries' creditor base has shifted toward commercial lenders and non-Paris Club members. This has not only reduced the transparency of public debt, it is also complicating the negotiation of debt relief when countries face solvency problems as discussed in the first chapter. The poorest countries have USD 36 billion worth of debt to be serviced by 2020 to multilateral, bilateral (mostly non-Paris Club) and commercial creditors.

On October 14, 2020, the G20 ministers of finance extended the Debt Service Suspension Initiative (DSSI) to halt debt service payments until July 2021. So far, only an estimated USD 5 billion of 2020's debt servicing has been deferred (IMF, 2020). Reasons for the low uptake by developing countries may include fear of credit rating downgrades as creditors may equate the debt service suspension with a default and limit their future ability to borrow commercially.

Recommendations for climate vulnerable developing country support

With growing climate risks, it is important for climate vulnerable countries, particularly SIDS and highly indebted countries, to have access to standard "Climate Clauses" to deal with climate-induced debt defaults or longer term solvency issues. Government bonds for climate vulnerable developing countries may include the following:

1. Common framework for debt conversion in the event of climate-induced disasters to improve efficiencies and to favour sustained economic recovery. This can also help with greater debt transparency and enhanced creditor coordination.
2. Enabling repayment beyond physical cash by including cash equivalents of the value of CO₂ emissions reductions with per annum pricing determined using pre-agreed prices, methodology or use of carbon

trading exchanges. It is important to note that cash equivalent repayment using CO₂ emission reductions must include pre-agreed assets. This allows countries to better monetise natural resources such as forests, oceans and soils, as well as renewable energy. Alternatively, proceeds as a result of reaching Sustainable Development Goals (SDGs) can be used to pay off debt.

3. “Hurricane clauses” can help mitigate disaster risk in an ex-ante as well as an ex-post format: They can be made standard for any sovereign bond issue, much in the same way that “collective action clauses” became standard after the Greek debt crisis. However, sovereign bonds are not the only debt instrument that can burden a nation after a major disaster. Therefore, a multi-lateral agreement should be sought, which would allow the affected nation to temporarily cease all debt payments to all creditors for a limited time, if an independent body has determined that the damage exceeded a certain threshold. Such an ex-post arrangement could be established either through the UN or the IMF.

The recommended “Climate Clauses” could be implemented by an honest broker, who can help developing countries coordinate with debtors whether these are Paris Club members or not.

Supporting climate prosperity in vulnerable developing countries

During a Climate Vulnerable Forum Leaders Event in October 2020, named the Midnight Climate Deadline, the chairperson of the CVF, H.E. Sheikh Hasina, prime minister of Bangladesh announced a Climate Prosperity Plan, which includes strategic investment frameworks to mobilise financing, especially through international cooperation, for implementing renewable energy and resilience projects. These frameworks will include analysis of benefits for job growth and economic growth as well as environmental and health benefits that would be realised if the projects in the plans are financed and implemented. They are structured as a decadal plan with two five-year cycles. As the Climate Vulnerable Countries move forward with their respective Climate Prosperity Plans, it is key that the international community consider structural improvements in financing to ensure debt sustainability for SIDS and highly indebted countries in the face of more frequent climate-related

disasters. Equally important is to have innovative facilities to enable increased and better access to concessional finance. This can include more effective and impactful North-South global cooperation in joint risk sharing through greater use of Build-Operate-Transfer models for low-carbon and climate-resilient infrastructure, buying down the cost of capital, covering incremental costs associated with disaster clauses, and improved monetisation of resources that reduce CO₂ emissions.

Making polluters pay

By Thomas Hirsch (Climate and Development Advice), Eva Hanfstängl and Sabine Minninger (Bread for the World)

Progressing global environmental destruction – crossing planetary boundaries through climate change and the dramatic loss of biodiversity – are key crisis drivers. Reversing this race to the bottom, equalising losses, repairing damages and building resilience to lower future risks all come at a price.

Making polluters pay is a fundamental principle in the environmental law of most OECD countries and beyond. It is enacted to make the polluting party – for instance, an energy provider – accountable and to provide financial compensation for damage done. This is a clear case of compensatory justice because those who are responsible for climate-related impacts and risks are ultimately responsible for redressing loss and damage (Bread for the World, 2019b).

Carbon dioxide or greenhouse gas emission taxes or fees are potential ways to put a price on GHG emissions. According to a study conducted for the UNEP Emission Gap Report 2018, there were around 50 carbon pricing systems in place, covering less than 50 per cent of GHG emissions in the 42 countries belonging to OECD or the G20 (UNEP, 2018). Similar fees are increasingly being used to implement the polluter pays principle in the agricultural and water sectors.

Making polluters pay is indispensable. It is not only about setting up a fair mechanism to compensate for losses, repair and resilience building costs. The pricing is also a very efficient and effective way to stop destruction of the global commons and eco-systems.

Of course, pricing carbon is not the only instrument and not always the best one. Bans and restrictions are

also part of regulatory policy. But the enforcement of the polluter pays principle deserves much more attention than it has had until now, nationally as well as internationally.

Who are the biggest polluters? Looking at major emitting countries is one way to find an answer. In that case, it is the G20 member countries who are responsible for about 80 per cent of global GHG emissions, plus some other OECD members and some oil-producing countries. Looking at it from a per-capita perspective, combined with income groups, it is the richest 10 per cent of the global population (average net income more than USD 38 trillion annually) who are responsible for 52 per cent of GHG emissions. The richest 1 per cent (average net income more than USD 109 trillion annually) account for 15 per cent of global emissions, according to a 2020 study by the Stockholm Environment Institute and Oxfam. Most of the people belonging to the richest 1 per cent or 10 per cent of the global population live in G20 countries. If they established a carbon pricing system with rising carbon prices over time, as suggested by the IPCC (2018), even a small percentage of the revenues generated by carbon pricing would be sufficient to cover the costs of resilience building and the other measures proposed in this chapter (Bread for the World, 2019b).

So far, governments that introduce carbon pricing schemes tend to pay back the “climate dividend” generated by these taxation or pricing schemes to their own citizens, in order to ensure public support for carbon pricing. In fact, studies show that social acceptance of burden sharing depends heavily on how fair the burden sharing is perceived to be by citizens (Germanwatch, 2020). Given the current crisis, and the high level of risk awareness and unevenly distributed vulnerabilities, as well as the existence of root causes for a pandemic, such as biodiversity loss, it can be assumed that the redistribution of revenues generated by carbon pricing or other forms of pricing for using environmental goods to benefit enhanced resilience building for vulnerable people, would find high acceptance. This is why carbon pricing would be a good way to make polluters pay for the “resilience dividend” of the poor. One international forum to promote this approach further would be the UNFCCC in general, and the Warsaw International Mechanism on Loss and Damage, in particular.

The Warsaw International Mechanism’s possible role in the debt and climate crisis

By Vera Künzel and Laura Schäfer (Germanwatch)

Vera Künzel is Germanwatch’s Policy Advisor on Climate Adaptation and Human Rights, Laura Schäfer is Germanwatch’s Policy Advisor on Climate Risk Management

The adverse effects of climate change constitute an existential threat for vulnerable countries and especially for the most vulnerable groups. Unavoidable consequences lead to climate induced Loss and Damage (L&D). In the context of the UN climate regime, negotiations have not yet led to the provision of an adequate amount of finance to deal with L&D.

When hit by rapid or slow onset hazards, vulnerable countries still mainly rely on the humanitarian system and humanitarian funding appeals to trigger voluntary, and therefore volatile, financial support in the aftermath of a hazard. For the countries concerned, this is an inadequate solution since the money provided through appeals usually does not cover the costs incurred. Most often, affected countries are left alone to deal with the lion’s share of those costs, as the example of Mozambique, referred to in previous chapters, shows.

Finance for climate induced losses and damages in the context of the WIM

As funding to cover these costs and deal with L&D is lacking, vulnerable countries are demanding a better response to the issue. The WIM Executive Committee (ExCom) included the issue in the thematic area on “action and support”. Longstanding discussions have so far focussed on the fact that L&D was not regularly or adequately addressed and included proposals to anchor the issue within the WIM/ExCom structure, in order to mobilise additional funds eventually. Until COP25, no dedicated working group or plan existed. Before then, the WIM had covered the topic with a number of ad-hoc actions. These included:

- The forum of the Standing Committee on Finance (2016) on “Financial instruments that address the risks of loss and damage associated with the adverse effects of climate change”
- The WIM ExCom’s side event on risk financing for slow onset events in 2017

- The 2018 “Suva expert dialogue” on ways to facilitate the mobilisation and securing of expertise and enhancement of support, including finance [...]⁶⁴
- A call for submissions to the Executive Committee on sources of financial support that parties and relevant organisations provide to avert, minimise and address climate induced displacement in 2019
- A technical paper by the Secretariat on “Elaboration of the sources of and modalities for accessing financial support for addressing loss and damage”, published in 2019

Windows of opportunity to advance the L&D finance agenda after COP25

Two outcomes of COP25 are key in regard to anchoring the finance issue within the WIM. They can set the course for the debate and have the potential to address the debt issue.

The ExCom Working Group on Action and Support⁶⁵ was established and will draw on the work of, and involve, existing bodies, organisations, networks and experts under the UNFCCC and the Paris Agreement, as well as from outside of those parameters. It can provide a forum for discussing possibilities of financial support for developing countries. It was to be set up by the end of 2020 and will develop a work plan thereafter. Regarding the question of financial resources, the expert group should – according to the Madrid decision – cooperate with the Green Climate Fund (GCF) and the Standing Committee on Finance (SCF) to initially clarify how best to facilitate developing countries’ access to existing GCF funds and existing financial resources for L&D. No clear mandate exists regarding exploring ways of mobilising additional financial resources and the role of innovative financing.

The Santiago Network for Loss and Damage⁶⁶ was established under the WIM. It aims to promote technical assistance in the implementation of relevant approaches to address L&D, particularly in vulnerable developing countries. The network is a first step towards equipping the WIM with an operational arm, in addition to its political body, the ExCom.

Dealing with debt within the WIM?

At the time of writing, the terms of reference for the ExCom Working Group on Action and Support were still being developed by ExCom members, with the composition of the group as well as its work plan yet to be decided. The following recommendations would support focus on the debt issue:

- Involve experts from the debt community in the development of the work plan
- Include the topics of debt and debt relief (with a focus on climate impact-related components) in the group’s work plan. Potential activities could include:
 - Exploring the interrelationship between debt and climate impact, regarding the vulnerability of countries
 - Analyse the escalating effects that climate impacts may have on the creditworthiness of countries
 - Organise a workshop to discuss debt relief as a means to generate resources to deal with L&D. The discussion should be guided by the intention that debt relief would not replace the need for a reliable financing mechanism. Ideas like debt-for-climate swaps or an automatic debt moratorium following a comprehensive restructuring for developing countries facing “climate disasters” could be discussed
 - Prepare an annual stocktake of national L&D financing needs and the funding available in a L&D finance gap report, including information on the debt situation of countries

The design and tasks of the Santiago Network were still under discussion when this study was written. The network provides possibilities to focus on debt. It has the potential to link up and align actions and experts within and outside the UNFCCC process, including experts and organisations of the debt community. The issue of debt could be integrated into the network by implementing the following recommendations:

- Invite experts from the debt community to become members of the Santiago Network, who can provide information and technical assistance to countries around the topic of debt relief and related instruments (for example, debt for climate swaps)
- Contribution by the network to the annual L&D finance gap report with information on the debt situation of countries

Conclusions and Recommendations

As the UN Secretary General has said: We have a responsibility to recover better from the multiple crises we face than we did after the financial crisis in 2008, using the SDGs and the Paris Agreement as a framework for action. And we must keep our promises for people and the planet.⁶⁷

What does that mean? A closer look at this call to action reveals five key elements:

- The debt, pandemic and climate crises are interlinked and have to be treated accordingly
- To reduce current and future risks, resilience building is a key element of recovery
- Investments in a resilient and green recovery must be ramped up massively to build forward
- International cooperation and solidarity are indispensable for success
- The people and the planet have to be at the very centre of any strategy to overcome the crisis

These five elements of the UN Secretary General's call for action are also reflected in this study.

The study shows that the world is at the precipice of a new sovereign debt crisis, which has been reinforced by increasing losses caused by climate change, in combination with higher capital costs reflecting the perception of future sovereigns' credit risks, and on top of that, the consequences of the COVID-19 pandemic. Whereas SIDS are hardest hit by the combined, multiple disaster risk, loss risk and debt risk, the study shows that many more climate-vulnerable, low- and middle-income countries are also impacted to the point where they have to reduce investments in resilience building, and eventually face setbacks in achieving the SDGs, which further fuels the triple crisis.

The study visualises impact chains showing the linkages between multi-hazard exposure, lack of resilience, resulting disaster risk with related loss and damage, sovereign debt risks, and the lack of investment into resilience building. We show that the climate, the debt and the COVID-19 crises hit countries differently. To measure the multi-dimensional risks, and to make them comparable, we have developed a new and innovative, indicator-based methodology. This approach can be applied to all countries and allows them to be grouped in risk classes. In a nuanced way, it shows the interplay of disaster, disaster-related losses, including

implications for public social infrastructure and state budgets in case a disaster strikes, and sovereign debt. All data comes from open sources.

Resilience is the key approach to managing risks. The current pandemic shows that severe risks – with the potential to crash economies, do enormous harm to vulnerable people and eventually lead to severe setbacks with regard to SDGs – are not limited to climate risks alone. Thus, massively ramped up investments to enhance resilience are essential and will pay back in the form of a resilience dividend, which means ensuring higher adaptive capacities and reduced vulnerability of the people.

One of the requirements to enable these investments is a revision of the multilateral development finance framework that we find to be out of touch with the realities of the current crisis. That requires international cooperation and solidarity. The COVID-19 pandemic is a fundamental global crisis. It brings harm but it also provides the political momentum, through targeted recovery, to speed up the transformation towards a decarbonised, more resilient and more equal sustainable development pathway.

We put people's rights first. There will be no solutions without acceptance and ownership from the people. However, roles and responsibilities are very different and it is a basic matter of justice to factor that in. To fulfil equal rights – that is, equal access to opportunities for all people – requires different means. Debt moratoriums and debt relief in situations of unsustainable or even illegitimate debt are important but not yet sufficient to adequately deal with those people and countries worst affected. In times of emergency – whether pandemic or climate-related – vulnerable countries need more resources to provide safety nets, maintain critical infrastructure and build forward better.

⁶⁴ decision 5/CP.23 para 9

⁶⁵ https://unfccc.int/resource/cop25/cma2_auv_6_WIM.pdf / https://unfccc.int/sites/default/files/resource/cma2019_06a01E.pdf

⁶⁶ <https://unfccc.int/santiago-network>

⁶⁷ <https://www.un.org/en/un-coronavirus-communications-team/above-all-human-crisis-calls-solidarity>

Building forward: Policy recommendations for a resilient recovery

*“We are all in the same storm, but sitting in different boats, with some of us being in a leaky dory.”*⁶⁸ We support the call of AOSIS from October 2020 for a SIDS Compact as a targeted financing window, including better access to concessional finance in combination with debt relief to enable them to better deal with the disproportional risks of climate change and the pandemic they face. Noting that other vulnerable countries are facing similarly high risks, as our study reveals, we call for a specific financing window open to other high-risk developing countries too. We propose taking seven steps.

Supporting countries to assess the multiple risks they face as a base for targeted action and support

Developing countries should be encouraged and supported to assess their specific multi-dimensional risks resulting from climate and other natural and human hazards, insufficient coping capacity, related losses and debt risks. Understanding risk profiles better is a precondition for taking targeted action to reduce these risks and enhance resilience.

A Global Resilience Investment Facility in addition to committed climate and development finance

*“Business as usual has placed us in the precarious situation that we are in today, and our recovery efforts should aim to take us to a more sustainable and resilient pathway.”*⁶⁹ AOSIS strongly rejects business-as-usual approaches as a response to the current crisis. Accordingly, we stress the need to invest in resilience building. Along these lines we call for a Global Resilience Investment Facility as an additional finance facility, on top of the USD 100 billion climate finance commitment under the PA, and committed development finance, in order to support developing countries to build up their resilience against external shocks and disaster risks, be it climate, pandemic-related or other disasters. Support should be provided in the form of grants and very long term, interest-free loans, equity and guarantees. Investment areas could be public health and social safety nets, securing critical infrastructure, early warning systems,

climate adaptation, disaster risk reduction, biodiversity protection or sustainable land and natural resource management. A Global Resilience Investment Facility would be an important addition – no replacement – to aid programs, emergency credits and debt relief. The Facility would enable investments connected with longer term goals. Thus, investments made by the Fund should be consistent with National Adaptation Plans, NDC, the SDGs and the Paris goals. The initial capitalisation of the Fund should be at least USD 100 billion – not to be confused with the USD 100 billion annual climate finance commitment under the Paris Agreement. Similar to the Marshall Plan after World War II, the fund must leverage substantial private and public support in the Global South to increase investment volumes. OECD countries should provide the initial capitalisation. For this, they can issue long term resilience bonds and pay the corresponding debt service from CO₂ taxes and fees. Non-OECD members to the G20 should be invited to contribute to the Fund too, in order to make it inclusive.

Supporting climate prosperity in Vulnerable Developing Countries

The development of a common framework for debt conversion in the event of climate-induced disasters to improve efficiencies and to favour sustained economic recoveries is critical.

Providing “Climate Clauses” to climate vulnerable countries in view of growing climate risks, especially for SIDS and highly indebted countries, should become a standard to deal with climate-induced debt defaults or longer term solvency issues. Thus, bonds placed by climate vulnerable developing countries should include:

- Enabling repayment schemes beyond physical cash by including cash equivalents of the value of CO₂ emission reductions, with per annum pricing determined using pre-agreed prices, methodology or use of carbon trading exchanges
- Disaster clauses such as the “hurricane clause” as a standard with pre-agreed thresholds from Paris Club members

Debt conversion for climate resilience and conversation

Based on long experience of debt-for-nature swaps, debt for climate resilience and (marine) conservation swaps, innovative debt conversion for conservation and climate adaptation should be further pursued with developing nations in order to restructure sovereign debt to support conservation and climate adaptation goals. These have the potential to bring debtors, creditors and third parties together. A good example in practice is the Seychelles Conservation and Climate Adaptation Trust. Even if the financial size of these swaps seems relatively small, the scale of the impact can be large, given that governments will commit to improved policies and increased investment in conservation and climate adaptation as a condition of the debt conversion. Thus, debt conversion for conservation and climate adaptation are usually very context specific. Considering that increased debt levels in many climate vulnerable countries are correlated to extreme climate events, a parametrically triggered climate risk insurance added to the debt structuring should be considered. This insurance would offset the debt repayment for the sovereign, freeing up capital for recovery measures.

Debt moratorium and state insolvency proceedings, when debt has become unsustainable

There has been widespread international support for a debt moratorium as part of a global recovery package in the current crisis. The agreements on temporary debt service suspension that have been reached with the G20 and the IMF are good first steps but are not sufficient yet. We support the call of the UN Secretary General, AOSIS, civil society actors and many others for debt relief.

In a first step, a predefined independent technical body assesses the losses caused by an external shock (for example, a climate induced extreme weather event or a pandemic) and declares that a catastrophe has happened, that exceeds a pre-defined threshold. That triggers an immediate six-month moratorium for all external payment obligations. It provides breathing space for the affected nation as it gets its public life and economy going again. At the same time, international institutions such as the IMF, UNCTAD and/or regional development organisations can individually or jointly assess the need

for broader and real debt relief beyond the moratorium. Such assessments prepare the second step, which is the restructuring of the entirety of the sovereign's external debt to the extent that it suffices to restore medium term debt sustainability with a sufficient degree of probability.

Equalisation Fund to cover vulnerable countries' climate-induced extra credit risk

High exposure to risks caused by climate change is factored in by creditors in the form of additional capital costs to be paid by borrowers. We call for the establishment of an Equalisation Fund that covers these extra costs, be it as a stand-alone or as part of the Global Resilience Investment Facility. States, together with the IMF and the World Bank as well as the private financial sector, should initiate a dialogue to discuss the modalities of such a Fund. Without equalisation, based on the principle of fair burden sharing, the resilience gap will widen and debts, as well as climate-induced loss and damage, will grow further.

Facilitate multi-stakeholder dialogues on a resilient and green recovery

The multiple crisis we currently face is a once-in-a-century challenge. The 2020s risk becoming a lost decade, when instead we need this decade to boost the transition to a resilient, climate neutral and sustainable future. That requires drastic steps and measures that go far beyond business as usual. The steps we propose will only happen if broad support can be mobilised across a wide range of stakeholder groups. Therefore, we call for multi-stakeholder dialogues in different forums, including, among others, the G20, V20, the World Bank, the IMF and multilateral development banks, the European Union, UNFCCC and UNGA.

As with regard to the UNFCCC, a high-level dialogue should happen at COP26 as well, one that could be prepared by the Warsaw International Mechanism, involving the WIM Working group on Action and Support and the Santiago Network.

⁶⁸ https://www.aosis.org/wp-content/uploads/2020/10/5.-Sustainable-Development-incl-SAMOA-Pathway_AOSIS-Statement_Final.pdf

⁶⁹ Ibid

PART II: Countries Caught Between Debt, COVID-19 and Climate Change

Rising indebtedness, the accelerating impacts of climate change and the unprecedented COVID-19 pandemic have led to a triple crisis, that is particularly devastating in many developing countries. It puts human security, social stability and economic development at severe risk. Responding adequately to the short term COVID-19 pandemic and the short to long term climate challenges requires significant financial resources, which are particularly tight in highly indebted countries. What does the combination of high climate risks, COVID-19 risks and debt risk imply for these countries? What are the impacts on vulnerable people and the achievement of SDGs? What are the similarities and differences between these countries, and is it possible to identify specific risk drivers? Are countries proactively preparing for a resilient and green recovery, thereby reducing their risks?

In this chapter, case studies on Ethiopia, El Salvador, Lao PDR, Papua New Guinea (PNG) and Sri Lanka are analysed. What these countries have in common is critical indebtedness. Each of them is geographically located in one of the five world regions with the highest climate risk exposure: Sub-Saharan Africa, Central America and the Caribbean, South Asia, South East Asia, and the Pacific. They are all categorised as being critically impacted by the COVID-19 pandemic. All of them belong either to the group of Least Developed Countries (Ethiopia, Lao PDR) or to the group of lower middle-income countries (El Salvador, PNG, Sri Lanka). Nevertheless, each risk profile is unique due to very specific national circumstances, and therefore their respective recovery strategies should be too.

Measuring the combined climate, pandemic, disaster and debt risk

To assess the country risk profiles and make them comparable, we have developed an indicator-based system to measure the risks. This approach consists of four major steps.

Climate and disaster risk

In a first step, we assess the country's *disaster risk*, composed of five measurable factors all of which we consider equally important:

- Climate hazard exposure, including flooding, cyclones and drought
- Natural and human hazard exposure, other than climate extremes, including earthquakes, tsunamis, human conflict intensity and projected conflict intensity
- COVID-19 risk, the risk that a country's national response capacity could be overwhelmed by the health and humanitarian impacts of COVID-19
- Vulnerability, encompassing socio-economic vulnerability and development and deprivation (50 per cent), inequality (25 per cent), aid dependency (25 per cent) and vulnerable groups (displaced people and other vulnerable groups)
- Lack of coping capacity, factoring in institutional capacities (disaster risk reduction, governance) as well as infrastructure (communication, physical infrastructure, access to health system)

We have chosen this set of indicators developed by the Disaster Risk Management Knowledge Centre (DRMKC) of the European Commission for its INFORM Risk Index. This is a global, open-source risk assessment instrument for humanitarian crises and disasters, providing data for all countries. For this study we have taken the data from the INFORM Global Risk Index 2020.⁷⁰ The INFORM risk modelling is based on the UN Office for Disaster Risk Reduction's (UNDRR) approach, balancing hazard exposure on one hand, and vulnerability and coping capacity on the other. This standard approach to calculating disaster risks has been adopted by INFORM with an updated equation:

$$\text{Risk} = \text{hazard and exposure}^{1/3} * \text{vulnerability}^{1/3} * \text{lack of coping capacity}^{1/3}$$

Standard calculations are usually subject to specific adjustments, depending on the purpose of a risk assessment. In this study we aim to focus specifically on climate-induced risks. For this reason, we have purposely separated *Climate hazard exposure* as a stand-alone risk driver, using the INFORM data. In our equation, climate hazard exposure is slightly overweight, in view of the fact that it is also included as one category in the overall *human and natural hazard exposure*. Because of our specific focus we consider this adequate, considering that this approach serves to counterbalance the fact that the climate hazard effects of climate events – other than drought, flood and cyclone – are, like all slow onset



Extreme storms in the Pacific have been devastating, as can be seen in the Philippines after Typhoon Haiyan.

events, not captured by the INFORM methodology. Therefore, our equation to calculate the disaster risk differs slightly from the INFORM approach:

Disaster risk = (climate hazard exposure + natural and human hazard exposure + COVID-19 risk + vulnerability indicator + lack of coping capacity indicator) / 5

The classification of the disaster risk and its underlying factors is taken from the INFORM approach⁷⁰, the only exception being that we use a different terminology to express the degree of risk, in order to harmonise the terminology for the description of disaster-related risks with ones for the classification of *loss and damage risk* and *debt risk* (see below). Therefore, we categorise disaster risks in five steps from “uncritical” to “very critical”. INFORM classifies the same five risk classes in a range from “very low risk” to “very high risk”. Our disaster risk categorisation of the values achieved in the equation is shown here:

Figure 7: Classification of disaster risk

<1.4	uncritical
1.4–2.6	slightly critical
>2.6–4	moderately critical
>4–6	critical
>6–10	very critical

Loss and damage risk

Disasters lead to economic and non-economic loss and damage, which may cause humanitarian catastrophes, hamper sustainable development and restrict states’ financial latitude, especially if they already face a critical debt situation. We have chosen to assess the *loss and*

⁷⁰ <https://drmhc.jrc.ec.europa.eu/inform-index/>

⁷¹ A detailed description of the INFORM methodology can be found here: <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Methodology>

damage risk of the selected countries in a second step. To do this, we developed a set of six indicators. Because as yet there is no established approach to measure loss and damage risk, we have developed our own scheme, comprised of data and individual indicators taken from reputable open-access sources with almost global coverage. The first two indicators are taken from the annually published Germanwatch Climate Risk Index, with Munich Re's NatCatSERVICE as the underlying database.⁷² We cross checked this data, using the EM-DAT database.⁷³ The four other indicators are taken from a broader sample of UNDRR indicators to assess disaster-related losses and their social and fiscal impacts on developing countries. They are accessible in the Risk Data Platform associated with the Atlas of the UNDRR Global Assessment Report (GAR). Unfortunately, the GAR Atlas Risk Data platform was decommissioned in September 2020, just after we conducted our research. The GAR 2017 Atlas Risk Data can still be downloaded.⁷⁴

Our loss and damage risk indicator encompasses the following six sub-indicators:

- Cumulative absolute climate-induced financial loss in absolute figures for the years 2010 to 2017, expressed in USD Purchasing Power Parity (PPP)
- Climate-induced loss and damage trend, comparing the financial losses between 2014 to 2017 with losses between 2010 to 2013
- Multi-hazard relative average annual loss measured in USD per 1 million USD, covering accumulated losses of all types of natural hazards
- Annual multi-hazard losses shown as a percentage of national social welfare expenditures
- Size of the financing gap in the national budget caused by a 100-year extreme event, in millions of USD
- Projected return period for such a financing gap, shown in years

The first two indicators show the size and the dynamic of financial loss and damage caused by climate events. This ensures that losses from climate induced events are slightly overweight in the final loss and damage risk indicator. They are categorised as follows:

Figure 8: Classification of average annual climate-induced losses (in USD-PPP, 2010–2017)

Data source: Germanwatch Climate Risk Index

<10 million USD-PPP	Uncritical (0)
>10–50 million USD-PPP	Slightly critical (1)
>50–200 million USD-PPP	Moderately critical (2)
>200–500 million USD-PPP	Critical (3)
>500 million USD-PPP	Very critical (4)

Figure 9: Classification of climate-induced loss trend (in 2014–2017, compared to 2010–2013)

Data source: Germanwatch Climate Risk Index

Reduction by >25%	Uncritical (0)
Stable: -25% – +25%	Slightly critical (1)
Increase by 25%–50%	Moderately critical (2)
Increase by 51%–100%	Critical (3)
Increase by >100%	Very critical (4)

The four remaining indicators are designed more broadly, covering multi-hazard losses. Apart from assessing the overall relevance of these losses for the country's GDP (multi-hazard relative average annual loss), the social implications of these losses are covered (losses as percentage of social expenditure) as is the fiscal dimension (size of the financing gap in case of a 100-year extreme event, financing gap return period). Details are shown below:

Figure 10: Classification of multi-hazard relative average annual loss

Data source: UNDRR Global Assessment Report Atlas Risk Data platform

<USD 500 per 1 million	Uncritical (0)
>USD 500–1,800	Slightly critical (1)
>USD 1,800–5,000	Moderately critical (2)
>USD 5,000–11,000	Critical (3)
>USD 11,000	Very critical (4)

Figure 11: Classification of losses as a percentage of social expenditure**Data source:** UNDRR Global Assessment Report Atlas Risk Data platform

<2%	Uncritical (0)
>2%–5%	Slightly critical (1)
>5%–10%	Moderately critical (2)
>10%–30%	Critical (3)
>30%	Very critical (4)

Figure 12: Classification of size of the financing gap in case of a 100-year extreme event**Data source:** UNDRR Global Assessment Report Atlas Risk Data platform

No gap	Uncritical (0)
<USD 244 million	Slightly critical (1)
>USD 244 million–420 million	Moderately critical (2)
>USD 420 million–3,300 million	Critical (3)
>3,300 million	Very critical (4)

Figure 13: Classification of financing gap return period**Data source:** UNDRR Global Assessment Report Atlas Risk Data platform

>250 years	Uncritical (0)
101–249 years	Slightly critical (1)
51–100 years	Moderately critical (2)
26–50 years	Critical (3)
0–25 years	Very critical (4)

The resulting overall loss and damage risk is calculated according to the following equation:

Loss and damage risk = (climate-induced financial loss indicator + climate-induced loss trend + multi-hazard average annual loss + losses as % of social expenditures + size of financing gap of a 100-year extreme event + financing gap return period) / 6

Figure 14: Classification of loss and damage risk

<0.5	Uncritical (0)
0.5–1.49	Slightly critical (1)
1.5–2.49	Moderately critical (2)
2.5–3.49	Critical (3)
>3.5	Very critical (4)

Debt risk

In a third step, the debt risk is assessed, using the methodology, data and risk categorisation from the sovereign debt monitor by erlassjahr.de, the German member of the global Jubilee Debt Campaign.⁷⁵ The underlying open-source debt database is provided by the IMF.

The aggregated debt risk indicator considers five parameters and sets sustainability thresholds for each of them:

- External debt as a percentage of Gross National Income, or GNI (threshold: 40 per cent)
- External debt as a percentage of annual export earnings (threshold: 150 per cent)
- Annual debt service as a percentage of annual export earnings (threshold: 15 per cent)
- Public debt as a percentage of GNI (threshold: 50 per cent)
- Public debt as a percentage of public revenues (threshold: 200 per cent)

Based on these indicators, the debt situation is assessed quantitatively and later ranked in a range from “uncritical” to “very critical” according to the following categorisation:

Figure 15: Debt risk scoring

Uncritical	0 points
Slightly critical	1–4
Critical	5–9
Very critical	10–15

⁷² <https://germanwatch.org/en/cri>

⁷³ <https://public.emdat.be>

⁷⁴ <https://risk.preventionweb.net/capraviewer/>

⁷⁵ <https://erlassjahr.de/en/>

The details of the quantitative assessment scheme are shown below:⁷⁶

Figure 16: Classification of debt risk

	Uncritical (0 points)	Slightly critical (1 point)	Critical (2 points)	Very critical (3 points)
Public debt as a percentage of GNI	<50%	50–75%	>75–100%	>100%
Public debt as a percentage of public revenues	<200%	200–300%	>300–400%	>400%
External debt as a percentage of GNI	<40%	40–60%	>60–80%	>80%
External debt as a percentage of annual export earnings	<150%	150–225%	>225–300%	>300%
Debt servicing as a percentage of annual export earnings	<15%	15–22.5%	>22.5–30%	>30%

According to the risk levels for each of the five debt indicators, each country has a value between 0 and 15. For example, if a country is in the highest risk level with all five debt indicators above levels of over-indebtedness, it has a maximum value of 15.

In addition, the absolute figures of external debt (in U.S. dollars) and the total external debt service are shown.

Multi-dimensional risk

In the fourth step, *multi-dimensional risk* is calculated based on the following equation:

$$\text{Multi-dimensional risk} = (\text{disaster risk} + \text{loss risk} + \text{debt risk})/3$$

Figure 17: Classification of multi-dimensional risk

<0.5	Uncritical
0.5–1.49	Slightly critical
1.5–2.49	Moderately critical
2.5–3.49	Critical
>3.5	Very critical

This new and innovative methodology allows us to assess and compare the multi-dimensional risk countries are facing, factoring in country-specific climate, COVID-19 and other disaster risks, as well as disaster-related loss and damage and the level of indebtedness. *The Climate*

Disaster and Debt Risk Index can be applied to all countries and allows us to group them according to risk classes. It shows, in a nuanced way, the interplay between disaster, disaster-related losses – including implications for social safety nets and state budgets in case of disaster – and sovereign debt.

As we will see in the following, the five assessed countries end up with different ranks for each of the three assessed risk categories.

Ethiopia is by far at most risk in terms of climate, COVID-19 and potential disasters, whereas Sri Lanka is at least risk of disaster.

The loss and damage risks are highest in PNG, closely followed by Lao PDR, and then moderate in Ethiopia and Sri Lanka.

The debt risk is highest in Sri Lanka, followed by El Salvador. It is lowest in PNG.

The multi-dimensional risk is highest in PNG and Lao PDR, and lowest in Sri Lanka.

These results show that the links between the different types of risks are complex and that it is worth taking a nuanced approach in assessing country risks. The information provided by this approach can be used as an early warning system for climate and other disaster risks and their financial dimension. The approach allows for the identification of specific risk drivers, to measure and compare the severity of risks and to identify and prioritise areas where risk should be reduced.

⁷⁶ See <https://erlassjahr.de/wordpress/wp-content/uploads/2020/01/SR20-online-.pdf> at p.17

Ethiopia

Overview

Ethiopia is a land locked country in northeast Africa. It has a population of approximately 110 million, the second-highest population in Africa after Nigeria. Its population has been growing at 2.6 per cent per year and is due to double by 2050, to close to 200 million. Ethiopia has a high percentage of rural population, currently 79 per cent, which is decreasing along with accelerated urbanisation, which is due to reach 39 per cent by 2050. Politically, Ethiopia is governed through an ethno-federalist structure and is comprised of nine regions. Its economy has been one of the fastest-growing worldwide, with an average growth rate of 7.6 per cent during the past decade. Nevertheless, 29.6 per cent of the population were still below the poverty line in 2019, predominantly in rural areas.⁷⁷

Ethiopia is one of the countries with the most dynamic debt development of this decade. For a long time, remarkably high growth rates as a result of the large, debt-financed infrastructure projects concealed the dangers of this increase in debt. The export weakness of the last few years, however, has caused hard currency income to collapse significantly. Accordingly, Ethiopia has also become a country with a high risk of over-indebtedness in the IMF's debt sustainability analysis.

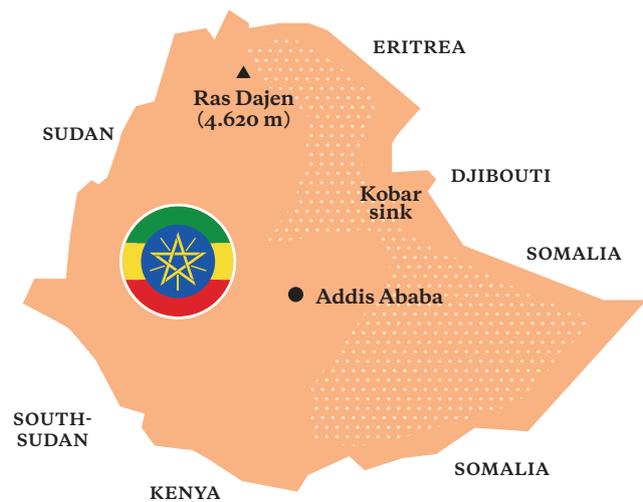
Climatically, Ethiopia is very diverse with deserts in the north and east, tropical savannas in the west and equatorial rainforests in the southwest, as well as central Afro-Alpine mountains. It ranges from 126 metres below sea level at the Kobar sink, to 4.620 metres at Ras Dajen.

Since 1960, average temperature has increased at a rate of 0.25°C per decade, with the highest increase during July through September, and an increase of 20 per cent in hot days. Rainfall has become more variable. In the densely populated south-central part of the country, rainfall has decreased by 20 per cent since 1960.

Ethiopia has a long history of extreme climate events. Droughts and floods are the main climate stressors, especially because of their threat to agriculture, which plays a vital role for people and economy.

Climate projections indicate a steep increase in temperatures: By 1.8°C by 2060, and by 3.8°C by 2100, along with a further 20 per cent decrease in rainfall for southern and central regions in a high emissions scenario.

Figure 18: Map of Ethiopia



Both trends would severely impact lives, livelihoods and the achievement of SDGs.

Ethiopia faces critical climate risks. This is due mostly to a lack of resources to deal with predictable changes. Its main challenge is the increased variability of climatic conditions, leading to increases in the two main hazards: droughts and floods. These are especially problematic because of their threat to agriculture.

Ethiopia's political response to the climate challenge is seen in its Climate Resilient Green Economy Strategy (CRGE, 2011) and its NDC (2016, currently under revision), which is rated "2°C compatible".⁷⁸

With almost 100,000 confirmed COVID-19 cases by the beginning of November 2020, Ethiopia was fourth-most impacted in Africa.⁷⁹ Economically, the pandemic has hit the country hard, be it through the lock-down, reduced exports or lower remittances from migrant workers.

Climate and pandemic risks, in combination with other natural and human risks, socio-economic vulnerability and the level of coping capacity are measured and categorised in the INFORM risk index of the European Commission's Disaster Risk Management

⁷⁷ <https://www.indexmundi.com/g/g.aspx?c=et&v=69>

⁷⁸ <https://climateactiontracker.org/countries/ethiopia/>

⁷⁹ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Knowledge Centre to show and compare country-specific risk profiles. The five indicators below show the results for Ethiopia. In combination, they express the disaster risk for Ethiopia, by considering climate, other natural and human and COVID-19 pandemic risks, as well as the country's vulnerability and coping capacity. According to this approach, Ethiopia currently faces a *very critical disaster risk*. A more detailed analysis is provided on the following pages.

Disaster risk indicator	Very critical (6.46)
1 Climate hazard exposure	Critical (5.7) ⁸⁰
2 Human and natural hazard exposure	Very critical (7.3) ⁸¹
3 COVID-19 risk	Critical (5.9) ⁸²
4 Vulnerability	Very critical (6.6) ⁸³
5 Lack of coping capacity	Very critical (6.8) ⁸⁴

Ethiopia's climate and disaster risk

Current climate⁸⁵

- 22.6°C mean temperature
- Rain: 815mm annual precipitation



Future climate⁸⁶

- Increase of 1.8°C by 2060 (compared to 2018)
- 20–40% of all days > 30°C



- Higher variability of rainfall
- More extreme rainfall events and flooding
- More droughts



Key climate impacts⁸⁷

Agriculture: High risk of crop loss because 99% of agriculture is rainfed and thus, drought-prone; agriculture accounts for 34% of GDP, 75% of export value and 85% of employment



Livestock: Largest cattle stock in Africa is very heat-, drought- and flood-prone; increased incidence of pests and diseases, reduced feed and water resources, increased mortality



Water: Reduced water availability leading to water stress for people, economy and ecosystems



Health: Changing ranges of vector-borne diseases (malaria or dengue in higher altitudes); heat waves bring higher mortality and lower economic productivity



Energy/infrastructure: Steep increase in electricity demand for water pumping and cooling; disruption of hydropower generation due to more frequent droughts; damage of roads, bridges and buildings due to more excessive rainfall events



In Ethiopia, drought (39 per cent) and flood (32 per cent) are the deadliest disaster risks ahead of conflict (16 per cent).⁸⁸ In 2015, a severe drought, leading to an 80 per cent decrease in food production and 1.7 million live-stock dead, left 10 million people in need of emergency food aid. Since then, either drought or flooding hits the country every year, with noteworthy increases in 2017 (drought)⁸⁹ and 2020 (flood).⁹⁰ This will continue to happen with high frequency and severity, according to climate projections.

Around 34 per cent of Ethiopia's GDP is derived from agriculture, although that number has dropped over the past decade (it was 46 per cent in 2009). Agriculture provides 85 per cent of employment. Most agriculture (90 per cent) is small-scale, rain-fed subsistence farming on plots of land that do not allow much insurance in case of crop failure. Thus, droughts very quickly lead to famine. Ethiopia is projected to lose 6 per cent of its agriculture production annually by 2050, if the current decline in productivity continues.

According to the European Union's INFORM disaster risk database,⁹¹ people in Ethiopia have the eleventh highest hazard exposure globally, mainly due to drought, flood and violent conflicts. Over the past few years, the hazard exposure indicator has worsened. *Climate hazard exposure* is considered critical, and the *combined natural and human hazard exposure* are seen as *very critical*.

Vulnerability, composed of socio-economic indicators (development and deprivation, inequality, aid dependency) and vulnerable groups (displaced people, other vulnerable groups), as well as the *coping capacity* (institutional and infrastructural capacity) are both rated *very critical* too. While the vulnerability (main factors: poverty and a high number of displaced people) has not changed much since 2013, the lack of coping capacity may have reduced slightly. Here, despite heavy infrastructure investment over the last decade, the weakness of physical infrastructure is still considered the biggest gap.⁹² Thus, the combination of a high hazard exposure, high socio-economic vulnerability and a very limited coping capacity leads to very critical risk exposure for Ethiopia, leading easily to humanitarian and economic disasters in case an extreme event strikes, as is happening more frequently.

Climate hazard exposure	Critical
Natural and human hazard exposure	Very critical
Vulnerability	Very critical
Lack of coping capacity	Very critical ⁹³

Ethiopia's first NDC (2017), which is currently under revision, reflect the actual challenges, particularly the high drought risk, very well. It includes as priorities (i) improving crop and livestock production practices; (ii) protecting and re-establishing forests for their economic and eco-systemic advantages; (iii) ensuring continuous water supply in urban areas through dams; (iv) developing food storage in traditional sectors; (v) expanding other renewables when drought leads to decreased hydropower; and, against floods, (vi) enhancing ecosystems through rehabilitation; and finally (vii) expanding dams.⁹⁴

With almost 100,000 confirmed COVID-19 cases by the beginning of November 2020, Ethiopia was fourth-most impacted in Africa.⁹⁵ Temporary lockdowns and interrupted trade have reduced exports, and remittances from migrant workers have decreased too. Thus, two backbones of the Ethiopian economy have been hampered and the economic fallout of the pandemic has hit the country hard. Growth is expected to slow, export sectors will be hit hardest, unemployment will rise and a backlash in the fight against poverty is almost unavoidable.⁹⁶ As a consequence, vulnerability will increase in a country which remains among the poorest in the world, with an average annual per capita income of USD790 only. In conclusion, the likely consequences of the pandemic are rated critical.

COVID-19 risk

Critical



By the end of August 2020, Ethiopia had not implemented specific measures for a green recovery program, combining the fight against the pandemic and the climate crisis to more sustainably build back, but announced it would do so in October 2020.

Loss and damage risk

Calculated in USD-PPP, Ethiopia lost USD 2.6 billion between 2010 and 2017, due to *extreme climate events*, leading to average annual losses of USD-PPP of USD 325 million, which is rated *critical*.⁹⁷ The 2015 drought in Afar, Somali and Oromo alone caused USD 500 million in losses. The trend of climate-induced losses has been rising steeply. In comparison, cumulative losses between

⁸⁰ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁸¹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁸² <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version>

⁸³ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁸⁴ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁸⁵ <https://climateknowledgeportal.worldbank.org/country/ethiopia/climate-data-historical>

⁸⁶ <https://climateknowledgeportal.worldbank.org/country/ethiopia/climate-data-projections>

⁸⁷ <https://climateknowledgeportal.worldbank.org/sites/default/files/2020-06/15463-WB-Ethiopia%20Country%20Profile-WEB.v2.pdf>

⁸⁸ <https://www.desinventar.net/DesInventar/profiletab.jsp>

⁸⁹ <https://www.washingtonpost.com/news/worldviews/wp/2017/05/01/ethiopia-is-facing-a-killer-drought-but-its-going-almost-unnoticed/>

⁹⁰ <https://reliefweb.int/report/ethiopia/ethiopia-floods-flash-update-6-august-2020>

⁹¹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁹² <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁹³ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

⁹⁴ <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ethiopia%20First/INDC-Ethiopia-100615.pdf>

⁹⁵ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

⁹⁶ https://media.africaportal.org/documents/The_economywide_impact_of_the_COVID-19_in_Ethiopia.pdf

⁹⁷ <https://www.germanwatch.org/de/kri>

Figure 19: Climate-induced losses in Ethiopia (2010–2017)

	2010	2011	2012	2013	2014	2015	2016	2017
Loss in USD-PPP	870,000	150,000	510,000	13,780,000	1,324,000	1,314,016,000	134,546,000	992,580,000

2014 and 2017 are 17 times higher than between 2010 and 2013, which is rated *very critical*.

According to the risk data platform of the UN Global Assessment Report on Disaster Risk Reduction, *multi-hazard average annual losses* in Ethiopia – that is, including losses from non-climate disasters – amount on average to USD1,000 to USD1,800 per USD1 million⁹⁸ (*slightly critical*), which is equivalent to between 2.1 per cent and 5 per cent of social expenditure (*slightly critical*).⁹⁹ In case a 100-year extreme disaster event hit Ethiopia, the financing gap to directly absorb the losses would be between USD 147 million and USD 244 million (*slightly critical*) and the return period of the financing gap is calculated at between 51 and 100 years (*moderately critical*).¹⁰⁰ To summarise, current disaster-risk related losses, with climate-induced losses as the by far biggest factor (approximately 80 per cent), can be categorised as follows:

Loss and damage risk indicator	Moderately critical (2.2)
1 Climate disaster induced loss and damage	Critical (USD-PPP 2,600M)
2 Climate-induced loss and damage trend	Very critical (1,700% increase)
3 Multi-hazard relative annual loss	Slightly critical (\$500–1,800 per \$1M)
4 Annual losses in % of social welfare	Slightly critical (2–5%)
5 Financing gap after a 100-year extreme event	Slightly critical (< \$240M)
6 Return period of the financing gap	Moderately critical (51–100 years)

The *moderate risk of loss and damage* for financial stability, socio-economic development, human security, and finally SDG achievement in Ethiopia very likely worsens if losses from slow onset events such as, for instance, decreases in crop yield due to less favourable climate conditions or livestock losses caused by climate change-induced pests and diseases, or productivity and human losses due to heat waves, are factored in as well. They are not included in the figures presented. This assumption is

also based on discussions the report’s authors conducted with national experts and practitioners which suggest that the calculations used are too conservative. Unfortunately, so far there is no agreed-upon methodology to measure, report and verify climate-induced losses caused by slow onset events.

To conclude, the outlook provided by the climate projections cited above gives every reason to be highly concerned. Climate change-induced loss and damage will very likely increase in the next ten to 20 years to unprecedented levels if no decisive action is taken. GHG emissions reductions to levels that would limit global warming to 1.5°C as well as massive adaptation, particularly with regard to the agriculture, livestock, water, health and energy sectors, and scaling up disaster risk management measures, including disaster risk financing, are critical. This requires significant additional investments and a higher level of fiscal capability than Ethiopia currently has.

Debt risk

Out of five debt indicators used in *erlassjahr.de*’s sovereign debt monitor, only one (external debt / GNI) is not critical. All other indicators relating to external debt, external debt servicing and total public debt to export income, GNI and state revenue, respectively, were critical or in very critical ranges as at the end of 2018 (right table).

All external debt is owed by the Ethiopian state. Individuals, banks and corporations have no liabilities to external creditors. Ethiopia’s rising debt levels throughout the last decade have been mostly due to infrastructure projects that were heavily financed through external sources. These often took the form of mega-projects, such as the Great Renaissance Dam. If all projects go well, rising absolute debt levels will not necessarily lead to debt crisis. However, any external shock, such as the one through the COVID-19-triggered economic crisis, could derail debt sustainability almost overnight.

A preliminary projection of 2020 debt indicators in the IMF’s preliminary debt sustainability analysis from

Debt risk indicator (data end–2018)	Ethiopia	Sustainability threshold
Sustainability threshold External debt / GNI	33.4%	40%
External debt / annual export earnings	396.5%	150%
Annual debt service / annual export earnings	20.8%	15%
Public debt / GNI	61.4%	50%
Public debt / public revenue	467.9%	200%
External debt (USD)	28.027 billion	–
Total external debt service (USD)	2.009 billion	–
Debt risk	Critical	

May 2020, which factors in the likely consequences of the COVID-19 triggered recession, shows remarkably low indicators for GDP-related indicators, but higher ones for those that relate to revenues and export earnings. This is due to the IMF's assumption that Ethiopia's economy will be one of the few in Africa that will not shrink even in 2020, but instead should show a reasonable growth of 1.9 per cent, down from pre-pandemic-projections of 6.2 per cent growth.¹⁰¹

Three-quarters of Ethiopia's external debt is owed to multilateral and bilateral official lenders, almost exclusively on concessional terms, that is, at low interest rates and with long grace and repayment periods. IDA and the African Development Bank stand out as the most important multilateral creditors. Three quarters of all bilateral official debts are owed to China, the biggest chunks of which are owed to the China Exim Bank which handles China's development cooperation. Most of the private creditors are based in China and the U.S.

Ethiopia's nominal external debt trebled between 2010 and 2018. Current debt servicing grew six-fold. The parallel growth of the economy has dampened but not

eliminated the consequent rise of the debt indicators.

Ethiopia was one the countries that benefitted most from its inclusion in the multilateral HIPC/MDRI debt relief initiative between 2001 and 2004 in absolute terms. In April 2020, Ethiopia was relieved of USD 12 million worth of debt servicing to the IMF, through the Fund's Catastrophe Containment and Relief Trust (CCRT). Additionally, Ethiopia also participated in the Debt Service Suspension Initiative (DSSI), through which the G20 postponed 2020's, and half of 2021's, debt servicing to most bilateral official creditors to 2023–2025. This year's savings for Ethiopia amount to USD 511.3 million. These are resources which can immediately be invested into the containment of the pandemic. However, they will substantially increase the 2024–2025 debt service, unless the DSSI is further extended or turned into real relief.

Multi-dimensional risk – conclusions and implications

Multi-dimensional risk Critical



Ethiopia's aggregated *multi-dimensional risk*, based on the disaster risk and the debt risk is rated as *critical*, and the loss and damage risk is rated moderately critical. These are grounds for concern. Health implications and the economic fallout of the COVID-19 pandemic, in combination with a high vulnerability and the lack of coping capacity are likely to lead to additional hardship for a huge population. The tight budget and indebtedness will limit urgently needed investments into resilience building. In view of pre-existing exposure to climate hazards, a sharply widening resilience gap is predicted. This would trigger a further steep increase of financial loss and damage, which already shot up exponentially by 1,700 per cent between 2014 and 2017, compared with 2010 through 2013. So far, loss and damage have not yet been a main driver of indebtedness. This may change soon though, if the current trend continues. In 2017, climate-induced

⁹⁸ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=0&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

⁹⁹ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=1&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

¹⁰⁰ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=1&mapcenter=10194865.083144,663407.53618524&mapzoom=3>

¹⁰¹ IMF: WEO Update July 2020

losses of almost USD 1 billion already corresponded to 50 per cent of the country's total external debt servicing.

A 2017 review of SDGs confirmed the Ethiopian government's serious commitment to attaining the SDGs. Nevertheless, the target year for the National Vision for Ethiopia, which would see the country achieving lower middle-income status may be severely hampered by the triple climate, COVID-19 and debt crisis. Now Ethiopia needs support to switch to a climate resilient agriculture, as a key factor for success, ending hunger, sustaining rural livelihoods and creating jobs.¹⁰²

It is encouraging that the Ethiopian government is taking massive action to enhance resilience and to speed up the decarbonisation process. In response to the pandemic, the annual public health budget was increased by almost 50 per cent. A green recovery program, including renewable energies and afforestation, aims at reviving growth and the job market.¹⁰³ At the same time, the country's NDC, which already targeted both climate adaptation and GHG mitigation, is under revision and could even emerge more ambitious. These investments into a sustainable future for Ethiopia deserve international support. Debt relief, the provision of concessional climate financing and new instruments to de-risk the high investments the country needs to reduce its resilience gap, are suitable approaches.

INTERVIEW

“The recurrent nature of disasters, the one more devastating than the one before, leaving no time to build resilience”



Ms. Sophie Gebreyes,
born in Addis Ababa, studied international law and development in Ethiopia and Canada. She served in various positions at the Canadian Lutheran World Relief and Lutheran World Federation (LWF) before taking the position as Country Representative of LWF in Ethiopia in 2013.

Over the last two years, Ethiopia has been hit extremely hard by floods, droughts and a desert locust infestation. The COVID-19 pandemic comes on top of all that. Could you give us a short overview?

Ethiopia is currently reeling from a quadruple crisis that started with conflict and climate induced displacements which exploded in 2017 and through 2019, earning Ethiopia the unenviable accolade of the country with the largest number of internally displaced people in 2018. This is coupled with the COVID-19 pandemic, with total infections bordering on 100,000 as of the end of October. The desert locust infection has severely affected the region, especially Ethiopia and Somalia. Ethiopia's revised Humanitarian Response Plan was issued in September 2020 as were appeals for a total of USD 1.44 billion for a total of 19.2 million people who need humanitarian assistance this year.

With regard to floods, predictions in the latest IPCC report that the region is seeing changing precipitation patterns, with increasing incidents of severe flooding and increasing numbers of people affected by floods, is becoming a reality. The number of people affected and displaced by floods in the Horn and East Africa Region has grown exponentially from about 1 million in 2016, to a total of over 6 million in 2020, an increase of 600 per cent in just four years. This year's floods have affected and displaced approximately 1.6 million people in Ethiopia alone.

Ethiopia has been under partial lockdown and social distancing rules are still in place. Not wearing a mask is punished with imprisonment. At the same time, people have had to be evacuated because of flooding and many internally displaced people are dependent on humanitarian support and in need of shelter and food aid. How can LWF deliver emergency aid under these constraints?

We firmly believe that, after doctors and nurses, the next frontline workers to combat the pandemic are humanitarian workers. LWF did not shut down its operations even in March and April, when much of the world went into lockdown. We found ways to ensure that the humanitarian imperative prevailed. Firstly, LWF understood that it was key to demystify the pandemic to staff and to the communities in which it works, with sustained messaging on the pandemic and the provision of means to adhere to the recommended public health and infection prevention and control measures.

Secondly, we came up with a series of measures to protect staff and the communities we seek to serve from exposure to the pandemic, while at the same time ensuring humanitarian imperatives and business continuity. Soon after the first case was identified in the country on March 13, 2020, LWF introduced a flexible way of working, including working from home by giving staff internet access, working physically from the office on rotation and by providing transport for staff who normally rely on public transport to get to work, to try and mitigate exposure to the virus in transit. Finally, we also provided personal protection equipment and hygiene materials and put non-essential staff and at-risk staff on mandatory leave. These measures are very much in line with the government's partial containment strategy, intended to minimise disruptions as much as possible.

At the project level, work continued uninterrupted and LWF frontline workers are implementing new COVID-19 response projects concurrently with LWF Ethiopia's regular programming, even if the latter has been delayed in order to prioritise the COVID-19 response. The activities that have been most affected by the pandemic are trainings, awareness-raising campaigns and distribution due to physical distancing requirements. Access to water in remote areas where LWF is working, a crucial aspect of public health, infection prevention and control measures, was also a challenge. Movement restrictions and the slowdown of economic activities have affected the supply chain for crucial materials, such as cement and other goods and services, further delaying activities. Currently, LWF Ethiopia is engaged in COVID-19, IDP and desert locust response projects simultaneously.

Millions of Ethiopians and refugees living in Ethiopia are suffering hardship. What has to happen to enhance their resilience, in regard to the pandemic but also to climate change?

Indeed, the major risk is the frequent and recurrent nature of disasters, each one more devastating than the one before, leaving no time to build resilience. Originally resilience is an ecological term which means nature bouncing back to its original state. However, the frequency of disasters over the last decades makes one wonder which original state nature in Ethiopia is supposed to bounce back to. If you look at the last five years, since 2016, Ethiopia has faced the largest drought in half a century with Super El Niño, then in 2017, La Niña, and

the negative Indian Ocean Dipole, which brought droughts to the cereal growing plateaus and the southern pastoral belt of the country. This was followed by the largest conflict induced displacement in 2018 and 2019, and then in 2020, Ethiopians have had to contend with severe flooding and the largest desert locust infestation in half a century, leaving utter devastation in its wake. With such a scenario, building resilience becomes a tall order and an elusive dream, especially for a low-income country, which, as this study shows, is hazard-prone, a situation only exacerbated by very critical vulnerability and critically low coping capacity.

Is debt relief the best way that the international community can support Ethiopia?

Debt relief is one of many ways of supporting Ethiopia and other debt-ridden countries. It is clear that Ethiopia, with a slowing economy due to the pandemic, social and political upheaval and the other calamities described above, will not be able to reduce its mounting debt burden. So debt relief would go a long way towards allowing Ethiopia to redirect those funds – which would have otherwise gone to debt servicing – to meet other crucial humanitarian and developmental goals that had been put on the back burner due to competing priorities. What would be good is for debt relief to be conditional upon transitioning to a greener economy, with heavy investment in renewables and adaptations to climate change. That would have three major impacts on the country in the medium to long term: Firstly, it would reduce the country's vulnerability to climate change by reducing the import of consumable goods such as gasoline and diesel and, secondly, it would reduce the current ballooning trade deficit. Then, thirdly, it would help in the transition to a green economy by investing in renewables and climate adaptation, which could also break the cycle of humanitarian catastrophes. Debt relief following a business-as-usual approach would not be a good way to support Ethiopia.

¹⁰² <https://sustainabledevelopment.un.org/memberstates/ethiopia>

¹⁰³ <https://middle-east-online.com/en/ethiopia-raises-health-budget-46-fight-coronavirus>

Sri Lanka

Overview

Sri Lanka is an island state in the Indian Ocean with a population of more than 21 million. The topography of the island is diverse, encompassing coastal plains and a mountainous area in the south-central part, where temperatures are much cooler than in the coastal regions.¹⁰⁴ Sri Lanka is home to a wide range of ecosystems and houses a rich and endemic biodiversity, which is among the highest per unit of land area in South Asia.¹⁰⁵ Economically, the country is highly dependent upon the agricultural and manufacturing sectors. The coastal areas in particular are central to the livelihoods of the population, through fishery and agriculture.

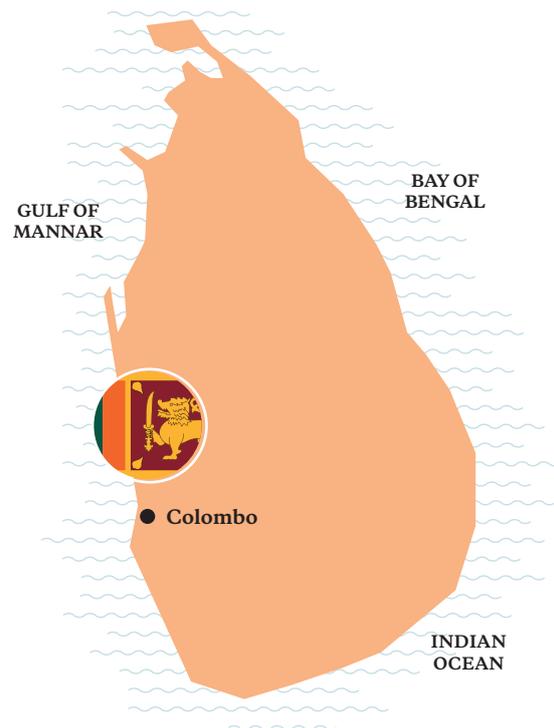
Sri Lanka's public debt amounted to 84.1 per cent of its GDP in 2018. Even though the economy has grown since the end of civil war in 2009 at an average of 5.3 per cent between 2010 and 2019, it has slowed in recent years. In 2019, growth is estimated at 2.3 per cent, an 18-year low for the country. While social indicators rank among the highest in South Asia and national poverty has declined from 15.3 per cent in 2006–2007 to 4.1 per cent in 2016, a relatively large share of the population subsists slightly above the poverty line.

Climatically, Sri Lanka's average annual temperature has increased by 0.2°C per decade thus far and is expected to rise by between 1.13°C and 2.04°C by 2060. This development will leave the country in increased danger of heat stress. Sri Lanka is particularly vulnerable to storm surges, coastal erosion and the impacts of extreme weather events, such as cyclones.¹⁰⁶ Furthermore, flooding accounted for around 62 per cent of average annual natural hazard occurrences between 1900 and 2018. The increased frequency of these natural hazards will cause severe damage to the country's infrastructure, its agriculture and, ultimately, the livelihoods of its people.

To address these developments, Sri Lanka has been actively engaged in developing policies to deal with climate change (for example, two National Communications and a National Adaptation Plan). However, the country's climate commitments and its implementation efforts are still limited in scope.

Sri Lanka had recorded 3,155 cases of COVID-19 by mid-September 2020. While it has had spikes in cases since April, the tight lockdown, contact tracing of

Figure 20: Map of Sri Lanka



positive cases and strict quarantine rules seem to have averted a higher number of cases thus far. However, Sri Lanka will see tough socio-economic impacts of the crisis in, for example, a predicted decrease in GDP per capita of 1.1 per cent for 2020.

In the following, Sri Lanka's climate risks are evaluated through the INFORM risk index of the European Commission's Disaster Risk Management Knowledge Centre. The index assesses the risk profile by considering the danger of the occurrence and exposure to hazards, the vulnerability of the country and its coping capacity. Lastly, the effects of COVID-19 will be evaluated. As a result of these indicators, Sri Lanka is currently facing a moderately critical disaster risk. A more detailed analysis is provided on the following pages.

¹⁰⁴ <https://www.geonode-gfdrrlab.org/documents/760/download>

¹⁰⁵ <https://www.un.org/esa/earthsummit/lanka-cp.htm>

¹⁰⁶ World Bank Knowledge Portal

Disaster risk indicator:	Critical (4.4)
1 Climate hazard exposure	Critical (4.4) ¹⁰⁷
2 Human and natural hazard exposure	Critical (4.1) ¹⁰⁸
3 COVID-19 risk	Critical (4.3) ¹⁰⁹
4 Vulnerability	Moderately critical (3.0) ¹¹⁰
5 Lack of coping capacity	Moderately critical (4.0) ¹¹¹

Tsunamis are by far the *deadliest disaster risk* in Sri Lanka, accounting for 83 per cent of deaths.¹¹² The earthquake and resulting tsunami in December 2004 alone cost the lives of around 34,500 people and has affected over 1 million people. The total damages are estimated at more than USD 1.3 billion.¹¹³ Overall, disasters in Sri Lanka are estimated to cause a financial burden of around USD 670 million each year, or around 0.4 per cent of GDP. Out of the total sum, flooding causes around USD 435 million worth of damage. Another USD 149 million annually is a consequence of losses due to cyclones and strong winds. The poorer population of Sri Lanka is disproportionately affected by the consequences of disasters. The World Bank states that 77 per cent of the population are smallholder farmers in highly vulnerable areas, particularly sensitive to floods and droughts.¹¹⁴ In the future, under a carbon-intensive scenario, Sri Lanka's living standards are predicted to decline by 7 per cent by the year 2050. Furthermore, the country's GDP per capita will be affected by changing weather patterns, potentially reducing income by 10 per cent by the year 2050.¹¹⁵

¹⁰⁷ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹⁰⁸ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹⁰⁹ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version>

¹¹⁰ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹¹¹ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹¹² <https://www.desinventar.net/DesInventar/profiletab.jsp>

¹¹³ <https://www.emdat.be/>

¹¹⁴ <https://www.preventionweb.net/news/view/70118>

¹¹⁵ <https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf?sequence=5&isAllowed=y>

¹¹⁶ <https://climateknowledgeportal.worldbank.org/country/>

¹¹⁷ Ibid

¹¹⁸ Ibid

Sri Lanka's climate and disaster risk

Current climate¹¹⁶

- 26.68°C mean temperature
- Rain: 1.694mm annual precipitation



Future climate¹¹⁷

- Increase of 1.41°C by 2060 (compared to 2018)
- Rain: Less predictable rainfall (overall change of 4%)
- more extreme rainfall events and flooding



Key climate impacts¹¹⁸

Agriculture: Agriculture makes up 18% of GDP, 31.8% of the population engages in agricultural activities and it is the main livelihood for the majority of the rural population; floods and coastal erosion together with reduced freshwater availability will endanger rain-fed and irrigated agriculture



Water: Highly divergent within regions, both water scarcity and high drought risk in large parts of the country, while also high risk of flooding in coastal areas; increasing freshwater stress due to expanding human settlements, droughts and saline water intrusion



Health: Extreme weather events directly impinging human health; water scarcity can lead to direct health problems (drinking, washing, cooking) and indirect effects (increase in water-borne diseases, such as diarrhoea)



Energy/infrastructure: Direct and indirect impact on hydropower as main energy source; droughts and changed rainfall patterns will influence hydropower plant performance; droughts might affect cooling water supplies at thermal plants; increased floods cause damage to infrastructure



Annual additional investments are expected to rise to around USD 1.6 billion by the year 2030, while annual average losses due to multi-hazards could increase to around USD 1.8 billion per year by 2030.¹¹⁹

Sri Lanka is ranked 98 in the global comparison of overall risks, according to the European Union's INFORM disaster risk database.¹²⁰ Even though the hazard exposure indicator was stable in recent years, it showed an increase for 2020. The *climate hazard exposure* is considered *critical*, as is the *combined natural and human hazard exposure*.

Sri Lanka's *vulnerability*, mainly driven by inequality and the role of vulnerable groups (displaced people, other vulnerable groups), leaves Sri Lanka with a rating of *moderately critical*. The country's *lack of coping capacity* (institutional and infrastructural capacity) is rated *moderately critical* as well.

Both Sri Lanka's *vulnerability* (main factors: development and deprivation, socioeconomic vulnerability) and its coping capacity have declined slightly since 2013.¹²¹ Overall, the exposure to risks of natural hazards, especially tsunamis, floods and epidemics, particularly for vulnerable groups, is reflected in the overall *moderately critical* risk assessment for Sri Lanka.

Climate hazard exposure	Critical
Natural and human hazard exposure	Critical
Vulnerability	Moderately critical
Lack of coping capacity	Moderately critical ¹²²

Sri Lanka's adaptation efforts mainly focus on the sectors of agriculture, health, water and ecosystems. The total needed for adaptation is USD 420 million (2016–2025).¹²³ In October 2015, Sri Lanka submitted its first NDC, which aims to reduce emissions compared to BAU (2010) by 30 per cent, by the year 2030. This reduction specifically targets the sectors of energy, transportation, industry, waste and forestry. Only 7 per cent are defined as unconditional targets (energy sector 4 per cent, and 3 per cent from other sectors), while 23 per cent are conditional (energy sector 16 per cent and 7 per cent from other

sectors) upon international support. Furthermore, the country aims to increase its share of renewable energy sources, mainly by focusing on the expansion of hydro-power and solar power. Sri Lanka also wants to increase its forest cover from 29 per cent to 32 per cent by 2030.

Sri Lanka had reported 3,155 confirmed cases of COVID-19 by mid- September 2020. Even though the long-term effects of this crisis are hard to predict, the World Bank warned that the country could be heading into a major recession, with its economy contracting by up to 3 per cent in 2020. Thus far, the crisis has caused a steep fall in the earnings from tourism (13 per cent of GDP in 2017) and remittances and outflow from foreign investment. If the crisis continues until the end of the year, average household incomes could fall by up to 27 per cent, which impacts middle-income earners in particular.¹²⁴

COVID-19 risk

Critical



Loss and damage risk

The International Disaster Database lists a total of more than USD 2.6 billion in damages caused by extreme weather events (almost USD 4 billion if the 2004 earthquake and tsunami is included) between 1999 and 2020.

Between 2010 and 2017, Sri Lanka suffered more than USD 5.3 billion in damages due to extreme climate events, calculated in USD-PPP.¹²⁵ We rate the average annual losses as *critical*. The climate-induced loss and damage trend has intensified. The amount of damages between 2009 and 2013 grew exponentially compared to 2014 to 2017, where losses amounted to more than three times the amount of the former period. The main causes of this are floods and storms. In May 2017, a flood in the districts of Ratnapura, Matara, Kalutara, Galle, Gamapha, Colombo, Sabaragamuwa and Hambantota affected more than 870,000 people and caused damages of around USD 389 million. In this case, USD 33 million of the losses were insured.

Figure 21: Climate-induced losses in Sri Lanka (2010–2017)

	2010	2011	2012	2013	2014	2015	2016	2017
Loss in USD-PPP	63,490,000	112,610,000	54,560,000	10,170,000	312,053,000	17,608,000	1,632,162,000	3,129,350,000

The amount of *annual multi-hazard average losses* (also including non-climate disasters) in Sri Lanka lies between USD 501 to USD 1,000 per USD 1 million¹²⁶, according to the risk data platform of the UN Global Assessment Report on Disaster Risk Reduction (*slightly critical*). These losses represent between 2 per cent per cent and 5 per cent of social expenditure, which can be seen as *slightly critical* when compared globally.¹²⁷

For Sri Lanka, 100-year extreme disaster events would cause a *financing gap* (to address the losses) that is smaller than USD 244 million. The *return period of the financing gap* would lie between 41 and 100 years.¹²⁸ These disaster-risk related losses can be categorised as follows:

Loss and damage risk indicator	Moderately critical (2.2)
7 Climate disaster induced loss and damage	Very critical (USD-PPP 5,300M)
8 Climate-induced loss and damage trend	Very critical (335% increase)
9 Multi-hazard relative annual loss	Slightly critical (>\$500–\$1,800 per 1M)
10 Annual losses in % of social welfare	Slightly critical (2–5%)
11 Financing gap for a 100-year extreme event	Slightly critical (< \$244M)
12 Return period of the financing gap	Moderately critical (51–100 years)

The *moderately critical* loss and damage risk implies significant challenges for financial stability, socio-economic development, human security and the achievement of SDGs in Sri Lanka.

Overall, climate predictions show that Sri Lanka will be strongly affected by the adverse consequences of climate change. In particular, the vulnerable population of the country will continue to be severely impacted. Decisive adaptation efforts are needed. This is why foreign cooperation partners should support Sri Lanka more strongly in building up institutional and governance capacities needed to tackle future challenges.

Debt risk

Debt risk indicator (data end–2018)	Sri Lanka	Sustainability threshold
Sustainability threshold External debt / GNI	60.8%	40%
External debt / annual export earnings	256.4%	150%
Annual debt service / annual export earnings	36%	15%
Public debt / GNI	84.1%	50%
Public debt / public revenue	624.3%	200%
External debt (USD)	52,626 billion	–
Total external debt service (USD)	7,068 billion	–
Debt risk	Very critical	

Three-quarters of Sri Lanka's external debt is owed by the official sector. Only a minor part of it has been contracted under concessional terms. The majority came at more expensive market conditions. Therefore, both flow-based indicators "debt service in relation to export earnings" and "public debt/public revenue" are clearly in the

¹¹⁹ https://www.unescap.org/sites/default/files/Asia-Pacific%20Disaster%20Report%202019%20-%20Summary%20for%20Policymakers_o.pdf

¹²⁰ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹²¹ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹²² <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹²³ <https://climateknowledgeportal.worldbank.org/country/sri-lanka/adaptation>

¹²⁴ https://www.unicef.org/srilanka/media/1501/file/UNICEF_Brief_Social-ProtectionResponseSL_Summary_2020Jul30.pdf; <https://www.financial-express.com/economy/sri-lankas-economy-hit-by-coronavirus-decline-in-earnings-from-tourism-re-mittances/1978651/>

¹²⁵ <https://www.germanwatch.org/de/kri>

¹²⁶ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=o&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

¹²⁷ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=1&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

¹²⁸ <https://risk.preventionweb.net/capraviewer/main.jsp?tab=1&mapcenter=10194865.083144,663407.53618524&mapzoom=3>

critical range. Trade financing from traditional creditors, infrastructure investment from China and other creditors, and the successful placement of public bonds in international capital markets, are the most dynamic parts of Sri Lanka's overall external debt.

When Sri Lanka faced repayment problems for a large infrastructure project to China, the port of Hambantota was handed over to a Chinese consortium, which triggered worldwide fears of Chinese debt trap diplomacy. However, this case remains unique in the world today.

The only debt relief episode in Sri Lanka's history so far has been a temporary moratorium that the Paris Club provided in 2005 in order to support the country in its handling of the 2004 tsunami.¹²⁹ As a middle-income country, Sri Lanka is not eligible for either the IMF's debt relief under the Catastrophe Containment and Relief Trust (CCRT) or the G20 Debt Service Suspension Initiative (DSSI), both launched in April 2020.

Sri Lanka finds itself in a "middle income country trap". It is too wealthy for extended concessional financing and, if problems arise from non-concessional borrowing, it is also cut off from concessional restructuring options. This becomes ever more obvious with the ongoing COVID-19-triggered recession. Through the breakdown of international tourism as well as the slump in some export commodity demand, Sri Lanka is likely to face a serious risk of default in 2020 and 2021.

Multi-dimensional risk – conclusions and implications

Multi-dimensional risk Moderately critical



Sri Lanka's aggregated *multi-dimensional risk* is rated *moderately critical*, based on the disaster risk. Loss and damage risk is rated at moderately critical, debt risk is rated critical. Steeply rising climate-induced losses, the COVID-19 recession and the critical indebtedness, without a clear perspective for debt relief, has alarm bells ringing for Sri Lanka's future.

Sri Lanka is a relatively large island state and as such, does not belong to the SIDS but it does share certain characteristics with them: For instance, high susceptibility to physical climate and other natural risks as well as the relevance of tourism, which was impacted by the pandemic.

The high total external debt (61 per cent of GDP, 2018) goes along with high annual external debt servicing (USD 7 billion in 2018), clearly indicating high capital costs because of very limited access to concessional loans. In years with high damages caused by extreme climate events, such as in 2017 with USD 5.3 billion, the country faces an extremely difficult financial burden, which limits its abilities to make necessary investments.

A similar effect is caused by the economic fallout of COVID-19. Due to severe fiscal constraints, no significant stimulus programs could be financed by the government and negotiations about concessional loans have yet to succeed. Accordingly, the economic outlook is not very promising, nor are short term prospects for progress on SDGs and the "transformation towards a sustainable and resilient society".¹³⁰

In the longer term, the country's high susceptibility to climate change is the biggest problem. In terms of climate action, the country is behind and the rising loss and damage, to a certain extent, reflects the widening resilience gap. Investments in resilience are needed but limited access to climate finance as well as rising capital costs are barriers. De-risking investments, in combination with debt relief and maybe also debt for climate swaps, are required to lower these barriers. Without progress on that front, the triple climate change, COVID-19 and debt crisis will have a stronger impact here, with severe consequences for vulnerable populations. This brings with it a growing risk of social tensions significantly increasing again.

¹²⁹ <https://clubdeparis.org/en/traitements/sri-lanka-10-05-2005/en>

¹³⁰ <https://sustainabledevelopment.un.org/memberstates/srilanka>

Lao People's Democratic Republic

Overview

Lao PDR is a small and landlocked country in South East Asia, with a population of around 7.2 million. Around 35.7 per cent of Lao PDR's inhabitants live in urban areas and 23.2 per cent of the population lived below the poverty line in 2012.¹³¹

Politically, the government of Lao PDR is one of the few remaining one-party Communist states, which began decentralising control and fostering private enterprise in 1986. Lao PDR is divided into 17 provinces and one municipality. Its economy, mainly based on agriculture (15 per cent of GDP), tourism (14 per cent of GDP) and industries (31 per cent of GDP), has grown at more than 6 per cent on average between 1988 and 2008. However, over the past five years, economic growth has slowed from 6.3 per cent in 2018, to 4.8 per cent in 2019, primarily due to natural catastrophes affecting the agricultural sector. The COVID-19 outbreak is expected to further exacerbate this trend, leaving the country with limited fiscal and foreign currency buffers and even more vulnerable to economic downturn.

Lao PDR has two major seasons: A dry season, which goes from mid-October to mid-April, and a rainy season in the remaining months, which is shaped by the south-west monsoon. The country consists of three climatic zones: The northern mountains, with elevations above 1,000 meters and an average temperature under 25°C, the central region, with higher temperatures and rainfall per year, and the tropical lowland plains and floodplains in the south, which house most of the population. The overall annual average rainfall is 1,300 to 3,000 millimetres and temperatures range between 15°C to well above 30°C, both with considerable regional and seasonal variation.¹³²

Since 1951, temperatures have increased on average between 0.1 and 0.3°C per decade, while rainfall has decreased during the same period. In the future, it is expected that this trend will continue, with temperatures rising by 1.4°C to 4.3°C by the end of the century and the number of hot days (above 35°C) increasing by two to three weeks. Cold days are predicted to decrease over the same period. Similarly, annual precipitation rates, especially during the wet season, are expected to rise by 74.63 millimetres by 2040, which entails an increasing risk of floods and drought. Furthermore, Lao PDR will also be highly

Figure 22: Map of Lao PDR



vulnerable to storms and cyclones in the future. Because around 620,000 households depend on agriculture for their livelihoods, there is a serious risk for widespread food insecurity with rising extreme weather events, with over a third of the population already experiencing rice shortfalls over two to six months annually, in recent years.

Even though Lao PDR has developed several climate-related coping strategies, the country's policy framework is still limited. Its efforts to combat climate change, illustrated by its NDC, while showing ambition in some important areas such as re-forestation, are still very limited in scope and solidity.

As of September 2020, Lao PDR had only registered 23 officially confirmed COVID-19 cases.¹³³ Even though case numbers are low, the country lacks the coping capacity to deal with the adverse effects of the crisis. So far, there is no official testing or contact tracing policy and no economic income support measures for the population.

¹³¹ <https://databank.worldbank.org/reports.aspx?source=poverty-and-equity-database>

¹³² outlook.[http://www.asiapacificadapt.net/sites/default/files/resource/attach/Laos Scoping%20assessment_AKPweb.pdf](http://www.asiapacificadapt.net/sites/default/files/resource/attach/Laos%20Scoping%20assessment_AKPweb.pdf)

¹³³ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version/moduleId/1807/controller/Default/action/CountryDetails?countryCode=LA>

The INFORM risk index of the European Commission's Disaster Risk Management Knowledge Centre offers a specific assessment of Lao PDR's climate and pandemic risks, which includes consideration of natural and human risks, socio-economic vulnerability, the level of the country's coping capacity and an assessment of the effects of COVID-19. The supplemental sixth indicator of erlassjahr.de (based on World Bank and IMF data) allows for an estimation of indebtedness risk analysis. Each indicator is presented separately in the following. In summary, Lao PDR is currently facing a *moderately critical risk*.

Disaster risk indicator	Critical (4.62)
6 Climate hazard exposure	Critical (4.9) ¹³⁴
7 Human and natural hazard exposure	Moderately critical (3.8) ¹³⁵
8 COVID-19 risk	Critical (4.6) ¹³⁶
9 Vulnerability	Moderately critical (4) ¹³⁷
10 Lack of coping capacity	Critical (5.8) ¹³⁸

Lao PDR's climate and disaster risk

Current climate¹³⁹

- 23.48°C mean temperature
- 1,300 to 3,000mm annual precipitation



Future climate¹⁴⁰

- Increase of 1.76°C by 2060 (compared to 2018)
- 26 additional hot days >35°C; more droughts
- Higher rainfall (increase of 10–30% in east and south); more extreme rainfall events and flooding



Key climate impacts¹⁴¹

Agriculture: Agriculture makes up 47% of GDP and accounts for more than 80% of employment; floods and climate change endanger rain-fed rice production, which accounts for 85% of crop production; key economic sectors, such as



mining, hydropower, farming, fisheries and forestry depend on natural resources, appropriate temperature and rainfall

Water: Water scarcity in dry seasons will affect rural populations in particular



Health: Increase of epidemic events triggered by changing climate conditions



Energy/infrastructure: Major natural resource utilisation is hydropower, which is highly vulnerable to the negative effects of climate change; floods cause damage to infrastructure



The deadliest *disaster risk* in Lao PDR is flooding, which causes 28 per cent of all disaster-related deaths and accounts for around 56 per cent per cent of annual natural hazard occurrences.¹⁴² For example, in 2019, following the Tropical Storm Podul, floods occurred in six provinces in Lao PDR, affecting 765,000 people, leaving 19 dead and impacting around 123,000 hectares of farmland. Total damages were estimated to cost USD 164 million.¹⁴³ Increasing precipitation will further impact the potential for flooding. The plain areas along the Mekong River and the central and southern parts of Lao PDR are especially vulnerable. This is particularly dangerous, since this region is home to the majority of agricultural fields and rice producers. Between 1980 and 2018, 26 major floods occurred, making up around 56 per cent of the average annual natural hazard occurrence and affecting around 3.9 million people overall.¹⁴⁴

Lao PDR is ranked 69 globally for overall risks, according to the European Union's INFORM disaster risk database.¹⁴⁵ The hazard exposure indicator remained somewhat stable over past years, with a sharper increase for 2020. The *climate hazard exposure* is considered *critical*, and the *combined natural and human hazard exposure* is *moderately critical*.

Vulnerability, consisting of socio-economic indicators (development and deprivation, inequality, aid

dependency) and a consideration of vulnerable groups (displaced people, other vulnerable groups) of Lao PDR is categorised as moderately critical, while the *lack of coping capacity* (institutional and infrastructural capacity) of the country is rated critical.

The country's vulnerability has slightly declined since 2013 but a lack of coping capacity has not shown any meaningful change. The lack of institutional and governance capacities of the country are important drivers of vulnerability.¹⁴⁶

Climate hazard exposure	Critical
Natural and human hazard exposure	Moderately critical
Vulnerability	Moderately critical
Lack of coping capacity	Critical ¹⁴⁷

Lao PDR's first NDC (2016), which was prepared through a multi-stakeholder process and a multi-sector commission, does not define a concrete GHG mitigation target. Instead, it identifies areas of action in energy, transportation and forestry sectors. It aims to (i) increase forest coverage to 70 per cent of land area (16.58 million hectares) by 2020; (ii) increase the share of renewable energy to 30 per cent of energy consumption by 2025; (iii) install 25,500 megawatts of hydropower plants (5,500 megawatts by 2020 and 20,000 megawatts after 2020); and (iv) include 10 per cent biofuels for transportation fuel by 2025.¹⁴⁸ In terms of adaptation, additional conditional actions for the agriculture, health, forestry, urban development and water management sectors were set.¹⁴⁹

With only 23 confirmed COVID-19 cases at the beginning of September 2020, Lao PDR seems to have avoided the health crisis among its population so far.

However, given the absence of a testing and contact tracing policy, results should be considered with care. The global economic downturn is expected to cause the country's growth rate to fall somewhere between 1 per cent and minus 1.8 per cent. In either case, this will be the slowest growth rate since 1990. At the same time, consumer prices are projected to rise by an average of 6 per cent. Furthermore, COVID-19 will exacerbate Lao PDR's existing vulnerabilities, such as weak macroeconomic management, with its resulting limited fiscal and foreign currency buffers. The reduction in revenue collection is expected to increase the fiscal deficit to between 7.5 per cent and 8.8 per cent of GDP, while public debt could rise to between 65 per cent and 68 per cent of GDP in 2020. The population of Lao PDR is directly impacted, particularly in labour-intensive sectors and those linked to global and regional value chains, face job losses and reduction in remittances.¹⁵⁰

COVID-19 risk

Critical



Thus, Lao PDR's exposure to climate and other natural and human hazards, particularly with regard to flooding and epidemics, including the COVID-19 pandemic, combined with the country's vulnerability and lack of coping capacity, lead to an overall *moderately critical disaster risk*.

¹³⁴ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹³⁵ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹³⁶ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version>

¹³⁷ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹³⁸ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹³⁹ <https://climateknowledgeportal.worldbank.org/country/ethiopia/climate-data-historical>

¹⁴⁰ <https://climateknowledgeportal.worldbank.org/country/ethiopia/climate-data-projections>

¹⁴¹ https://climateknowledgeportal.worldbank.org/sites/default/files/2020-06/15463-WB_Ethiopia%20Country%20Profile-WEB_v2.pdf

¹⁴² <https://www.desinventar.net/DesInventar/profiletab.jsp>

¹⁴³ https://reliefweb.int/sites/reliefweb.int/files/resources/AHA-Situation_Update-no6-LaoPDR_TS-PODUL-TD-KAJIKI.pdf

¹⁴⁴ <https://www.desinventar.net/DesInventar/profiletab.jsp>

¹⁴⁵ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹⁴⁶ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹⁴⁷ <https://drmhc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

¹⁴⁸ <http://ndcpartnership.org/countries-map/country?iso=LAO>

¹⁴⁹ <http://cait.wri.org/indc/#/compare?countries=%5B%22Laos%22%2Cnull%2Cnull%5D> and <http://ndcpartnership.org/countries-map/country?iso=LAO> http://spappssectext.worldbank.org/sites/indc/PDF_Library/LA.pdf

¹⁵⁰ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda759474ofd40299423467b48e9ecf6>; <http://pubdocs.worldbank.org/en/795311589971908248/Lao-LEM-Main-Findings-Final-20-May-2020.pdf>

Figure 23: Climate-induced losses in Lao PDR (2010–2017)

	2010	2011	2012	2013	2014	2015	2016	2017
Loss in USD-PPP	77,270,000	84,270,000	–	263,150,000	59,000	32,194,000	–	20,550,000

Loss and damage risk

A broad analysis of climate-related losses and damages by the UN's DesInventar identifies 3,882 disaster events in Lao PDR between 1992 and 2012 and estimates the overall economic losses to be worth more than USD 877 million.¹⁵¹ Calculated in USD-PPP, Lao PDR lost more than USD 550 million between 2009 and 2017, due to extreme climate events.¹⁵² A high percentage of these losses are related to storms and floods. For example, in August of 2018, the country dealt with Typhoon Bebinca, which brought floods to the districts Attapeu, Khammouane, Savannakhet, Champasak and Oudomxay and alone caused USD 225 million worth of damage. On an annual base, Lao PDR lost USD-PPP 69 million between 2010 and 2017, due to *extreme climate events*, which equals a rating of moderately critical.¹⁵³ The trend of *climate-induced losses* in the reference period has been decreasing, with 88 per cent lower losses between 2014 and 2017 compared to 2010 to 2013, which was rated uncritical.

Multi-hazard average annual losses (including disasters unrelated to climate change) amount to a critical average of USD 5,000 to USD 11,000 per USD 1 million¹⁵⁴ in Lao PDR, according to the risk data platform of the UN Global Assessment Report on Disaster Risk Reduction. This corresponds to 30.1 per cent to 45 per cent of social expenditure and a rating of *very critical*.¹⁵⁵

The financing gap to address the losses of a 100-year extreme disaster are estimated at USD 420 million to USD 3,300 million (*critical*), with a *very critical return period* of the financing gap of 25 years or less.¹⁵⁶ A categorisation of these disaster-risk related losses according to their scale and implications is summarised in the following box.

Loss and damage risk indicator	Critical (2.7)
13 Climate disaster induced loss and damage	Moderately Critical (USD-PPP 550M)
14 Climate-induced loss and damage trend	Uncritical (88% decrease)
15 Multi-hazard relative annual loss	Critical (>\$5,000–11,000 per 1M)
16 Annual losses in % of social welfare	Very Critical (<30%)
17 Financing gap for a 100-year extreme event	Critical (\$420–3,300M)
12 Return period of the	Very Critical

The *critical* loss and damage risk threatens financial stability, socio-economic development, human security and finally the achievement of SDGs in Lao PDR.

In conclusion, the data and projections on climate trends affecting Lao PDR are highly worrying. The country will most likely be confronted with rising levels of climate change-related loss and damage due to extreme weather events, increasing in both frequency and intensity. Furthermore, the impact of slow onset events, such as rising temperatures, will enhance this trend. Lao PDR must strongly intensify efforts to mitigate climate change impacts, particularly with regard to its effect on the agricultural sector and the health and safety of the population. In this regard, foreign investments might not be enough to compensate for insufficient fiscal buffers.

¹⁵¹ <https://www.desinventar.net/DesInventar/profiletab.jsp> and <https://www.nectec.or.th/sectionFileDownload/4946>

¹⁵² <https://www.germanwatch.org/de/kri>

¹⁵³ <https://www.germanwatch.org/de/kri>

¹⁵⁴ <https://risk.preventionweb.net/capra-viewer/main.jsp?tab=0&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

¹⁵⁵ <https://risk.preventionweb.net/capra-viewer/main.jsp?tab=1&mapcenter=3287403.7120312,1284687.7020007&mapzoom=4>

¹⁵⁶ <https://risk.preventionweb.net/capra-viewer/main.jsp?tab=1&mapcenter=10194865.083144,663407.53618524&mapzoom=3>

Debt risk

The IMF considers Lao PDR to be at high risk of external debt distress. Erlassjahr.de's broader analysis of public as well as external debt sustainability concludes that Lao PDR's debt is *critical*.

Debt risk indicator (data end–2018)	Lao PDR	Sustainability threshold
Sustainability threshold External debt / GNI	90.2%	40%
External debt / annual export earnings	245.4%	150%
Annual debt service / annual export earnings	14.6%	15%
Public debt / GNI	63%	50%
Public debt / public revenue	358.8%	200%
External debt (USD)	15,588 billion	–
Total external debt service (USD)	926.1 million	–
Debt risk	Critical	

Some 60 per cent of Lao PDR's debt is owed by the public sector. The rest is owed by private entities such as banks and corporations. The state's creditors can be found in all categories: multilateral, bilateral, official and private. The most important segment is debt owed to other governments. Among these non-concessional loans, those from China are by far the most important. Chinese claims amount to some USD 4.2 billion, which equals more than a quarter of Lao's total external debt.

The most important private creditors are Austrian. Like other financiers they have invested heavily in infrastructure, often in the form of Public-Private Partnerships, which can cause substantial liabilities to the public sector, if projects suffer from any distortions.

Except for an exceptional arrangement with Russia which cancelled some 70 per cent of old Soviet claims

from the times of the South East Asian war, Lao PDR has never restructured any external debt.

In 2017, the IMF raised Lao PDR's risk rating from moderate to high, which indicates that even under the IMF's assumed baseline scenario the country will run into payment difficulties in the absence of a major correction of economic policies or a debt conversion.

In a first very preliminary assessment, the IMF expected Lao PDR's economy to be one of the few worldwide which will continue to grow in 2020. However, the growth rate will be a thin 0.7 per cent, instead of the originally forecast 7 per cent, on which most macroeconomic calculations, including those for the PPPs were based.

In order to deal with the pandemic's fall-out, Lao PDR was among 73 countries worldwide that were offered, in April 2020, a temporary suspension of debt servicing payments to G20 and Paris Club members. The suspension would have made USD 270 million available for health investments or as economic stimulus. However, the government rejected the offer, out of fear to get a lower credit rating.¹⁵⁷

Multi-dimensional risk – conclusions and implications

Multi-dimensional risk Critical



Lao PDR's aggregated multi-dimensional risk is rated *critical*, based on the disaster risk, the loss and damage risk and the debt risk also all being rated critical. Looking at the detailed scoring reveals that Lao PDR, together with Papua New Guinea, has the highest aggregated risk of all countries covered by this study.

Key risk drivers are the lack of coping capacity, the alarming fact that annual losses caused by disasters are equivalent to 30 to 45 per cent per cent of total social welfare spending, and the high frequency of returning financing gaps in the state budget, caused by disasters. They occur every 25 years or even more. The debt carrying capacity, by the end of 2018, was also almost exhausted.

¹⁵⁷ <https://www.worldbank.org/en/topic/debt/brief/COVID-19-debt-service-suspension-initiative>

Since 2018, heavy floods have repeatedly hit Lao PDR, and then COVID-19 came on top of them. While the country has only a few confirmed cases, the socio-economic consequences are severe, as the UNDP reports:¹⁵⁸

“Thousands of people have been pushed deeper, or back into, poverty. Large portions of the population, especially in rural areas, are facing food insecurity. 1.7 million schoolchildren have had their learning set back. Fragile businesses, supply chains and remittance inflows are collapsing, particularly in key sectors of the Lao economy that have previously accommodated large percentages of the labour force. Huge numbers have lost their jobs and their livelihoods, not least migrant workers inside and outside of the country. Furthermore, this unprecedented crisis compounds previous shocks Lao PDR has experienced in recent years, such as severe flooding, drought, animal diseases and pest outbreaks. The situation has revealed and exacerbated pre-existing inequalities and past development failures, with vulnerable groups disproportionately affected.”

As a small LDC with many pre-existing vulnerabilities, high debt, and strong economic dependence on foreign trade and tourism, the pandemic has severely impacted the country’s economic lifelines and disproportionately affected women and poor and vulnerable groups, the World Bank wrote.¹⁵⁹ As a necessary policy response to contain the crisis, the World Bank calls for the provision of immediate economic relief while supporting recovery and fostering resilience in the medium and long term. At the same time, the World Bank recognises the country’s limited fiscal capacity to do this, something that will ultimately limit SDG achievements. In the short- and mid-term, it is expected that at least 250,000 people will be pushed back in poverty and that food security for more than 10 per cent of the population will be severely threatened.¹⁶⁰ Thus, without debt relief, Lao PDR will be unable to recover soon or become more resilient.

¹⁵⁸ <https://reliefweb.int/report/lao-peoples-democratic-republic/un-lao-pdr-socio-economic-response-framework-covid-19>

¹⁵⁹ <https://www.worldbank.org/en/country/lao/publication/covid-19-to-impact-lao-pdr-growth-debt-in-2020-new-world-bank-report>

¹⁶⁰ Ibid

INTERVIEW

“Our resilience, the COVID-19 recovery and debt sustainability are dependent on investors’ socioecological responsibility and adequate taxation.”



Manivone Vorachak studied development in France and Switzerland. Since 2005, she has served as the director of the Cooperation Committee with Laos (CCL), a French NGO and partner of Bread for the World, based in Lao PDR, specialising in sustainable agriculture, forest governance, climate resilience building, health and nutrition.

What has changed in people’s lives due to the COVID-19 crisis?

The COVID-19 crisis has caused socio-economic impacts and is affecting many sectors, such as, for instance, farmers’ livelihoods, tourism or restaurants. Many factories and other companies have closed and employees were laid off. Stores are losing money because people have no income. Even export companies are closing their businesses. As a result of the economic recession caused by the COVID-19 pandemic, the crime rate in the capital Vientiane is high, drug abuse is increasing and so is theft.

This year again, Lao PDR has been affected by disastrous flash floods caused by torrential rainfall. How do people cope with these extreme events?

Heavy rainfall has caused many flash floods – in particular, in those regions that suffer from forest degradation. There, water storage capacity is significantly reduced. The main drivers of forest degradation are logging, agricultural expansion, hydropower and mining. Local populations in remote areas are suffering most. They have little information how to deal with these threats, or how to cope with climate change impacts.

What can be done to enhance resilience in disasters, be it a pandemic or climate-induced disaster? And what about the debt situation?

To become more climate-resilient, local people need access to information and capacity development. That includes awareness raising on why and how to protect the environment, whether that is through reforestation, natural resource management, the reduction of pesticide use, carbon emissions reduction or the improvement of climate services such as weather forecasts.

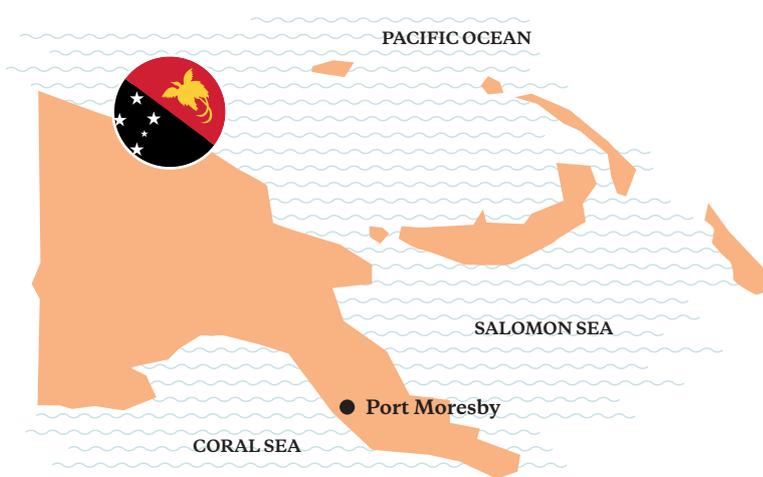
To contain the pandemic, more information should be provided by the public health system – for example, regarding hygiene measures, social distancing rules and medical treatment. Enhanced coordination with other societal actors is important and the socio-economic impact needs to be addressed.

The government must ensure that all investors, particularly in the mining, hydropower and commercial agriculture sector, take their social, climate and environmental responsibilities seriously and that they pay their taxes. Only then will we have a chance to manage debt, make necessary investments in climate resilience, and recover from the COVID-19 pandemic. At that stage debt relief comes into play too.

Papua New Guinea

Overview

Figure 24: Map of Papua New Guinea



Papua New Guinea (PNG) is an island nation in Oceania. It comprises the eastern half of New Guinea, which it shares with West Papua (Indonesia) along with several hundred islands in the Solomon and Bismarck seas, including New Britain and Bougainville. Starting in the late 19th century, its territory was colonised by the British and the Germans and then later administered by Australia. PNG became a sovereign nation in 1975. Bougainville, its second-largest island, is in the process of becoming independent too.

PNG's population of almost 9 million makes it by far the largest country in Oceania, apart from Australia and New Zealand. After Burundi, it has the world's second-lowest urbanisation: 87 per cent per cent of its population is rural and has little or no access to markets. PNG has the lowest life expectancy of the entire Pacific region and 50 per cent of its population lives below the poverty line, a number that has been increasing. Like Ethiopia, but unlike the other nations considered here, PNG's HDI is in the lowest category.¹⁶¹

¹⁶¹ <http://hdr.undp.org/en/content/2019-human-development-index-ranking>

PNG's economy has had a consistently, relatively high, annual growth rate, most recently 5 per cent.¹⁶² Economic growth in PNG has been driven primarily by mining, although the vast majority of employment occurs in the agricultural sector. Its external debt had been low for a long time but has been growing over the past decade. Since 2016, external debt has been hovering around 33 per cent of GDP, which compares favourably to PNG's peers.¹⁶³ However, the private sector, and particularly the gas sector, is heavily indebted and external debt servicing has become very high in recent years. PNG relies heavily on extractive sectors for its economic development, which makes it very vulnerable to external shocks. If it can strengthen its infrastructure and institutions, it has high potential for long-term economic expansion, especially through further integration into Asian markets.¹⁶⁴ Falling commodity prices pose a medium term threat. In the long term, severe underdevelopment makes the country unfit to deal with climate change and the risks it poses to PNG's economic prospects.

PNG's climate is tropical and is characterised by abundant rain, especially in the highland regions, which can experience up to 10,000 millimetres of rain annually and are amongst the most humid locations on earth. Its lush forests and varied terrain – ranging from extensive swamps to the highest mountain range in the Pacific – harbour 7 per cent of the world's global biodiversity as well as a great cultural diversity, including some 800 distinct languages spoken by numerous tribes.

Mean temperatures in PNG have increased by 1°C since 1970 and are expected to increase by at least 2°C by 2050. The worst effect of climate change, however, is projected to be an increased variability of rainfall patterns, leading to drought in some areas and flooding in others, both of which impact agriculture, which then has a direct impact on the entire population. Sea level rise is a problem in some of PNG's low-lying islands, such as Kiriwina and Tauu, and salt-water intrusion remains a problem across many coastal regions.¹⁶⁵

PNG's first NDC (2016) identified these and other threats as part of its climate change response priorities. Nevertheless, PNG has very limited capacities to monitor environmental risks, which is a sort of risk multiplier in itself, as risks cannot be recognised or prepared for. Its most serious climate change-related risks are landslides, flooding, sea-level rise, droughts and extreme heat.

With little more than 500 cases by the beginning of September 2020,¹⁶⁶ PNG has mostly been spared from

the damage caused by the COVID-19 pandemic. However, shattered markets worldwide have put critical pressure on its chief areas of income.¹⁶⁷

Based on the INFORM database, and using the approach described above, PNG's combined climate, other natural and human and COVID-19 disaster risk is *critical*, with a lack of coping capacity (*very critical*) the biggest risk factor.

Disaster risk indicator	Critical (5.32)
11 Climate hazard exposure	Moderately critical (3.4) ¹⁶⁸
12 Human and natural hazard exposure	Critical (5.1) ¹⁶⁹
13 COVID-19 risk	Critical (5.7) ¹⁷⁰
14 Vulnerability	Critical (5.1) ¹⁷¹
15 Lack of coping capacity	Very critical (7.3) ¹⁷²

PNG's climate and disaster risk

Current climate¹⁷³

- 25°C mean temperature
- 3056mm annual precipitation



Future climate¹⁷⁴

- Increase of 1.4°C by 2060 (compared to 2018)
- Higher variability of rainfall; more droughts, as well as more extreme rainfall events leading to flooding and landslides



Key climate impacts

Landslides, floods, droughts

Agriculture: Significant risk of disruption through both too much and too little rain because vast majority of agriculture is rain-fed; agriculture accounts for approximately 25% of GDP, mainly cash crops of coffee, oil, cocoa; employs 58% of the population



Water: Reduced water availability leads to water stress for people, economy and ecosystems



Health: Lack of capacity to deal with outbreaks of vector-borne diseases (malaria, dengue in higher altitudes) exacerbates the stresses of climatic effects



Energy/infrastructure: Already highly limited road infrastructure likely to deteriorate further



The greatest climate change-related risks facing PNG are landslides, flooding and drought as well as, to a lesser extent, sea-level rise and extreme heat. These are especially critical with respect to impact on agriculture. Although only a fraction (3 per cent) of PNG's land area is devoted to agriculture, it contributes some 25 per cent to the country's GDP and employs the majority of Papua New Guineans (58 per cent of all formal employment in 2019, down from 73 per cent in 2000), whilst 87 per cent of the total population overall depends directly on subsistence farming. Thus, any climate risks that affect agriculture immediately affect most people in PNG.

PNG is the country with the greatest risk of landslides in the world. These are caused by earthquakes and heavy rain.¹⁶⁵ Landslides are an immediate danger to the population when they happen, as well as presenting a longer term danger by degrading the soil when they occur, jeopardising food supply. Landslides occur predominantly in the highlands and eastern half of New Britain, the regions with the highest concentration of people and arable land (Eastern Highlands).

Flooding affects 30 per cent of PNG's population. Eighteen per cent of PNG's landmass is permanently

flooded or inundated as part of the wetlands. The regions on the northern coast, downriver from the Sepik and Ramu rivers, are exposed to the worst risk of inundation. Flooding regularly affects tens of thousands of people. In 2012, for example, 200,000 people were affected by flooding and some 20,000 were in need for assistance.¹⁶⁶ Since only 20 per cent of PNG's rural population has access to clean water, flooding exacerbates the risk of disease, especially cholera, but also diarrhoea, dysentery and typhoid.

Since most crops are rain-fed, they are immediately impacted by drought. Droughts increase the danger of wildfires, especially around Lake Murray and along the Fly river in Western Province. Although severe droughts are not very common, they have had serious consequences when they hit. In 1997, 500,000 people were affected, whilst in 2015, it was 2.5 million, of which almost half a million faced critical food shortages.¹⁶⁷ By 2050, the probability of severe droughts like that happening every year is projected at 20 per cent under RCP8.5.

Major storms, mostly on the coast, regularly affect thousands of people. The year 2007 was particularly bad and saw 162,000 affected by Cyclone Guba. Category 4 and 5 storms in the Pacific have doubled in frequency between 1975 and 1989, and 1990 and 2004, and are likely to continue to increase as El Niño intensifies.¹⁶⁸

INFORM ranks PNG as the 28th most vulnerable country to natural and human hazards. We rate *the climate hazard exposure as moderately critical* and the *combined natural and human hazard exposure as critical*. In terms of vulnerability, PNG is at great risk. Considering socio-economic indicators (development and deprivation, inequality, aid dependency) and vulnerable groups (displaced people, other vulnerable groups), the situation is rated as *critical*. Unfortunately, no positive trend has been discernible in this respect in recent years.

¹⁶² <https://datatopics.worldbank.org/debt/ids/country/PNG>; <https://tradingeconomics.com/papua-new-guinea/govern-ment-debt-to-gdp>

¹⁶³ <https://datatopics.worldbank.org/debt/ids/country/PNG>; <https://tradingeconomics.com/papua-new-guinea/govern-ment-debt-to-gdp>

¹⁶⁴ <https://www.worldbank.org/en/country/png/overview#1>

¹⁶⁵ https://coastal.climatecentral.org/map/12/-73.9605/40.7101/?theme=sea_level_rise&map_type=year&elevation_model=best_available&forecast_year=2050&pathway=rcp45&percentile=p50&return_level=re-turn_level_1&slr_model=kopp_2014

¹⁶⁶ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

¹⁶⁷ <https://www.who.int/news-room/feature-stories/detail/papua-new-guinea-tackles-the-threat-of-COVID-19-with-an-all-of-government-approach>

¹⁶⁸ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Ad-min/action/CountryProfile>

¹⁶⁹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Ad->

¹⁷⁰ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version>

¹⁷¹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Ad-min/action/CountryProfile>

¹⁷² <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Ad->

¹⁷³ <https://climateknowledgeportal.worldbank.org/country/papua-new-guinea/climate-data-historical>

¹⁷⁴ <https://climateknowledgeportal.worldbank.org/country/papua-new-guinea/climate-data-projections>

¹⁷⁵ https://www.geonode-gfdrrlab.org/layers/hazard:ls_nasa_rc

¹⁷⁶ <https://reliefweb.int/report/papua-new-guinea/floods-information-bulletin-0-1>

¹⁷⁷ <https://reliefweb.int/report/papua-new-guinea/el-ni-o-20152016-post-drought-assessment-report-inter-agency-post-drought>

¹⁷⁸ <https://climateknowledgeportal.worldbank.org/country/papua-new-guinea/> and https://climateknowledgeportal.worldbank.org/sites/default/files/2018-10/wb_gfdrr_climate_change_country_profile_for_PNG.pdf

It is in terms of *coping capacity* that PNG is doing very badly. INFORM, which considers institutional (governance, disaster risk reduction) and infrastructural (access to healthcare, physical infrastructure, communication) capacity, ranks it as the 15th least-prepared country. We rate PNG *very critical*. Luckily, this trajectory is improving, but only slowly. The WRI's Climate Watch Data creates rankings along similar lines and categorises PNG slightly better on the climate index score (similar to natural hazard exposure) but similarly critical on the vulnerability score, as well as the readiness score.¹⁷⁹

Climate hazard exposure	Moderately critical
Natural and human hazard exposure	Critical
Vulnerability	Critical
Lack of coping capacity	Very critical ¹⁸⁰

PNG's first NDC in 2016 was not very specific but did identify nine initiative areas that generally correspond to the climate threats identified above: (i) coastal flooding and sea level rise, (ii) inland flooding, (iii) food insecurity, (iv) cities and climate change, (v) climate induced migration, (vi) damage to coral reefs, (vii) malaria and vector borne diseases, (viii) water and sanitation, (ix) landslides.¹⁸¹

Additionally, PNG calls itself a leader in the developing world in REDD+ implementation. REDD+ initiatives can have an indirect effect on landslides by reducing land erosion through vegetation. Other than that, there is no indication that PNG is taking specific steps to reduce its exposure to natural disasters.¹⁸²

Although the COVID-19 infection rate is not very high so far, thanks to a concerted government effort to stop its spread,¹⁸³ the country's economy is slated to contract this year by up to 1.7 per cent.¹⁸⁴ For a country already woefully underprepared to deal with environmental threats, this lack of economic growth quickly translates into human suffering. Thus, based on INFORM data and criteria, the COVID-19 pandemic risk is rated as critical.

Figure 25: Climate-induced losses in PNG (2010–2017)

	2010	2011	2012	2013	2014	2015	2016	2017
Loss in USD-PPP	1,300,000	30,860,000	35,880,000	3,520,000	1,450,000	112,043,000	1,723,000	80,000

COVID-19 risk critical



By the end of August 2020, PNG had not taken specific measures toward a *green recovery program*, which would combine the fight against the pandemic with the climate crisis to build back more sustainably.

Loss and damage risk

Needless to say, in a country in which the majority of the population is essentially unconnected to the global economy, quantifications for climate-induced loss and damage are scarce. Munich Re's NatCatSERVICE gauged economic losses caused by extreme weather events to total USD 520 million for the period 1999 to 2018, but these are likely to be much higher if the unaccounted damages suffered by the majority of the population could be counted. The Emergency Events Database supported by Belgium and the WHO, by contrast, estimate damage over the same period at USD 130 million, while the Climate Risk Index (CRI) compiled by Germanwatch finds *climate-induced losses* to total USD 201 million between 2010 and 2017, with the most significant ones occurring in 2015. We rate these average annual losses as *slightly critical* but the steeply increasing trend (plus 180 per cent in 2014–2017 compared to 2010–2013) as *very critical*.

According to the CRI data, PNG suffered USD 112 million in damages in 2015 as a result of a drought across the country. The drought itself was severe enough in itself but its effects were compounded in PNG, where most of the population depends on their own subsistence farming. As a result, 480,000 people faced critical food shortages.¹⁸⁵

The UN Global Assessment Report on Disaster Risk Reduction has estimated the average multi-hazard annual losses – that is, including losses of non-climate disasters as earthquakes and volcanic eruptions – at USD

1,800 to USD 5,000 per USD 1 million (*moderately critical*), which falls into the critical 10 to 30 per cent range of *social expenditures*. In other words, multi-hazard annual losses are a major contribution to the fact that, on average, PNG loses around a quarter of its social investments to environmental catastrophes. In case a 100-year extreme event hits PNG, the *financing gap* to directly absorb the losses would be a critical USD 420 million to USD 3,300 million and the *return period of the financing gap* is calculated to be very critical at 25 years or less. To summarise, the *loss and damage risk* can be categorised as follows:

Loss and damage risk indicator	Critical (2.8)
6 Climate disaster induced loss and damage	Slightly critical (USD-PPP 201)
7 Climate-induced loss and damage trend	Very critical (180% increase)
8 Multi-hazard relative annual loss	Moderately critical (\$1,800–5,000 per \$1M)
9 Annual losses in % of social welfare	Critical (10–30%)
10 Financing gap for a 100-year extreme event	Critical (USD 420–3,300 million)
11 Return period of the financing gap	Very critical (25 years or less)

Debt risk

PNG's external debt problem is the private sector's issue, not the state's. Public debt indicators are below, or only slightly above, the lowest critical thresholds. High external debt in relation to GNI, and debt servicing-to-export ratios are due to the repayment obligations of the extractive industries, which were largely built up through external loans. As hard currency income relies on the very few exportable commodities (gold, copper and LNG) the country is highly vulnerable to external shocks.

The official debt of the PNG state is almost equally divided among multilateral and bilateral, official and private creditors. A surprisingly low share of public external debt is at concessional terms. Hence external debt servicing is relatively high.

While the enormous private external debt has been reduced slightly through down payments during years with high commodity prices, the state has increased its

Debt risk indicator (data end–2018)	Papua New Guinea	Sustainability threshold
Sustainability threshold External debt / GNI	78.4%	40%
External debt / annual export earnings	166.5%	150%
Annual debt service / annual export earnings	26.1%	15%
Public debt / GNI	36.9%	50%
Public debt / public revenue	206%	200%
External debt (USD)	17.718 billion	–
Total external debt service (USD)	2.771 billion	–
Debt risk	Critical	

external exposure, including by placing its first ever sovereign bond on international capital markets.

Before 2020, PNG had never restructured any of its external debt. In 2020, however, the country was offered the suspension of this year's debt servicing to members of the G20 and the Paris Club. The government has accepted the offer, which will free USD 22.7 million this year for the fight against the pandemic and its economic fall-out. However, the payments will have to be made good on later, between 2022 and 2024.¹⁸⁶

¹⁷⁹ <https://www.climatewatchdata.org/countries/PNG#climate-vulnerability>
¹⁸⁰ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Ad-min/action/CountryProfile>

¹⁸¹ https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Papua%20New%20Guinea%20First/PNG_INDC%20to%20the%20UNFCCC.pdf

¹⁸² https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Papua%20New%20Guinea%20First/PNG_INDC%20to%20the%20UNFCCC.pdf

¹⁸³ <https://www.who.int/news-room/feature-stories/detail/papua-new-guinea-tackles-the-threat-of-COVID-19-with-an-all-of-government-approach>

¹⁸⁴ IMF (2020): Country Report 20/211

¹⁸⁵ https://reliefweb.int/sites/reliefweb.int/files/resources/png_el_nino_post_drought_assessment_sep_2016_final_re-port.pdf

¹⁸⁶ <https://www.worldbank.org/en/topic/debt/brief/COVID-19-debt-service-suspension-initiative> ¹⁸⁷ IMF (2020): World Economic Outlook Update June 2020

The IMF predicts that PNG's economy will shrink 1.7 per cent in 2020, which is not as bad as the global average (minus 4.9 per cent)¹⁸⁷. Future fiscal space will depend mostly on prices for the country's three major export commodities.

Multi-dimensional risk – conclusions and implications

Multi-dimensional risk **Critical**



PNG's aggregated multi-dimensional risk is rated *critical*, based on the disaster risk, the loss and damage risk and the debt risk all rated *critical*. The situation is just as difficult as in the case of Lao PDR.

Key risk drivers are the lack of coping capacity, the fast increase of climate-induced losses and the high frequency of *return periods of the financing gap* in the state budget, caused by disasters. Despite being a tropical country, a single drought can bring the country to its knees very quickly. Droughts, as well as landslides and floods are predicted to intensify and become more frequent as climate change progresses and they may easily lead to a self-reinforcing spiral of deepening indebtedness. Even if it seems that PNG has so far managed to contain the COVID-19 outbreak fairly well, it is suffering from the economic fallout, mainly due to the contraction of global trade. Being a highly indebted and low-income economy, there is limited room for providing a fiscal policy response to the pandemic, which makes the recovery outlook much more difficult, as is also the case for advanced economies and some emerging market economies. Similarly, there is little room for manoeuvre to invest into resilience. As a result, the population, which is predominantly rural and dependent on subsistence agriculture, may face new drawbacks. To increase the very low life expectancy, the government has put particular emphasis on improving the public health system, as part of its SDG commitments.

In light of the triple climate, debt and COVID-19 crisis, it is of crucial importance that the country gets better access to climate and development finance at concessional terms, preferably in form of grants. Public

health measures that contain the pandemic are a precondition to restoring confidence in PNG's people and businesses. Cash payments to vulnerable people and small businesses are needed during the crisis. For the post-pandemic reset, investments in health, education, renewable energies and climate resilience (starting with systematic climate risk assessments in order to ensure a valid basis for adaptation planning and implementation) will help PNG to move away from an unsustainable, extractive, pre-crisis growth model to a more sustainable and resilient one. Financial support and debt relief can spur this transformation.

INTERVIEW

“For us, climate resilience building is a matter of survival as a nation.”



Maina Talia is a climate justice consultant from Tuvalu, and a long-standing network partner of Bread for the World, currently undertaking research in Australia.

The Pacific islands have only had a few COVID-19 cases so far. Nevertheless, lives and livelihoods have been hard hit. What is the current situation?

The COVID-19 pandemic has caused an unprecedented level of anxiety and uncertainty to people around the world, and Tuvalu is not an exception. Although Tuvalu is still COVID-19 free, the impact of travel restrictions, especially border closures, have had a tremendous impact on the lives and livelihoods of the people. Initially, when news about the pandemic reached Tuvalu, people were shocked and unsure of what to do. Concerns about safety resulted in a huge number of people relocating themselves to the islands, out of the capital. With border closure and restricted travel, people stockpiled foods, causing basic food shortages in the shops within a week.

¹⁸⁷ IMF (2020): World Economic Outlook Update June 2020

The government set up the National COVID-19 Taskforce in mid-March 2020 to spearhead and lead all national undertakings relating to the pandemic. On March 20, a State of Emergency was declared with accompanying regulations to control the affairs of the country. Border closures were enforced after the last flight out on March 21, with the exception of cargo vessels and oil tankers.

Small businesses have been the ones to suffer most as they rely on imports to sell locally. The women entrepreneurs who make money from the sale of handicrafts lost their incomes. Small businesses who sell clothing or jewellery also suffered a loss as people spent their money on building materials, water tanks and food at the beginning of Tuvalu's State of Emergency.

While Tuvalu does not have much economic activity, the impact of the pandemic was felt heavily. Apart from the tourism sector, the small fishing sector was also impacted, particularly in the capital, because of the reduced number of people living in the capital. Also, the sudden hike in the prices for basic foods in the early stage of the pandemic have had a major impact on people's purchasing power.

In an effort to address this economic impact, the government introduced financial stimulus packages to everybody in the country and nationals living overseas. This was later suspended after the situation began to normalise. To date, Tuvalu is still free from this deadly virus and life is back to nearly normal.

Pacific islands are among the most climate vulnerable countries in the world. What are the climate-induced losses and damages you suffer from and how have they developed in Tuvalu?

Many homes were damaged but replaced by climate resilient homes, fortified to withstand cyclones. Now they provide stable shelter in times of disaster. Water sanitation was also affected but later adapted to a new climate normal, as well as coastal protection. In 2015, Super Cyclone Pam caused substantial damage to the outer islands of Tuvalu. The northern islands of Nanumaga and Nanumea and the central islands of Nui and Vaitupu were hardest hit. Approximately 4,600 people – equivalent to nearly half of our population – were directly affected. Sixty per cent of households were flooded and the flooding lasted for an average of 24 hours. People described this cyclone as the worst one they had ever experienced. Despite the fact that it is difficult to attribute a single cyclone event to climate change, there is a general

consensus that Tuvalu is literally losing land to the sea, not just because of the cyclones but also due to rising seas and storm surges. The damage caused by Cyclone Pam alone totalled one quarter of our GDP in 2015, according to the World Bank.

Building resilience is costly and Tuvalu is a poor country. How have funds been raised so far?

Abject poverty in Tuvalu is rare or non-existent, partly because of cultural and community traditions. Help and support are common among families, communities, religious groups and friends. However, Tuvalu will continue to face significant challenges because we remain susceptible to external shocks. So far, domestic and international sources of financing have covered costs. In the aftermath of Cyclone Pam and its devastating impacts, our leaders set up what is now called the Climate Change and Disaster Survival Fund (CCDSF). This has two objectives: Providing services to the people of Tuvalu in combating the impact of climate change and natural disasters, and allowing the government and the people of Tuvalu to respond to future climate change impacts through resilience building. Additionally, Tuvalu has mobilised funding from the Green Climate Fund (GCF).

El Salvador

Overview

El Salvador is a Central American country that emerged as a Spanish colony in the early 19th century, gaining independence in 1841. Ever since, it has experienced periodic unrest, most recently the Salvadoran Civil War, which ended in 1992. Today El Salvador has become the most densely populated country in Central America. Its population is almost 6.5 million, with population growth slowing to about 0.5 per cent in the past two decades, due largely to migration.¹⁸⁸ In terms of population, economy, economic growth and HDI, it sits in the middle relative to its six other Central American neighbours. It has the best GINI index of the region (38 relative to the 49.5 average of its neighbours).¹⁸⁹ Nevertheless that still leaves almost a third of the population living in poverty.¹⁹⁰

Unlike its neighbours, El Salvador has used the US dollar as its sole currency since 2001. The results of that change have been mixed, with some claiming that it has had a weak net positive effect through its stabilising function¹⁹¹ and others warning that it has become an undue burden on the poorest Salvadorans.¹⁹² El Salvador's growth, however, has remained weak for the past two decades, rarely moving from 2 or 2.5 per cent. Meanwhile, its public debt to GDP ratio has grown from 40 per cent in 2000 to 68 per cent in 2019.¹⁹³ The Salvadoran economy used to be based on the agricultural sector but today has become dependent on the maquila industry and remittances from its many expatriates.¹⁹⁴ Adding to this unstable base, are some very significant climate challenges, which puts El Salvador at high risk of becoming over-indebted.¹⁹⁵

El Salvador sits in the Central American biodiversity hotspot, home to 7 per cent of global biodiversity. Nevertheless, less than 6 per cent of the country is forested, the lowest level in continental Latin America (Costa Rica's ratio, by comparison, is 51 per cent).¹⁹⁶ That is the result of centuries of deforestation and the development of land for coffee production, which was El Salvador's main export for a long time. Today, 70 per cent of its soil is subject to serious erosion, which leaves it woefully unprepared to deal with mounting climate threats in Central America.¹⁹⁷ Huge parts of El Salvador belong to the "dry corridor" that has been experiencing increasingly extreme climate disasters, with more intensive droughts

Figure 26: Map of El Salvador



interspersed with heavier flooding due to less, but more concentrated, rainfall. Temperatures are slated to rise between 1.4°C and 2°C by 2050¹⁹⁸ and could rise as much as 4°C by the end of the century. This would lead to a 20 per cent reduction in rainfall and at least a 10 per cent reduction in the productivity of staple crops.¹⁹⁹ In addition, El Salvador is grappling with sea level rises, with 30 per cent of its population currently in areas expected to be inundated by the end of this century.²⁰⁰

With 28,000 COVID-19 cases by mid-September 2020,²⁰¹ El Salvador comes in third-best in Central America and sixth best in Latin America when dealing with the COVID-19 pandemic, something it seems to have done relatively effectively. Nevertheless, there are strong indications that the crisis was also used to restrict political accountability, undermine democracy and massively violate citizens' human rights. Furthermore, the economic

¹⁸⁸ <https://www.worldometers.info/world-population/el-salvador-population/>

¹⁸⁹ <https://www.indexmundi.com/facts/indicators/SI.POV.GINI/map/central-america>

¹⁹⁰ <https://www.climatewatchdata.org/countries/SLV>

¹⁹¹ <https://www.imf.org/external/pubs/ft/wp/2011/wp11129.pdf>

¹⁹² <https://voiceselsalvador.wordpress.com/2011/06/08/ten-years-later-the-impact-of-dollarization-in-el-salvador/>

¹⁹³ IMF (2020): Country Report 20/106

¹⁹⁴ https://cdkn.org/wp-content/uploads/2017/08/TALA-0003_Foundations-for-a-national-strategy-report_final.pdf

¹⁹⁵ erlassjahr.de and [Misereor](https://misereor.org) (2020): [Schuldenreport 2020](https://www.schuldenreport.de)

¹⁹⁶ <http://www.fao.org/forestry/country/57478/en/slv/>, <https://trainforests.mon-gabay.com/deforestation/2000/Costa.Rica.htm>

¹⁹⁷ <http://www.fao.org/forestry/country/57478/en/slv/>

¹⁹⁸ https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

¹⁹⁹ <https://www.geonode-gfdrrlab.org/documents/371>

²⁰⁰ https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

²⁰¹ <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6> and <https://www.hrw.org/news/2020/06/09/el-salvador-broad-powers-limit-accountability>

fallout is having a hard impact. The IMF predicts El Salvador's economy will shrink 5.4 per cent in 2020.

The European Commission's Disaster Risk Management Knowledge Centre's index measures, categorises and compares the climate, pandemic and other natural and human risks. Its five indicators are reproduced below. We combine these indicators to create a compound indicator that reflects aggregated risks, together with overall vulnerability and coping capacity. From this analysis, we can conclude that El Salvador is facing a *critical disaster risk*. The following pages will expand on this.

Disaster risk indicator	Critical (4.04)
16 Climate hazard exposure	Moderately critical (3.5) ²⁰²
17 Human and natural hazard exposure	Critical (5.3) ²⁰³
18 COVID-19 risk	Critical (4.2) ²⁰⁴
19 Vulnerability	Slightly Critical (2.7) ²⁰⁵
20 Lack of coping capacity	Critical (4.5) ²⁰⁶

El Salvador's climate and disaster risk

Current climate²⁰⁷

- 23.8°C mean temperature
- 1,841mm annual precipitation



Future climate²⁰⁸

- Increase of 1.64°C by 2060 (compared to 2018)
- Higher variability of rainfall; more droughts; more extreme rainfall events and flooding



Key climate impacts

Floods, storms, droughts, sea level rise

Agriculture: High risk of crop loss because 95% of agriculture is rain-fed and thus drought-prone; agriculture makes up 10% of GDP, accounts for 20% of employment



Livestock: Up to 80% projected to be severely affected by the end of this century



Water: Reduced water availability leading to water stress for people, economy and ecosystems, both through flooding and sea level rise



Health: Changing ranges of vector-borne diseases; heat waves provoking higher mortality and lower economic productivity



Energy/infrastructure: Destruction of infrastructure of various sorts; especially critical are hydropower dams, which provide about a third of El Salvador's power



Earthquakes (39 per cent), landslides (25 per cent) and floods (17 per cent) are the natural disasters that have historically accounted for most deaths in El Salvador. The country is on the so-called volcanic Ring of Fire, and thus suffers from frequent earthquakes. However, there is reason to believe that the main environmental stressors will be more strongly connected to climate change in the future. In terms of the number of events, the majority of natural hazards are floods, storms and droughts.²⁰⁹ Overall, 95 per cent of El Salvador's population is located in areas endangered by climate change.²¹⁰

One of every five Salvadorans works in agriculture, which provides 10 per cent of GDP, mostly through coffee and sugar cane. Most – 95 per cent – of the land is not irrigated and thus depends on rainfall remaining predictable, which it will no longer be as it decreases by up to 36.6 per cent by the end of the century.²¹¹ Unlike

²⁰² <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

²⁰³ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

²⁰⁴ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version>

²⁰⁵ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

²⁰⁶ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

²⁰⁷ <https://climateknowledgeportal.worldbank.org/country/el-salvador/climate-data-historical>

²⁰⁸ <https://climateknowledgeportal.worldbank.org/country/el-salvador/climate-data-projections>

²⁰⁹ <https://climateknowledgeportal.worldbank.org/country/el-salvador/vulnerability>

²¹⁰ <https://www.geonode-gfdrilab.org/documents/371>

²¹¹ <https://www.geonode-gfdrilab.org/documents/371>

neighbouring countries, El Salvador does not have cooler highlands on which to relocate agricultural production as temperatures increase. As a result of disrupted rainfall patterns, coffee production may drop by up to 40 per cent,²¹² sugar cane by 60 per cent and livestock production by as much as 80 per cent.²¹³

In addition, large tropical storms have in the past wiped out entire crops, causing USD 105 million in damages in 2011, for example.²¹⁴ Or in 2009, a staggering 28 per cent of the country's bean crop was wiped out by a single torrential rain event. In fact, smaller, more frequent disasters cause more damage overall.²¹⁵ Recurrent flooding, for example, aids the spread of dengue and other water-borne diseases.²¹⁶ Rivers, such as the largest one, the Lempa, are likely to become a threat to agriculture by carrying less water most of the time, which imperils agricultural productivity, as well as turning into a substantial flood hazards as rains become unusually strong.²¹⁷

Flooding has an impact not only on agriculture but also on the country's physical infrastructure. In 2011, it was estimated that El Salvador's infrastructure suffered USD 840 million in losses and damages.²¹⁸

Sea level rise is a considerable slow onset risk. Some predictions suggest a sea level rise of up to 1.1 meters by the end of the century, which could submerge up to 27.6 per cent of the country, with devastating consequences for inhabitants.²¹⁹

Climate hazard exposure	Moderately critical
Natural and human hazard exposure	Critical
Vulnerability	Slightly Critical
Lack of coping capacity	Critical ²²⁰

The European Union's INFORM disaster risk database ranks El Salvador 83rd worst globally in terms of overall risk exposure. Breaking that categorisation down into its various components reveals that the *climate hazard exposure* is *moderately critical*, while the compiled *hazard exposure*, which includes natural hazards (droughts, earthquakes, floods, cyclones, tsunamis and epidemics) and the human hazard (risk of conflict) is *critical*, ranked at 47 globally, whereas the *vulnerability* is lower (*slightly critical*) ranked at 120. We categorise the *lack of coping capacity* as *critical*. Vulnerability includes socio-economic indicators (development and deprivation, inequality, aid dependency) and vulnerable groups (displaced people,

other vulnerable groups) while coping capacity considers infrastructure (access to health care, physical and communication infrastructure) as well as institutional factors. INFORM's conclusions are generally in line with the threats identified above: Historically, a relatively large share of damages came from earthquakes. In many respects, the country, is not well positioned to deal with climate change risks.

El Salvador put forward a detailed NDC, which recognised many of the risks described here, as well as formulating specific steps to protect the country against climate change impacts. The focus on improving the regulatory and institutional environment to meet challenges (§3.1) was notable, including establishing new institutions to manage climate change impacts, teaching climate change in schools and strengthening the rule of law. It also proposes improving infrastructure (§3.3), especially that of the greater metropolitan area of San Salvador, in which over a third of the country's population lives, as well as protecting water resources (§3.4) and reforesting ambitiously (§3.5). It does, however, caution that all of these actions are dependent on international financial assistance and on the occurrence of unmanageable disasters, which climate change is bound to produce sooner or later (§3).

As previously mentioned, El Salvador has managed the spread of COVID-19 relatively well, with a total of around 28,000 cases (by mid-September 2020) but at a price, that includes severe violations of civil and political rights and even basic human rights. Economically, the country, and particularly poor Salvadorans, will be impacted by a 5.9 per cent decrease in per capita GDP.²²¹ Thus, we rate the COVID-19 risk *critical*.

²¹² https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

²¹³ <https://www.geonode-gfdrrlab.org/documents/371>

²¹⁴ https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

²¹⁵ <https://www.geonode-gfdrrlab.org/documents/442>

²¹⁶ https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

²¹⁷ <https://www.globalfloods.eu/glofas-forecasting/>

²¹⁸ https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Change%20Risk%20Profile_El%20Salvador.pdf

²¹⁹ <https://www.geonode-gfdrrlab.org/documents/371> & https://www.prevention-web.net/files/27178_floodelsalvadoreng.pdf

²²⁰ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Profile/moduleId/1767/id/386/controller/Admin/action/CountryProfile>

²²¹ <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-COVID-19/INFORM-COVID-19-Warning-beta-version/moduleId/1807/countryCode/SV/controller/Default/action/CountryDetails>

Figure 27: Climate-induced losses in El Salvador (2010–2017)

	2010	2011	2012	2013	2014	2015	2016	2017
Loss in USD-PPP	205,740,000	295,320,000	100,000	20,000	144,850,000	184,311,000	204,000	40,000

COVID-19 risk

critical



Loss and damage risk

El Salvador regularly suffers debilitating economic losses due to climate change. In the longer term, on average, it has lost 0.7 per cent of its GDP in coping with the consequences of climate change. For the past decade, the Climate Risk Index (CRI) compiled by Germanwatch finds the *climate-induced losses* to total USD-PPP 831 million between 2010 and 2017, with the most significant losses occurring in 2010/11. We rate these average annual losses as *moderately critical*, and the decreasing trend (minus 35 per cent between 2014 and 2017 compared to 2010–2013) as *uncritical*.

The UN Global Assessment Report on Disaster Risk Reduction has estimated the average multi-hazard annual losses – these also includes losses from non-climate disasters like earthquakes and volcanic eruptions – at between USD 1,800 to USD 5,000 per USD 1 million (*moderately critical*), which falls into the *moderately critical* 5 to 10 per cent range of social expenditure. In case of a 100-year extreme disaster event in El Salvador, the financing gap to directly absorb the losses would be *moderately critical* at USD 244 million to USD 420 million and the return period of the financing gap is calculated to be a *critical* 26 to 50 years. To summarise, the loss and damage risk can be categorised as shown on the right side.

Debt risk

Until 2018, El Salvador's debt stock indicators were highly stable. Future indicators, however, are at record highs. It must therefore be expected that debt stock indicators will rise in the immediate future. Additionally, the COVID-19 triggered recession will cause an additional rise in debt.

Loss and damage risk indicator	Critical (2.8)
19 Climate disaster induced loss and damage	Moderately critical (USD-PPP 831M)
20 Climate-induced loss and damage trend	Uncritical (35% decrease)
21 Multi-hazard relative annual loss	Moderately critical (\$1,800–5,000 per \$1M)
22 Annual losses in % of social welfare	Moderately critical (5–10%)
23 Financing gap for a 100-year extreme event	Moderately critical (\$244–420M)
24 Return period of the financing gap	Critical (26–50 years)

Debt risk indicator (data end–2018)	El Salvador	Sustainability threshold
Sustainability threshold External debt / GNI	71.1%	40%
External debt / annual export earnings	225.4%	150%
Annual debt service / annual export earnings	45.8%	15%
Public debt / GNI	67.1%	50%
Public debt / public revenue	311%	200%
External debt (USD)	17.486 billion	–
Total external debt service (USD)	3.482 billion	–
Debt risk	Very Critical	

Two-thirds of El Salvador's external debt are sovereign debt with the remaining third owed by Salvadoran banks and private companies. The state's debts are owed to two major creditor groups: Multilateral lenders, such as the World Bank and the Inter-American Development Bank, and private bondholders. Concessional debt through development cooperation is negligible in El Salvador. As a result of this relatively expensive debt structure, current debt servicing is relatively high.

So far, El Salvador has only benefitted slightly from external debt relief. As a middle-income country it was not qualified for the multilateral Heavily Indebted Poor Countries (HIPC) Initiative. It has, however, implemented smaller debt for development conversions under a German debt conversion program.

A special risk for El Salvador's debt sustainability exists in the privatisation of the state pension system under earlier governments. The present administration under Nayib Bukele has resorted to external debt in order to finance the current national budget and balance of payment gaps. In 2019, a USD 800 million bond was placed for this purpose, which pays a coupon of 7.1 per cent – way beyond any growth ratio the economy has ever been able to produce.

The COVID-19 triggered recession will take an additional toll on the economy. The IMF predicts a recession of minus 5.4 per cent for 2020. The major transmission channels for this are the reduced remittances from the Salvadoran diaspora in the U.S. and Canada (minus 17 per cent) as well as a general slump in demand for Salvadoran agricultural products and tourism (minus 9 per cent).²²² For 2021, the IMF predicts a return to positive growth (4.3 per cent), which would help ease pressure on the budget and balance of payments. However, this prediction builds on the assumption that the pandemic and the recession will end in 2020, a prospect that remains highly uncertain.

Unlike its neighbours Honduras and Nicaragua, El Salvador has not been offered a temporary suspension of its debt payments to G20 and Paris Club members (DSSI). Neither has it been considered for the cancellation of debt to the IMF through that body's Catastrophe Containment and Relief Trust (CCRT). El Salvador has found itself in the "middle income trap". While economically highly vulnerable it was considered "too rich" for most forms of concessional financing as well as any substantial debt relief.

Multi-dimensional risk – conclusions and implications

Multi-dimensional risk Critical



El Salvador's aggregated multi-dimensional risk is rated *critical*, based on the critical disaster risk and debt risk, and a loss and damage risk that is rated *moderately critical*.

El Salvador is now at a crossroads. It has started to feel some of the most paradigmatic consequences of climate change prematurely. Storms and floods are causing painful losses almost every year. As a result of centuries of neglect of environmental protection, the soil is fragile and prone to erosion, magnifying the effects of flooding. At the same time, debilitating droughts have increasingly negative impacts on agriculture. The most predictable threat, however, is probably the worst of all: Substantial portions of the coast are likely to be lost forever to the ocean in coming decades. El Salvador is very badly exposed to the future risks of climate change. Along with the severe consequences of the pandemic, as well as a high level of income inequality, high crime rates and social unrest, as well as a critical debt level, the country is at risk of falling into a spiral of indebtedness as its sustainable development and climate challenges increase. The public deficit is projected to further rise from negative 2.1 per cent in 2019 to negative 4.1 per cent in 2020, and negative 4.3 per cent in 2021. At the same time, debt will grow, leaving limited fiscal room to address the country's resilience gaps and the fact that a third of the population still lives below the poverty line.²²³

In the case of El Salvador, a broad recovery program is needed that makes the country, and particularly its vulnerable and poor populations, more resilient to all types of external shocks. Apart from policy changes (that is, investments in health care, education and social safety nets) and tax reforms (higher taxes and better tax compliance by more affluent groups and highly profitable enterprises), this requires, a massive transformation of the maquila sector²²⁴ and agriculture, moving towards climate resilience and decarbonisation. The fourth pillar of a forward looking recovery would be a debt relief program,

²²² IMF (2020): Country Report 20/106

²²³ <https://www.lloydsbanktrade.com/en/market-potential/el-salvador/economy>

²²⁴ A foreign-owned factory exploiting cheap labor to assemble products and export them and then exports the products back to the country of origin

combined with the mobilisation of concessional climate finance. This is needed to enable the country to leave the dangerous spiral of indebtedness, rising climate risks and decreasing resilience. If done ambitiously, such a move would be rewarded with a resilience dividend.

INTERVIEW

“Debt relief should serve to reduce vulnerability and prevent widening inequality gaps in a transparent manner, holding governments to account.”



Elena Cedillo, Program Executive for Climate Justice at The Lutheran World Federation in Geneva, is a Peruvian engineer and Master of Bio-Commerce and Sustainable Development. Before taking her current position, she worked for six years as a Lutheran World Federation Regional Representative for Central America based in El Salvador, where she promoted innovative resilience building projects.

How is the COVID-19 pandemic affecting El Salvador?

According to the most recent statistics, El Salvador had reported just over 33,000 cases of COVID-19 by the end of October. Apparently, El Salvador has managed the pandemic relatively effectively compared with neighbouring countries like Nicaragua, whose number of coronavirus cases is three times higher, and also if we check against the rates of infections per 100,000 inhabitants.²²⁵

It was impressive that the government began implementing a plan even before the first case of COVID-19 was confirmed in the country. It declared a state of emergency in March and announced economic measures to mitigate the effects of the economic crisis, ranging from aid and subsidies for least favoured sectors, flexibility to pay public services such as water, electricity and the internet, and tax exemption, among others, to agreements with the banking sector.

On the other hand, the extended confinement for several months has caused a political crisis that challenges the government, the legislative branch and the constitutional chamber of the Supreme Court.

There is no doubt that the most affected have been and continue to be the most vulnerable populations. The government has established a five-phase plan for the reopening of the economy. However, these measures have divided the population. While some commend it for taking decisive measures, others point out that the measures are authoritarian, violate rights and undermine democracy.

In August, the president had to declare a two week state of emergency, after Tropical Storm Amanda devastated parts of the country with severe flooding. What happened to people there?

The devastating effects of Tropical Storm Amanda added to the COVID-19 health emergency that had already registered just over 2,500 people infected by that time. Around 150,000 people were affected by Amanda and it was difficult to pay attention to an emergency in the middle of another emergency, since health services were compromised by the advance of COVID-19.

International humanitarian aid organisations faced a logistical difficulty with supply chains here, which limited the timely importation of equipment and supplies and, in addition, made moving supplies into the affected areas difficult. It is important to mention the role that faith-based organisations, including churches, played in view of their presence inside the communities. They are part of the community and they provide information about the local people’s needs. Being rooted locally makes it possible for them to identify the vulnerable populations and serve as a channel for the delivery of humanitarian assistance.

For years, El Salvador has called on major carbon emitters to compensate for climate-induced loss and damage – in which ways could this happen?

Approximately 94 per cent of the territory of El Salvador is classified as highly drought-prone and it is affected by extreme weather events, putting the people who live there at high climate risk. These populations are mostly poor and mainly dependent on small-scale

²²⁵ <https://datosmacro.expansion.com/otros/coronavirus>

agriculture, which makes them very vulnerable to climate change. The intensive drought caused significant socio-economic impacts, particularly in agricultural areas highly dependent on the rainy season, which resulted in losses or reductions of harvests, food insecurity and increased prices for the basic food basket, which directly affected livelihoods. One way to compensate the climate-induced loss and damage is to strengthen resilience levels of small scale farmers affected, to deal with periodic losses and disinvestment through access to micro-climate insurance and complementary actions that contribute to the risk reduction and adaptation to climate change.

El Salvador is critically indebted. As a middle-income country, access to debt relief was very limited. This may change in the COVID-19 context: Should debt relief be conditional to ensure that the poor and vulnerable people benefit from it most?

This study gives us the elements to better understand the situation of middle-income countries and their capacity to face indebtedness in the middle of the pandemic and climate crisis. Most countries have re-oriented their budgets to face the tremendous effects of the pandemic. Adequate fiscal measures are needed,

such as access to debt relief, to allow adequate post-pandemic recovery.

In the case of El Salvador, according to the 2018 Multi-Purpose Household Survey, 30.9 per cent of the Salvadoran population live in poverty. According to recent projections, GDP will decrease approximately 8.6 per cent in 2020, which exceeds the average for the region. This will push 34.1 per cent of the country's total population into poverty and increase inequality by between 5 and 5.9 per cent.

It is necessary to pay special attention to the households with greater vulnerability to COVID-19, such as the female-headed households, those with dependents over 60 years of age, households that rely on income from remittances and those households that are already in multidimensional poverty. In that sense, debt relief should heed the populations that are disproportionately affected. Reducing their vulnerability and preventing an increase in inequality would guarantee better living conditions for all.

It is also important that debt relief measures are accompanied by adequate instruments of transparency and accountability that reinforce confidence in, and effectiveness of, public management.

Bibliography

- Ahmed, S.J (2020), "Investing in Adaptation Yields and Financial Protection to Achieve the Triple Dividend in Recovery Packages and Beyond", Discussion Paper, Bonn: Munich Climate Insurance Initiative, https://climate-insurance.org/wp-content/uploads/2020/04/Background-Note-V20-Adaptation-Yields_Financial-Protection_Covid-Recovery.pdf
- Axa Group (2019), 'Climate Report 2019'. Link: https://www-axa-com.cdn.axa-contento-118412.eu/www-axa-com%2F667045c2-cc3c-4f65-a888-18753c463d9c_axa2019_ra_en_climate_report_2.pdf
- Bread for the World (2019a), 'Climate Risk Financing'. Berlin. Link: https://www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Analyse/Analysis_87_Climate_Risk_Financing.pdf
- Bread for the World et al. (2019b), 'Climate finance for addressing loss and damage'. Berlin & Geneva. Link: https://www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Analyse/ClimateFinance_LossDamage.pdf
- Bread for the World (2018), 'Limiting global warming to 1.5 degrees Celsius'. Berlin. Link: https://www.brot-fuer-die-welt.de/fileadmin/mediapool/2_Downloads/Fachinformationen/Analyse/Analyse_86_Limiting_Global_Warming.pdf
- Bündnis Entwicklung Hilft (2020) et al, Weltrisikobericht 2020
- Buhr, B., U. Volz, C. Donovan, G. Kling, Y. Lo, V. Murinde & N. Pullin (2018), Climate Change and the Cost of Capital in Developing Countries. London and Geneva: Imperial College London; SOAS University of London; UN Environment.
- Erlassjahr (2020), 'Schuldenreport 2020'. Bonn
- Erlassjahr (2019), 'Schuldenreport 2019'. Bonn
- Erlassjahr (2018), 'Vor dem nächsten Sturm. Entschuldung als Krisenreaktion in der Karibik'. Bonn
- European Commission/ACP Group of States (2009), 'All ACP Agricultural Commodities Program. Global Work Plan 2007–2001.
- Farand, C.(2020), 'Ballooning debt cripples poor countries' hopes of green recovery from COVID'. In: Climate Home News, October 15, 2020. Link: <https://www.climatechangenews.com/2020/10/15/ballooning-debt-cripples-poor-countries-hopes-green-recovery-covid/>
- Federal Reserve System, <https://doi.org/10.17016/IFDP.2020.1291>. <https://www.federalreserve.gov/econres/ifdp/files/ifdp1291.pdf>
- Fitch Ratings (2020a), "Fitch Revises Kenya's Outlook to Negative; Affirms at 'B+', 19 June 2020. <https://www.fitchratings.com/research/sovereigns/fitch-revises-kenya-outlook-to-negative-affirms-at-b-19-06-2020>
- Fitch Ratings (2020b), "Fitch Affirms Rwanda at 'B+'; Outlook Stable", 125 August 2020. <https://www.fitchratings.com/research/sovereigns/fitch-affirms-rwanda-at-b-outlook-stable-25-08-2020>
- Germanwatch (2020), Wie die Wahrnehmung von Gerechtigkeit die Akzeptanz klimapolitischer Massnahmen beeinflusst. Politikakzeptanz am Beispiel von Co2-Preisen. In: Klimakompakt Nr. 96, 10/2020
- Germanwatch (2019), 'Global Climate Risk Index 2020'. Berlin & Bonn. Link: <https://www.germanwatch.org/en/17307>
- International Development Association, Addressing Debt Vulnerabilities in IDA Countries: Options for IDA19, 4 June 2020.
- International Monetary Fund (2020), "Questions and Answers on Sovereign Debt Issues", 21 October 2020. <https://www.imf.org/en/About/FAQ/sovereign-debt>
- IPCC (2019a), 'Special Report on Climate Change and Land'. Link: <https://www.ipcc.ch/srcl/>
- IPCC (2019b), 'Special Report on Oceans and the Cryosphere'. Link: https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf
- IPCC (2018), 'Global Warming of 1.5°C'. Link: <https://www.ipcc.ch/sr15/>
- Moody's Investors Service (2016), 'Approach to Assessing Climate Change Risks of Sovereign Issuers'.
- Mallucci, Enrico (2020), "Natural Disasters, Climate Change, and Sovereign Risk," International Finance Discussion Papers 1291. Washington: Board of Governors of the Board of Governors of the Federal Reserve System, <https://doi.org/10.17016/IFDP.2020.1291>.
- Munich Re NatCatSERVICE (2020), Official website. Link: <https://natcatservice.munichre.com/overall/1?filter=eyJ5ZWZyRnJvbSI6MjAxOCwieWVhclRvIjoyMDE4LlJldmVudEZhbWlseUlkyI6WzQsNSw3XSwiYXJlYUlkcyI6WzI2LDJdfQ%3D%3D&type=1>
- MunichRE, NatCatSERVICE (Based on 848 global events), 2018. <https://natcatservice.munichre.com/?filter=eyJ5ZWZyRnJvbSI6MjAxOCwieWVhclRvIjoyMDE4fQ==&type=2>
- OECD (2017), 'OECD Recommendation on Disaster Risk Financing Strategies'. Paris. Available at: <https://www.oecd.org/daf/fin/insurance/OECD-Recommendation-Disaster-Risk-Financing-Strategies.pdf>
- Oxfam (2020), 'Shadow report on climate finance 2020'. Link: <https://www.oxfam.org/en/research/climate-finance-shadow-report-2020>
- Prasad, B.C (2020), "Responding to COVID-19: Time to Refocus on Pacific Governance", Article, Solomon Islands: Solomon Times, 14 October 2020. <https://www.solomontimes.com/feature/responding-to-covid19-time-to-refocus-on-pacific-governance/536>
- Rawls, J.(1971), 'A Theory of Justice', Harvard.

Sen, A. (1980), 'Equality of What?'. In: Sterling McMurrin (Ed.): The Tanner Lectures on Human Values. Salt Lake City

Stockholm Environment Institute/Oxfam (2020), 'The Carbon Inequality Era'. Link: <https://www.sei.org/wp-content/uploads/2020/09/research-report-carbon-inequality-era.pdf>

The Economist (2020), "African governments face a wall of debt repayments," London: The Economist, 6 June 2020. <https://www.economist.com/middle-east-and-africa/2020/06/06/african-governments-face-a-wall-of-debt-repayments>

The Hill (2019), 'Moody's Analytics predicts climate change costs up to USD 69 trillion by 2019'. Available at: <https://thehill.com/policy/energy-environment/451516-moodys-analytics-predicts-climate-change-costs-up-to-69-trillion-by>

Thomas, A. et al (2020), 'Climate Change and Small Island Developing States'. In: Annual Review of Environment and Resources. Link: <https://www.annualreviews.org/doi/pdf/10.1146/annurev-environ-012320-083355>

UNEP (2018), 'Emission Gap Report 2018'. Nairobi

UNFCCC (2019), 'Elaboration of the Sources and Modalities for accessing financial support for addressing loss and damage. Technical paper'. Link: <https://unfccc.int/sites/default/files/resource/180919%20Draft%20outline%20of%20technical%20paper%20on%20LD%20financing%20second%20iteration%20.pdf>

United Nations (2016), 'Decision 1/CP.21'. Link: <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>

United Nations (2015), 'Paris Agreement'. Link: https://unfccc.int/sites/default/files/english_paris_agreement.pdf

World Bank, 2020 <https://www.worldbank.org/en/programs/debt-toolkit/dsa>

**Brot für die Welt
Evangelisches Werk für
Diakonie und Entwicklung e. V.**

Caroline-Michaelis-Straße 1
10115 Berlin

Tel +49 30 65211 0
Fax +49 30 65211 3333
info@brot-fuer-die-welt.de
www.brot-fuer-die-welt.de