Climate risk collides with debt crisis

World game

What it's about

- Participants estimate the percentage distribution of the global population across the different continents.
- Participants identify that global wealth is unevenly distributed.
- Participants find out that only very few countries are responsible for the majority of global CO_2 emissions and thus also for global warming.
- They learn that poorer countries which contribute little to climate change are more severely threatened by climate-induced natural disasters.
- Finally, it becomes clear that it is precisely these countries which also suffer the greatest from debt crises.

Materials:

- Large floor map of the world (may be hired from www.das-weltspiel.com)

- 25 game cones (party hats, paper cups) to symbolize the population

- 25 play bank notes as symbols of gross domestic product (GDP)

- 25 game objects (e.g. grey circles or bottles) as symbols of CO_2 emissions

- Interactive world map showing the debt situation worldwide or map of global debt situation from the Global Sovereign Debt Monitor 2020*

- World map „Exposure" from the World Risk Report*

- Short video ‚Before the next storm'*

- Moderation material, flipchart

*see sources and photocopying material

How to play

The activity consists of two parts.

Part 1: Global population, wealth and CO$_2$ emissions

On a large floor map of the world, over three rounds, global contexts are visualized. Three sets of 25 game pieces are used to represent the global population, global gross domestic product and global carbon dioxide emissions respectively. During the course of the game, these are allocated to the different continents.

Before the game starts, explain that the world game is based on six continents and 180 countries. Countries for which not enough reliable data exists have not been included. The countries are distributed across the different continents as follows:

Europe: 38
North America: 2
Latin and Central America & the Caribbean: 34
Asia: 45
Africa: 52
Australia and Oceania: 9

Total: 180 states

You should also point out that the objects from each round should stay in their places until the end of the world game.

Round 1: Distribution of the global population across the continents

First of all, clarify the size of the current world population. At present (in 2020) it totals approximately 7.7 billion people.

Place 25 game cones (party hats, paper cups) onto the world map. These symbolize the global population. Set the participants the task of estimating distribution of the global population across the continents by allocating the 25 game cones to the continents in the right proportion.

After participants have agreed on their distribution, you can then report the actual distribution, and allocate the game cones to the continents in the correct proportions.

	Absolute population (in billions)	Share of global population (in %)	No. of game cones
Europe	0.7	10	2
North America	0.4	5	1
Latin and Central America, Caribbean	0.6	8	2
Asia	4.6	59	15
Africa	1.3	17	5
Australia and Oceania*	0.04	<1	0
Total	7.7	100	25

*The population living in Australia and Oceania should theoretically be allocated 0.14 game pieces.

Data source: Deutsche Stiftung Weltbevölkerung, DSW Data Report 2020, www.dsw.org

Round 1 evaluation and feedback:

Ask the participants what notions guided them in making their allocation, and what surprises them about the actual result.

They should be surprised that about 60% of the global population lives in Asia. The population of Africa is frequently overestimated. It is true, however, that at the present time, the fastest population growth is taking place in Africa.

Round 2: Allocation of gross domestic product (GDP) across the continents

Place the 25 play banknotes on the large floor map of the world. These symbolize GDP and thus the wealth existing in the world. Give participants the task of estimating apportionment of economic output across the continents by allocating the 25 banknotes in the correct proportions.

After participants have agreed on their distribution, you can then report the actual distribution and allocate the banknotes to the continents in the correct proportions.

	GDP (in USD billions)	Share of global GDP (in %)	No. of play banknotes
Europe	22,500.4	26	6
North America	23,110.8	26	7
Latin and Central America, Caribbean	5,337.5	6	2
Asia	32,412.8	37	9
Africa	2,426.5	3	1
Australia and Oceania*	1,634.0	2	0
Total	87,462.1	100	25

*Australia and Oceania should theoretically be allocated just under one half of a banknote.

Data source: World Bank (2020), https://databank.worldbank.org/source/world-development-indicators

Round 2 evaluation and feedback:

Ask the participants what notions guided them in making their allocation, and what surprises them about the actual result.

Collective evaluation and feedback on results of rounds 1 and 2:

Now take a look together at the results of the first two rounds and hold a brief discussion on them.

The aim should be to work out that North America (USA and Canada), as well as Europe, have a far higher GDP than one would expect based on the size of their population.

Although Asia has a high level of GDP, nevertheless, it is below the level that would be expected if Asia's GDP were proportionate to the size of its population. Asia includes both very rich and very poor countries. In absolute terms, China has the highest GDP in the world when adjusted for purchasing power.

On the other hand, the GDP of the African countries is extremely low, despite the fact that many are rich in commodities. Clearly, countries with commodity assets profit only minimally from their wealth. Here, it can be pointed out that, in recent years, commodity prices have fallen sharply. Countries which are dependent on commodity exports were expecting certain proceeds from their sale and have often got into debt on the basis of this anticipated income.

	CO_2 emissions (per year in millions of tonnes)	Share of global emissions (in %)	No. of game objects
Europe	5,561	15	4
North America	5,692	16	4
Latin and Central America, Caribbean	1,771	5	1
Asia	21,315	59	15
Africa	1,450	4	1
Australia and Oceania*	478	1	0
Total	36,267	100	25

Australia and Oceania should theoretically be allocated approximately one third of a game piece.

Data source: European Union, Fossil CO_2 and GHG emissions of all world countries, 2020 report, https://op.europa.eu/en/publication-detail/-/publication/71b9adf3-f3dc-11ea-991b-01aa75ed71a1

Round 3 evaluation and feedback:

Ask the participants what notions guided them in making their allocation, and what surprises them about the actual result.

Work out with the participants that Asia – in absolute terms – emits the most CO_2.

Now, using the following table, work out with the participants which countries are the biggest CO_2 emitters in both absolute and relative terms.

Just three countries (China, the USA, India) are responsible in absolute terms for over 50% of global climate-damaging emissions. The five biggest emitters (China, the USA, India, Russia, Japan) and the countries of the EU + the UK are jointly responsible for just under 70%. The countries of Africa, Latin America and the Caribbean produce a very small proportion of global CO_2 emissions and thus make a very small contribution to global heating.

Round 3: Distribution of global CO_2 emissions across the continents

Place the 25 game objects (e.g. grey circles or bottles) on the world game floor mat. These symbolize global CO_2 emissions. As in the previous two rounds, give participants the task of arranging the objects in accordance with the presumed distribution of global CO_2 emissions across the continents.

After the participants have agreed on their distribution, you can then report the actual distribution, and allocate the objects to the continents in the correct proportions.

	Share of global emissions (in %)	CO$_2$ emissions per capita (in tonnes per capita)
China	30.5	8
USA	13	16
EU-27+UK	9	6
India	7	3
Russia	5	12
Japan	3	9
Total	c. 70	
by comparison: Germany	2	8.5

Data source: European Union, Fossil CO$_2$ and GHG emissions of all world countries, 2020 report, https://op.europa.eu/en/publication-detail/-/publication/71b9adf3-f3dc-11ea-991b-01aa75ed71a1

In international agreements like the Paris Climate Agreement, the reduction targets, in particular due to pressure from the USA, are based on absolute emission values. In fact, however, CO$_2$ emissions per capita are more informative than the absolute value as an indicator of the climate impact originating from a particular country or continent. If this comparison is used as a basis, the ranking of climate offenders changes as follows:

USA > Russia > Japan > China > EU+UK > India.

The USA's per-capita emissions are twice as high as those of China. Germany too currently exceeds China.

Collective evaluation and feedback on results of rounds 1, 2 and 3:

At the end of round 2, the game pieces are allocated as follows on the world game floor mat:

	Global population	GDP	CO$_2$ emissions
Europe	2	6	4
North America	1	7	4
Latin and Central America, Caribbean	2	2	1
Asia	15	9	15
Africa	5	1	1
Australia and Oceania	0	0	0
Total	25	25	25

If these CO$_2$ emissions are compared with the economic output of the continents measured in terms of GDP, it becomes clear that a high level of economic output also entails a high level of CO$_2$ emissions.

The high level of emissions originating from Asia is due firstly to the high level of economic output of countries such as China, Japan and South Korea, and, secondly, to the large population of the region.

Conclusion:

The rich countries are the biggest CO$_2$ emitters and thus largely responsible for climate change.

Part 2: Debt crises and climate risk

While, in part 1 of the activity, global contexts were observed, in part 2, two more rounds of the game look at debt crises and the climate risk to which developing countries are exposed.

The basis for observations consists of two world maps. These are taken from the Global Sovereign Debt Monitor 2020 by erlassjahr.de and MISEREOR, and the World Risk Index 2020 produced by Bündnis Entwicklung Hilft, published in cooperation with the Institute for International Law of Peace and Armed Conflict (IFHV) at Ruhr University, Bochum/Germany.

If the number of participants allows, divide them up into three groups. The groups will be allocated to Latin America and the Caribbean, Africa, and Asia and Oceania respectively.

Round 1: Debt crises in developing countries

Inform the participants that, for the Global Sovereign Debt Monitor 2020, 154 developing countries were studied. 124 of these were identified as critically indebted. ‚Critically indebted' means that at least one of the five debt indicators examined exceeded a critical threshold.

The result has been recorded on a world map which contains a series of symbols. The darker the colour of the country in question (yellow, orange or red), the more critical is that country's debt situation. In addition, the countries' debt trends are indicated using green, yellow and red arrows. With some countries, the urgency of the situation is illustrated by a ‚house on fire' symbol, meaning that the countries in question are already no longer in a position to cover their debt service payments, or will likely soon no longer be able to do so.

Each group receives a world debt map and examines the map based on the following tasks and questions. The responses can be recorded on moderation cards:

- What visual impression do the continents make in terms of debt crises?
- Count the countries where the debt situation is worsening or improving in the continent in question.
- For each continent, name the countries which are very critically indebted.
- In how many countries of a particular continent is the situation urgent, symbolized by the ‚house on fire' symbol?

Round 1 evaluation and feedback:

Very many developing countries (124 out of the 154 studied) are either critically or very critically indebted, with a clear negative trend. Numerous countries (19) have already had to suspend their payments to external creditors. The situation in Africa, as well as in Latin America, is particularly critical.

Round 2: Climate risk in developing countries

The last round looks at the risk to which countries are exposed as a result of climate disasters. For this purpose, reference is made to the World Risk Index 2020. This is based on a statistical model for evaluating global disaster risk as a result of extreme natural events such as earthquakes, storms, floods, drought or a rise in sea level. From the six areas forming the basis of the model, here, the area ‚Exposure' has been selected. Exposure refers to the risk to which a population is exposed based on one or several natural disasters.

As with the Global Sovereign Debt Monitor, the result has been presented on a map. The level of exposure is divided into five categories (quintiles) from 0 to 100. These are symbolized by colours. Green means no or low risk, while light red to dark red indicates an increasing level of risk.

Each group receives a world map showing exposure and studies it based on the following tasks and questions. Only developing countries will be considered. The responses can be recorded on moderation cards:

• What visual impression do the continents make in terms of exposure to climate disasters?
• Count and estimate for each continent the countries exposed to a high or very high risk.
• In which geographical zones are the countries which are particularly at risk? To which type of climate disaster are they likely to be particularly exposed?

Round 2 evaluation and feedback:

The islands of Oceania, many countries in Africa, in particular in the Sahel region and in west Africa, as well as coastal regions in Asia and Latin America, are highly exposed to natural disasters.

Island states and coastal regions are threatened by the rise in sea level and floods, while the Sahel region is threatened by drought. The map does not directly show how, in addition, the islands in the Pacific and the Caribbean, just as East Africa, are threatened by hurricanes and typhoons, with subsequent heavy rainfall.

Collective evaluation and feedback on rounds 1 and 2: where debt crises and climate disasters coincide

Now ask the participants to place the debt and exposure maps alongside one another. Ask them to respond to the following:

• When you compare the debt map and the exposure map, what do you notice?
• Try to find at least one country on each continent which is both heavily indebted and exposed to a high level of climate risk.

It should become clear that many of the critically indebted countries are situated in regions that are also particularly highly exposed to climate risks. This is where climate risks directly coincide with debt crises.

Put forward these reflections: indebted countries are obliged to make regular debt service payments to their creditors. Even an acute emergency, such as the occurrence of a climate disaster, has so far done nothing to change this. At this point you can discuss what consequences arise when a critically indebted country is additionally hit by a climate disaster.

For poorer countries, which in any event have little money available, a combination of debt crisis and climate disaster can have dramatic consequences. Such a country's economic situation is weakened still further by the consequences of the climate disaster (e.g. a collapse in tourism). Every debt repayment to creditors means an outflow of money which is urgently needed for emergency aid and reconstruction. Such countries have to wait for pledges of assistance from abroad or even take out new loans, which drive up their level of debt still further. As a result, they end up falling ever deeper into a debt trap. What needs to happen so that this can be prevented?

To conclude the discussion, and in response to the last question, you can play the short video ,Before the next storm: debt moratorium for Caribbean island states' by erlassjahr.de. This sets out the problem of the double vulnerability of countries as a result of climate risks and debt crises, using the example of a Caribbean state. In addition, proposals are made as to how international creditors – and thus also the German federal government – could relieve the burden on affected countries in such emergencies by granting debt moratoria and debt relief.

Background information and sources

On the debt crisis

According to the Global Sovereign Debt Monitor 2020 by erlassjahr.de and MISEREOR, 124 out of 154 developing countries studied are critically indebted. In over 60% of these countries, the situation has continued to deteriorate since 2014. At the time the study was undertaken, 19 countries had either entirely or partially suspended making payments (interest and capital) to their foreign creditors.

The Global Sovereign Debt Monitor states that the high interest rates imposed in the Global South, dependency on just a few commodity exports, and poor governance constitute the principal causes of increasing sovereign debt. Climate change is exacerbating the debt crisis, in particular as a result of ever-more-frequent climate disasters.

On climate risks

In African countries:

According to the World Risk Report, 40 out of 54 countries are massively threatened by drought, rising sea levels, severe storms and floods. In 2019, East Africa was hit by a tornado which affected Mozambique and neighbouring countries particularly badly. In Ethiopia, Kenya and Uganda, on the other hand, severe drought prevails. At present (summer 2020) these countries are suffering from a severe locust plague that is being linked to climate change.

In Asian countries:

The Asian countries are particularly under threat from rising sea levels. China is the most at risk. Indonesia is planning to move its capital city of Jakarta to the island of Borneo. 40% of the city already lies below sea level.

Small island states:

The small island states in the Pacific and Caribbean are exposed to an existential threat as a result of rising sea levels. Furthermore, they are regularly exposed to violent hurricanes and tornadoes. According to the World Risk Index, the island states of Oceania are exposed to the highest risk, with the island of Vanuatu at the highest risk worldwide.

In Europe:

According to the World Risk Report, over a comparison of risks, the European continent comes off best. Albania, the Netherlands, Greece, Montenegro and North Macedonia are exposed to the highest risk. These countries are primarily under threat from rising sea levels, but also from drought. However, the very dry summers in Germany serve to show that risk estimations can change rapidly.

World maps:

- Map 'Exposure' from the World Risk Report 2020 by Bündnis Entwicklung Hilft/IFHV: https://weltrisikobericht.de/wp-content/uploads/2020/09/WRI_2020-Exposure.jpg
- Map 'Global Debt Situation' as download in Global Sovereign Debt Monitor 2020 (page 3): https://erlassjahr.de/wordpress/wp-content/uploads/2020/05/Global-Sovereign-Debt-Monitor_2020.pdf
- Interactive map showing the debt situation worldwide: https://erlassjahr.de/en/information/map-highly-indebted-countries-worldwide/
- Floor map of the world: Available for hire at www.das-weltspiel.com

Video:

- erlassjahr.de (2018): 'Before the next storm: debt moratorium for Caribbean island states': https://www.youtube.com/watch?v=DVwNkERE1Dc

Further material and information:

- erlassjahr.de (2020): Campaign 'Climate justice needs debt relief', https://erlassjahr.de/en/news/new-campaign-climate-justice-needs-debt-relief/
- erlassjahr.de (2020): Focus Paper 64: Der nächste Sturm kommt mit Sicherheit: Entschuldung als Krisenreaktion in Zeiten des Klimawandels [The next storm is inevitable: debt relief as a response to crisis in times of climate change], https://erlassjahr.de/produkt/fachinformation-64-der-naechste-sturm-kommt-mit-sicherheit-entschuldung-als-krisenreaktion-in-zeiten-des-klimawandels/
- erlassjahr.de and MISEREOR (2020): Global Sovereign Debt Monitor 2020, https://erlassjahr.de/wordpress/wp-content/uploads/2020/05/Global-Sovereign-Debt-Monitor_2020.pdf
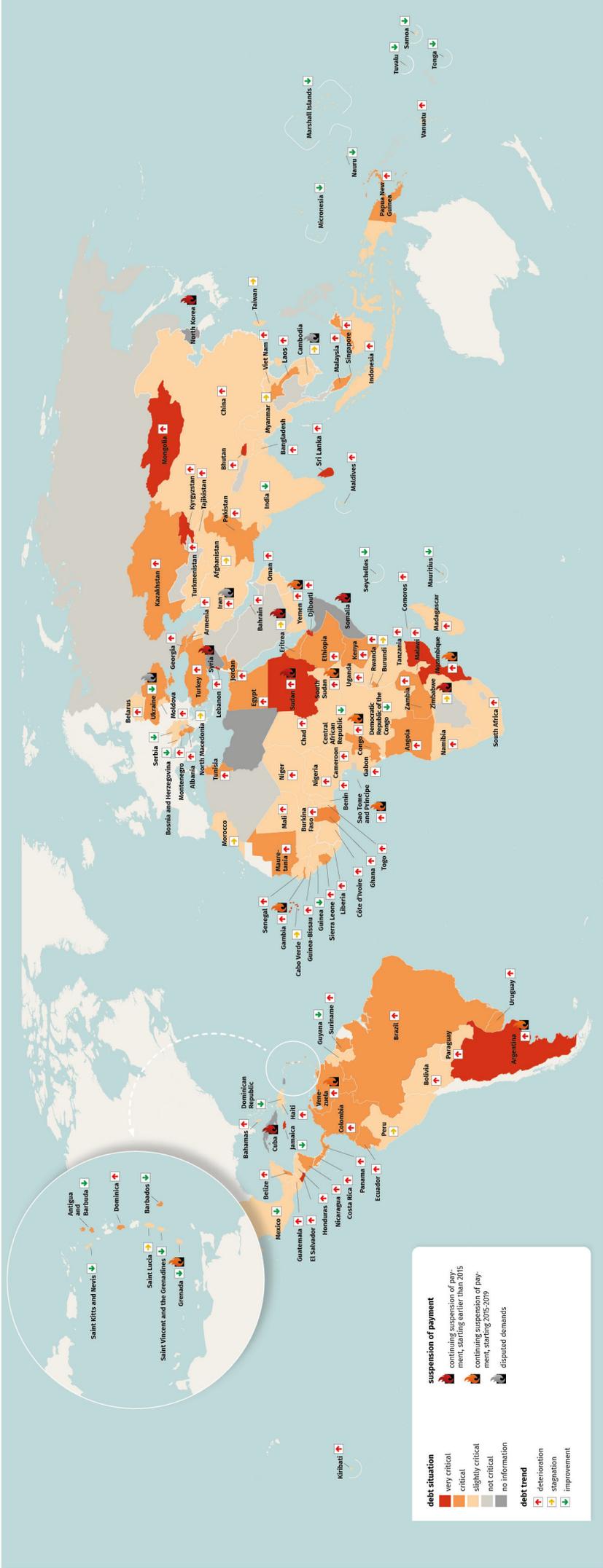
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Global Debt Situation

Map showing the debt situation of critically indebted countries in the Global South, the trend and the suspension of payment

World game: Map ‚Global debt situation', Global Sovereign Debt Monitor 2020

Legend

debt situation
- very critical
- critical
- slightly critical
- not critical
- no information

debt trend
- deterioration
- stagnation
- improvement

suspension of payment
- continuing suspension of payment, starting earlier than 2015
- continuing suspension of payment, starting 2015–2019
- disputed demands

Country labels (map):

North Korea, Taiwan, Viet Nam, Laos, Cambodia, Malaysia, Singapore, Indonesia, Myanmar, Bangladesh, Sri Lanka, China, Bhutan, India, Maldives, Pakistan, Tajikistan, Kyrgyzstan, Afghanistan, Turkmenistan, Kazakhstan, Mongolia, Armenia, Iran, Georgia, Turkey, Oman, Bahrain, Yemen, Djibouti, Eritrea, Somalia, Ethiopia, Seychelles, Comoros, Mauritius, Madagascar, Kenya, Tanzania, Rwanda, Burundi, Malawi, Mozambique, Zimbabwe, Zambia, Angola, Namibia, South Africa, Democratic Republic of the Congo, Congo, Gabon, Cameroon, Central African Republic, South Sudan, Sudan, Chad, Niger, Nigeria, Benin, Sao Tome and Principe, Togo, Ghana, Côte d'Ivoire, Liberia, Sierra Leone, Guinea, Guinea-Bissau, Cabo Verde, Gambia, Senegal, Mali, Burkina Faso, Mauretania, Morocco, Tunisia, Albania, North Macedonia, Montenegro, Bosnia and Herzegovina, Serbia, Moldova, Ukraine, Belarus, Syria, Lebanon, Jordan, Egypt

Vanuatu, Marshall Islands, Nauru, Papua New Guinea, Micronesia, Tuvalu, Samoa, Tonga, Kiribati

Uruguay, Argentina, Paraguay, Brazil, Bolivia, Guyana, Suriname, Venezuela, Colombia, Peru, Ecuador, Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, Belize, Mexico, Bahamas, Cuba, Jamaica, Haiti, Dominican Republic

Antigua and Barbuda, Dominica, Barbados, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Grenada

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Exposure

Exposure of the population to the natural hazards earthquakes, storms, floods, droughts, and sea-level rise.

very low	0.91 – 9.55
low	9.56 – 12.13
medium	12.14 – 14.64
high	14.65 – 19.69
very high	19.70 – 86.77
no data	
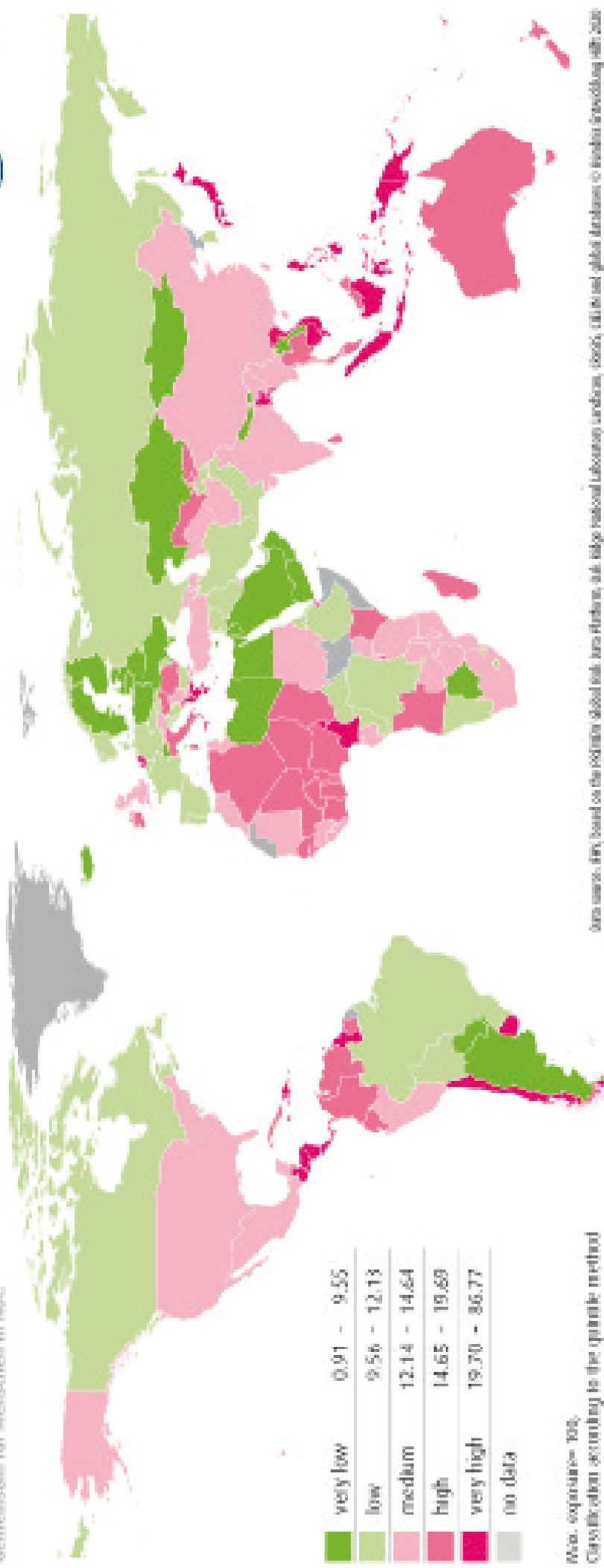
Note: exposure 100%.
Classification according to the quantile method

Data source: Aim, based on the estimate global risk zone relative risk Edge natural relocamp cyclone, flood, drought and global database o floods forecasting with zen

World game: Map 'Exposure', World Risk Report 2020