

World Distribution Game: The World in Numbers

Topic	resources and conflicts
Type of method	simulation
Age	from 13 years
Group size	any
Requirements	sufficient space
Required time	2.5 - 4h (depending on thematic focus)
Overview	Simulation game about the unequal distribution of resources and the occurrence of severe weather events within the regions of the world.

Goals of the workshop

- Presentation and discussion of global injustices based on climate change, its causes and effects
- Overview and comparison between world regions based on selected criteria (population, CO2 emissions, wealth, natural resources, waste, climate impact)
- Discuss, reflect on and present concepts of justice

Materials

- 1 World map (Gall-Peters projection) OR tape to visualize the continents (sticking the outlines on the floor)
- 6 Signs for the continents / world regions (Europe, North America, South and Central America & Caribbean, Asia, Africa, Australia & Oceania)
- 20 Toy figures (population)
- 20 Banknotes / play money (assets)
- 20 Game chips / Lego bricks or similar (CO2 emissions)
- Red stones (climate impact)
- 20 Plastic lids (waste)
 - > 10 red
 - > 10 blue
- 20 Pearls (natural resources)
- Slips of paper with climate impact
- Flipchart + pens
- Graphics

Note for workshop organizers

The simulation requires some familiarization, as the structures and connections presented are complex. Depending on the target group and thematically chosen focus, individual method modules can be excluded, replaced or kept short.

Additional materials and helpful information on the individual aspects are attached to this method sheet.

Preparation	
<p>All necessary materials are laid out before the start. Alternative objects (e.g. balloons, matches) can also be used. In addition, a world map is drawn on the floor with string, adhesive tape or chalk if no large world map is available. The world map is shown using the Gall-Peters projection. (see collection of materials) The Gall-Peters projection is categorized and explained, including why this world map is used.</p> <p>It is sufficient if the outlines of the continents or regions are roughly recognizable. The world map should be large enough so that there is enough space to distribute the objects.</p>	

Implementation	
1.	<p>Look at the world map: What do you notice? (proportions) The continents / world regions are named.</p>
Goals	<p>An initial orientation on the world map happens. The Gall-Peters projection is explained. (true-to-surface representation of the individual regions and continents)</p>
2.	<p>The participants distribute 20 toy figures on the world map.</p> <p style="text-align: center;">→ <i>"If the world consisted of 20 people, how many people would you distribute to the corresponding continents/world regions?"</i></p> <p>When all 20 pieces have been distributed, the actual distribution is revealed. (see collection of materials)</p> <p><u>Note:</u> Discussions are welcome. Changes can be made during the distribution process. Before the finalization, the workshop leader asks: <i>"Are you happy with it? Would you like to change anything?"</i></p> <p>The workshop leader takes on a moderating role and intervenes little.</p>
Goals	<p>The participants get talking and find their way into the game. The actual distribution of the world's population is usually surprising.</p>
3.	<p>The workshop leader categorizes the concept of wealth for this game. What is meant by wealth in this context? (see collection of materials) Similar to the population, the play money is now distributed for wealth and then revealed. Afterwards, game chips (or similar) for CO2 emissions are distributed on the world map and revealed.</p> <p><u>Possible reflection questions:</u></p> <ul style="list-style-type: none"> ● What do you notice? ● Is there anything that surprises you? ● How do you assess the distribution? Do you think it is fair? Please explain your answer. ● What explanations do you have for the unequal distribution of wealth? ● What explanation do you have for the fact that CO2 emissions are distributed in this way? ● Why are CO2 emissions high in Asia? (population, outsourced industry) <p>! During reflection, the workshop leader should take particular care not to reproduce stereotypes.</p>
Goals	<p>Where there is a lot of wealth, a lot of CO2 is emitted.</p>
4.1	<p>Climate impacts alternative 1: A classification is made: What are climate impacts? What is meant by this? (see collection of materials) Slips of paper with recent extreme climatic events are laid out. Each person chooses a piece of paper and presents the information on it. The climate event is located on the world map.</p> <p><u>Reflection questions:</u></p> <ul style="list-style-type: none"> ● Where do extreme climatic events occur more frequently? ● Who is affected by the consequences of climate change? ● What are the consequences of these climate impacts? (e.g. climate flight) ● Can you think of any other climate impacts?

4.2	<p><u>Climate impacts alternative 2</u>: A classification is made: What are climate impacts? What is meant by this? (see collection of materials) One extreme climatic event is highlighted as an example: <i>Cyclones</i>, hurricanes, typhoons. (Information material in material collection)</p>
4.	<p><u>Notes</u>:</p> <ul style="list-style-type: none"> ● The material contains information and notes on the Global Climate Risk Index. It can be explained during the workshop and used to categorize various figures. This <u>is because</u> quantitative values are compared for population, wealth and CO2 emissions. The climate impacts are categorized qualitatively. The Climate Risk Index also makes extreme weather events quantitatively tangible. ● The material contains statistics that show that most people affected by climate impacts are people from countries in the Global South (the statistics list natural disasters that are not climate impacts per se. In this case, the natural disasters listed also count as climate impacts: flood & drought). ● The appendix contains a map from the Rosa Luxemburg Foundation showing positive climate movements. This can be used as a positive plug. <p>! The workshop leader should make sure that the participants are not left feeling hopeless.</p>
Goals	<p>Countries in the Global South are more affected by the consequences of climate change, even though they emit less CO2. Moreover, people everywhere are already affected by climate change. It is clear that it is a global problem and further reinforces existing inequalities and power relations.</p>
5.	<p><u>Note</u>: For clarity, it can be helpful to remove individual placeholders (population/figures, CO2 emissions/Lego bricks, climate impacts) from the map.</p> <p>The workshop leader asks questions to introduce the topic of natural resources:</p> <ul style="list-style-type: none"> ● Which natural resources do you know? ● What do you think are natural resources? ● What are natural resources used for? <p>The results can be recorded on a flipchart.</p> <p>The participants place 20 pearls according to the distribution of natural resources on the world map.</p> <p>This is followed by a reveal: Definition of natural resources, which are the most important natural resources and why? Which countries are rich in natural resources? (see collection of materials)</p> <p><u>Reflection questions</u>:</p> <ul style="list-style-type: none"> ● Which country surprised you in terms of natural resources? ● What do you think about the distribution of natural resources and the distribution of wealth? ● How do you explain the connection between wealth distribution and the distribution of natural resources? Is there a connection?
Goals	<p>The distribution of natural resources becomes visible. A connection between wealth distribution and natural resources is contemplated. It is noticeable that countries in the Global South are rich in natural resources.</p>
6.	<p>Who benefits from the natural resources?</p> <p>The graphic from the collection of materials shows the percentage distribution of metals in a mobile phone. This chart and the table of natural resources show that countries in the Global South are rich in valuable natural resources, but benefit little or less from them financially.</p>

Goals	Unfair conditions are highlighted. The global South is rich in valuable natural resources. The global North benefits from these natural resources. However, the distribution of wealth is not proportional to natural resources.
7.	<p>The participants are shown a graphic showing which countries produce the most waste. The participants distribute the plastic lids on the world map.</p> <p>The participants then distribute the plastic lids according to the export and import of plastic waste. 10 plastic lids (red) are distributed to the 5 largest exporting countries of plastic waste. 10 plastic lids (blue) to the 5 largest plastic waste importing countries.</p> <p>When all the plastic lids have been distributed, the reveal follows.</p> <p><u>Reflection questions:</u></p> <ul style="list-style-type: none"> ● What are the consequences of outsourcing? (Reference to graphics on polluted rivers and ocean pollution; collection of materials) <ul style="list-style-type: none"> ○ Important: Point out that waste is also recycled in the Global South. Recycling structures are not yet as sustainable/established as in the Global North, but these are often emerging economies, i.e. they are working on establishing appropriate structures. ● Who is responsible for the waste trade? ● What would be fair? <ul style="list-style-type: none"> ○ Also with regard to natural resources: What does the Global South get? What does the Global South give? What does the Global North get? What does the Global North get?
Goals	Dynamic processes of outsourcing are depicted. The Global North is accumulating natural resources/wealth and outsourcing waste/problems.
8.	<p>Possible reflection and conclusion:</p> <p>Different weather symbols are drawn on one or more flipcharts (sun, sun with cloud, rain cloud, raindrops, thundercloud with lightning, snowflake, etc.). The participants can now write their thoughts on the individual symbols. Variations of the method are possible.</p>
<p>Dealing with the topic of global injustices and the effects of climate change using the example of extreme weather events can trigger different feelings.</p> <p>At the end of the workshop, it is therefore a good idea to provide space for discussion again: How are the participants doing, is there anything else they would like to say? Various reflection methods can be used here, which the workshop leader can select according to the group.</p>	

World Distribution Game - Collection of Materials

What is the Global South? What is the Global North?

The Global South refers to politically, economically or socially disadvantaged countries. Countries of the Global North are in a privileged position in terms of prosperity, political freedom and economic development. Inequality and the resulting dependency relationships are thus to be emphasized. The terms are only to a limited extent to be understood geographically. Countries such as Australia and New Zealand are categorized as belonging to the Global North, while Afghanistan and Mongolia, for example, belong to the Global South.

(<https://www.bmz.de/de/service/lexikon/globaler-sueden-norden-147314#:~:text=In%20this%20sense%20is%20a%20approach%20to%20freedom%20and%20economic%20development>).

The Gall-Peters projection

In cartography, it is impossible to depict the exact shape and size of continents and countries at the same time. In map representations, therefore, there are always trade-offs between a representation that is accurate in terms of angle, area and length or the mediation between distortions. World maps do not simply depict the world. They are also an expression of certain convictions and convey a corresponding “world view”. The Gall-Peters projection is used on the world game map. This type of projection has the advantage of depicting the areas of the countries true to scale in their respective area ratios. The proportions are shown exactly. However, the outlines are heavily distorted and the angles do not match. The equator is in the center of the map. This creates a more realistic image of the actual proportions of the continents. The type of projection decenters Europe and the countries of the Global North and critically questions the supposed size and central position of Europe conveyed by the widespread Mercator projection and thus its position of power.

Continents and national borders

Continents and national borders: The world map divides the world topographically and historically-politically into seven color-coded continents: North America, South and Central America and the Caribbean, Africa, Europe, Asia, Australia and Oceania, Antarctica. Antarctica, without a population in the strict sense, is not included in the distribution of characteristic values. From a topographical perspective, the continental boundary between Asia and Europe lies in Russia at the Ural Mountains. In terms of continental area, Russia is counted as part of Asia, as two thirds of the country is located on the Asian continent. When looking at other key figures, Russia is counted as part of Europe. This is because Russia and Europe are closely linked economically and historically and 94 per cent of the Russian population live in the European part of the country. Topographically, the continental border between North and South America lies at the Isthmus of Panama. Due to historical, political and economic ties, South and Central America, including the Caribbean, are grouped together. The world map shows the national borders of the 193 member states fully recognized by the United Nations under international law, the Holy See and Palestine.

Population

Continent	Population in million (2022)	In per cent	20 figures
Europe	743	9,3 %	2
North America	377	4,7 %	1
South and Central America and the Caribbean	660	8,3 %	2
Asia	4.723	59,2 %	12

Africa	1.427	17,9 %	3
Australia and Oceania	45	0,6 %	0
Total	7.975	100%	20

What do we mean by wealth?

In this case, wealth is understood to mean gross national income (GNI). GNI is an important economic indicator. GNI refers to all income generated by nationals from employment and asset ownership within a year. Illegalized work, self-sufficiency and unpaid care work are not included in the GNI.

Continent	GNI in billion US\$ (2022)	In per cent	20 figures
Europe	23.847	23,7%	5
North America	28.204	28,0 %	5
South and Central America and the Caribbean	5.886	5,8 %	1
Asia	37.960	37,7 %	8
Africa	2.768	2,8 %	1
Australia and Oceania	2.001	2,0 %	0
Total	100.668	100 %	20

CO2 emissions

Continent	CO2 emissions in million tonnes of CO2 (2022)	In per cent	20 figures
Europe	5.105	14,1 %	3
North America	6.118	17,0 %	3
South and Central America and the Caribbean	1.247	3,5 %	1
Asia	21.781	60,3 %	12
Africa	1.417	3,9 %	1
Australia and Oceania	433	1,2 %	0
Total	7.975	100%	20

What are climate impacts?

Climate impacts are extreme weather events that are increasing in intensity and frequency due to climate change. These include heatwaves, droughts, hurricanes, floods and wildfires. (<https://www.bmz.de/de/themen/klimawandel-und-entwicklung/folgen-des-klimawandels-124774>)

What is the Global Climate Risk Index?

The Global Climate Risk Index shows how severely countries are affected by extreme weather events such as floods, storms, heatwaves, etc. GermanWatch uses data from MunichRE's globally recognized NatCatSERVICE database and other demographic and economic data from the International Monetary Fund to determine direct economic losses and human impacts due to climate change. (https://www.germanwatch.org/sites/default/files/Zusammenfassung%20des%20Klima-Risiko-Index%202021_2.pdf)

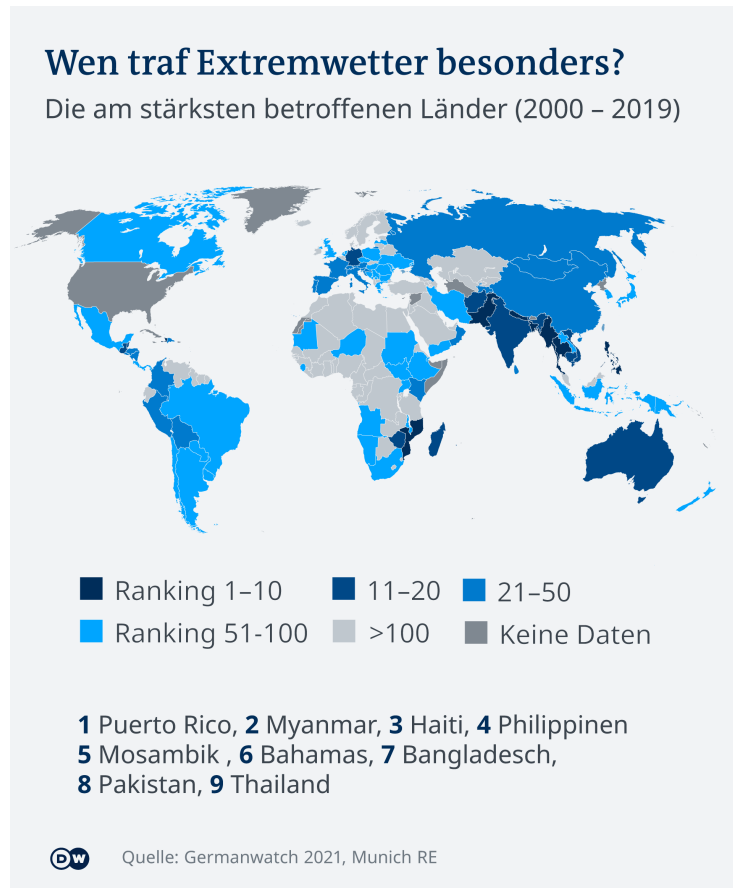
What is a cyclone?

Cyclones, like hurricanes and typhoons, are tropical hurricanes. The region of origin determines the name. The term cyclone is used in the Indian Ocean and in the South Seas. During the summer months, the sea heats up and seawater rises. The rising air cools down at altitude and condenses. The small water drops form clouds, under which moist air continues to rise. Due to

the Coriolis effect, the incoming warm air begins to spiral. This creates a huge vortex. Cyclones only form from a water temperature above 26 degrees Celsius. Whether the rising temperatures of the world's oceans also promote stronger storms is a matter of debate among scientists.

(<https://www.dwd.de/DE/service/lexikon/Functions/glossar.html?lv3=103336&lv2=103272>)

(<https://www.klimareporter.de/erdsystem/wirbelstuerme-und-der-klimawandel>)



Who was particularly affected by extreme weather? The countries most affected (2000 - 2019)

Involve Lilli: Concrete inquiry about what I want from her / how I imagine her contribution?

- Cyclones in the Philippines
- Movement in the Philippines to mitigate climate impacts

Definition of natural resources

= mineral raw material in solid, liquid or gas form. They occur in natural deposits or accumulations in or on the earth, the seabed, in the ocean subsoil or seawater.

(<https://www.spektrum.de/lexikon/kartographie-geomatik/bodenschatz/623>)

Natural resources

The most important raw material deposits are listed, not the largest raw material deposits in the world. The Global North is dependent on raw material deposits in the Global South. Technologies are dependent on natural resources. The quantity available in the countries of origin plays a secondary role.

Natural resource	Country	Utilization
------------------	---------	-------------

Copper	China, Chile, Australia, Brazil, USA	
Zinc	China, Australia, Peru, Brazil, Canada, USA	
Bauxite	China, Australia	Output ore for aluminium
Rare-earth elements	China, Vietnam, Brazil Russia	Essential for technologies (permanent magnets, catalysers, polishes, metallurgies/alloys, batteries, glasses)
Gold	China, Australia, USA, Brazil	
Silver	Peru, China	
Cobalt	Congo	Important component in rechargeable batteries (largest customer: China)
Tantalum in the form of the tantalum ore coltan	in eastern Congo, Rwanda	In almost all mobile phones
Crude oil	Venezuela, Iraq, Brazil, China, Iran, Canada, Saudi Arabia, USA, Russia	
Natural gas	Iraq, Brazil, Iran, Saudi Arabia, USA, Russia	
Coal	Australia, China, USA, Russia	
Iron ore	Australia, Saudi Arabia	Main component of steel

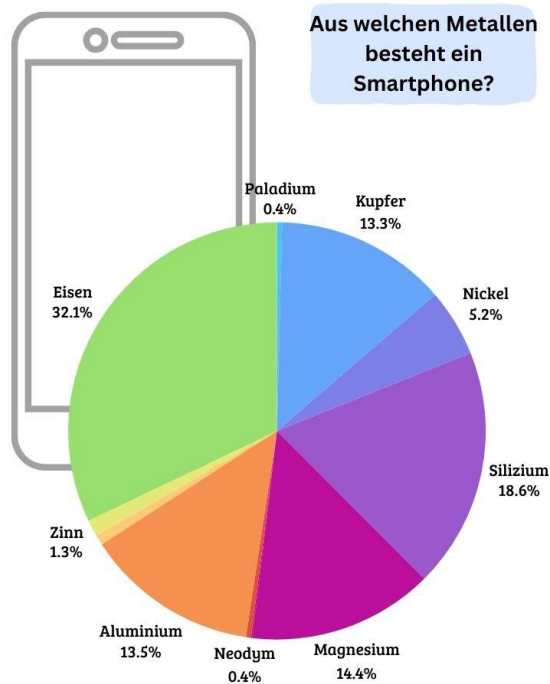
Rare-earth metals praseodymium, neodymium: mining is very harmful to the environment. As they only occur in tiny concentrations, many tonnes of rock have to be moved, crushed and chemically treated. Contaminated soil, lakes and areas are left behind, including radioactive elements or heavy metals in the immediate vicinity of residential areas and breeding grounds.

<https://selteneerden.de>

<https://www.gevestor.de/finanzwissen/oekonomie/rankings/die-groessten-rohstoffvorkommen-weltweit-720392.html>

Exemplary:

Der Wert deines Smartphones



Abgebildet sind die 12 wertvollsten Metalle.

Wo kommen diese Metalle her?

Was denkst du wie teuer ein Smartphone nur anhand der Metalle ist?

Your smartphone's value - What metals does a smartphone consist of? -
Where do these metals come from? - What do you think, how much does a smartphone cost only based on the metals?

Reveal: The value of a smartphone based solely on the metals used is €1.11
(https://www.deutsche-rohstoffagentur.de/DE/Gemeinsames/Produkte/Downloads/Commodity_Top_News/Rohstoffwirtschaft/65_smartphones.pdf?__blob=publicationFile&v=4)

Definition of waste / rubbish

= everything that is no longer needed and is therefore thrown away.

(<https://www.umweltdatenbank.de/cms/lexikon/27-lexikon-a/1015-abfall.html>) It arises from the extraction and processing of raw materials, production, processing or consumption of goods. It also includes unusable, contaminated or polluted materials and objects.

(<https://www.spektrum.de/lexikon/biologie/abfall/115>)

A lot of waste can be recycled or reprocessed so that it does not end up in landfill or waste incineration.

We refer to plastic waste in the World Distribution Game. To some extent, waste trading makes sense when it comes to distributing resources around the world. (?)

The problem with so much waste is that it is exported to countries that do not have the resources or structures to recycle or reprocess the waste or to store/process it in an environmentally friendly way.

Country	Plastic waste production (kg per capita)	Per cent of total	On 20 lids	rounded
Australia	59	16,8091168	3,36182336	3
USA	53	15,0997151	3,01994302	3
South Korea	44	12,5356125	2,50712251	3
Great Britain	44	12,5356125	2,50712251	3
Japan	37	10,5413105	2,10826211	2
France	36	10,2564103	2,05128205	2
Spain	34	9,68660969	1,93732194	2
Germany	22	6,26780627	1,25356125	1
China	18	5,12820513	1,02564103	1
India	4	1,13960114	0,22792023	0
Total	351	100	20	20



Illustration 1 Source: statista.de, retrieved on 02/04/2024

Annual single-use plastic waste per capita in selected countries in 2019 (in kg)

The figures refer to single-use plastic, which inevitably becomes plastic waste. The countries mentioned are not the largest producers of plastic. China is the world leader in plastic production. Not every plastic product becomes plastic waste.

Some factors cannot be taken into account: Poorly produced plastic or products of inferior quality can become plastic waste more quickly. However, this is difficult to take into account. Or rather, the connection is another issue: the Global North buys cheap goods from China and thus produces more plastic waste with plastic from the main producer country, China. (my thoughts, without a concrete source right now)

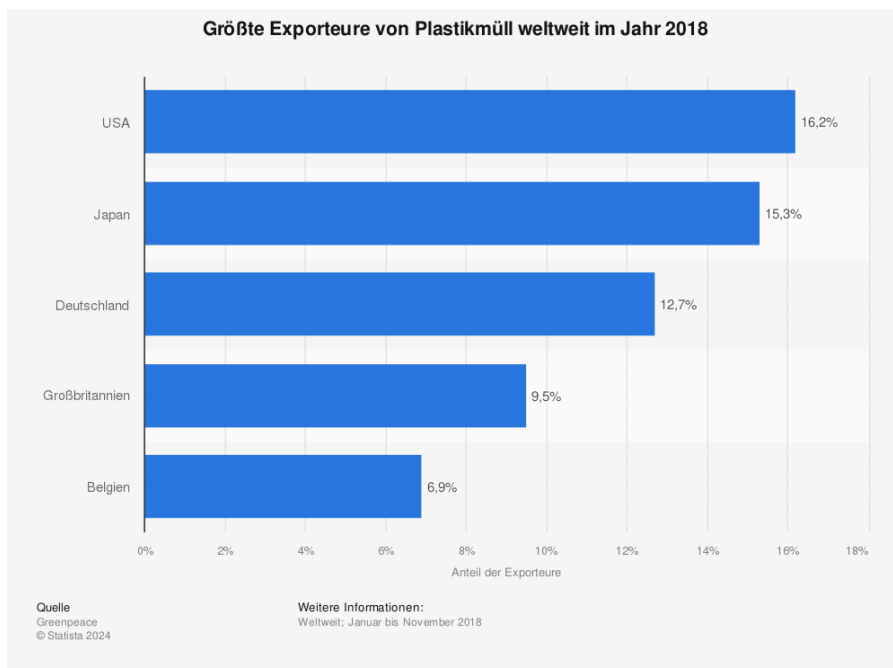


Illustration 2 Source: *statista.de*, retrieved on 02/04/2024

Largest exporters of plastic waste worldwide in 2018

Export of plastic waste			
Country	Percentage worldwide	On 10 lids	rounded
USA	16,2	2,673267327	3
Japan	15,3	2,524752475	3
Germany	12,7	2,095709571	2
Great Britain	9,5	1,567656766	1 (2)
Belgium	6,9	1,138613861	1
	60,6	10	10 (11)

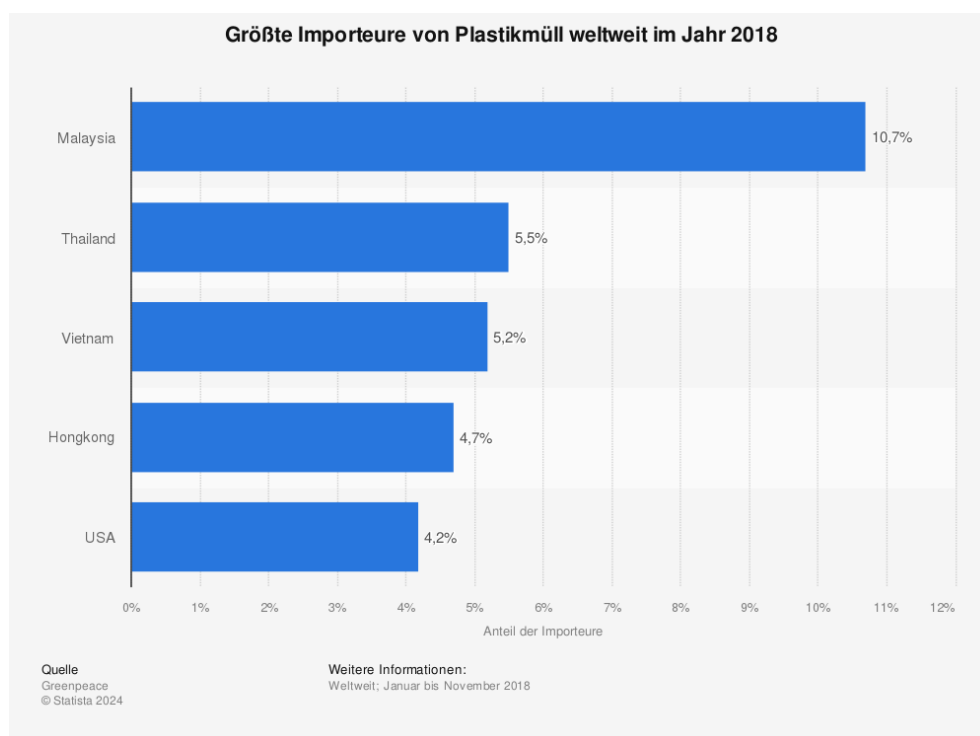


Illustration 3 Source: statista.de, retrieved on 02/04/2024

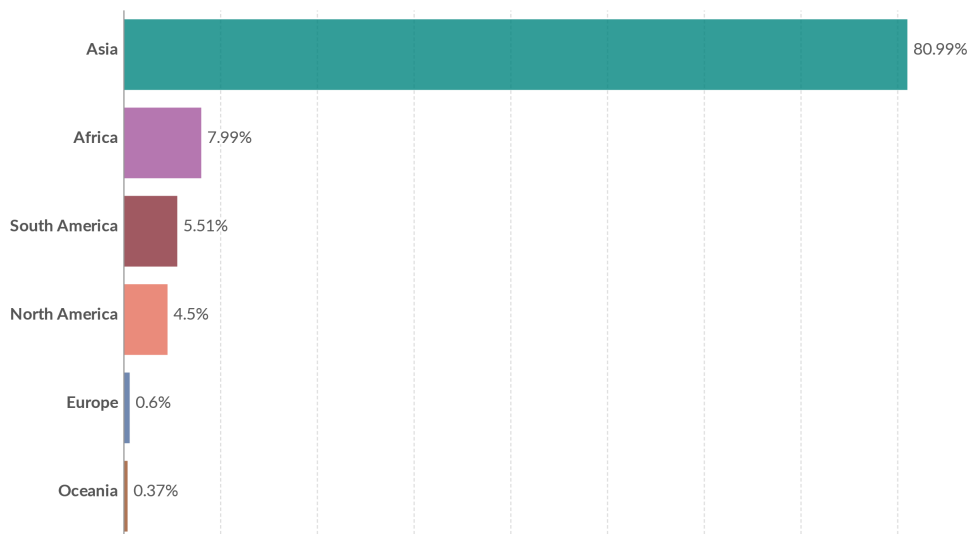
Largest importers of plastic waste worldwide in 2018

Import of plastic waste			
Country	Percentage worldwide	On 10 lids	rounded
Malaysia	10,7	3,531353135	4
Thailand	5,5	1,815181518	2
Vietnam	5,2	1,716171617	2
Hong Kong	4,7	1,551155116	1 (2)
USA	4,2	1,386138614	1
	30,3	10	10 (11)

Share of global plastic waste emitted to the ocean, 2019

Our World in Data

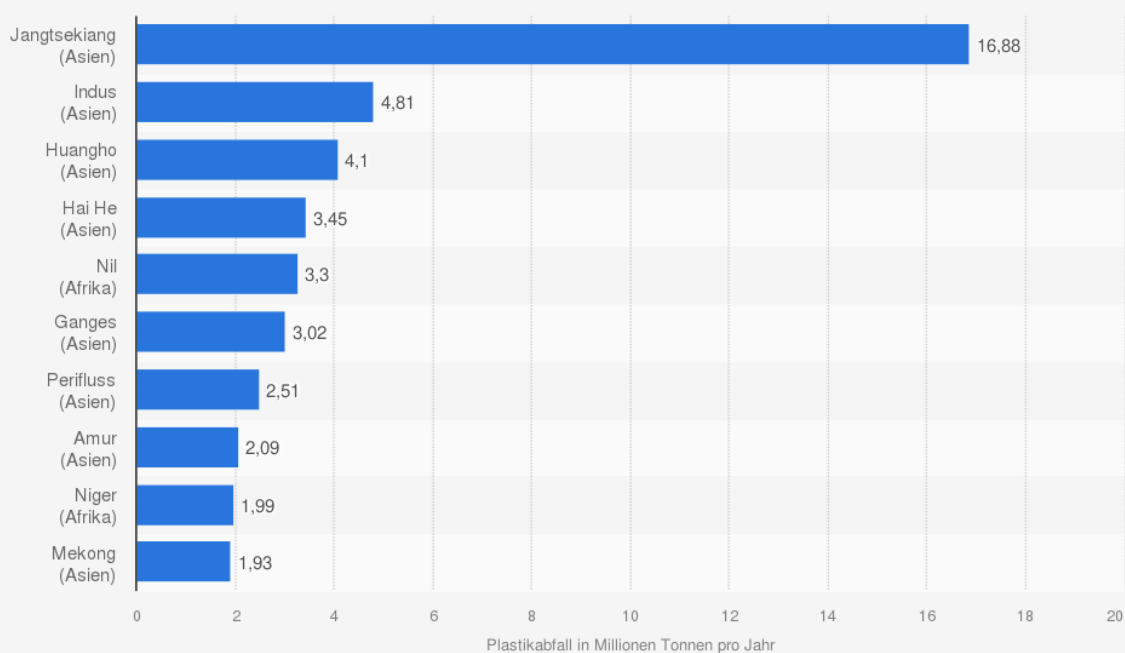
Annual estimate of plastic emissions. A country's total does not include waste that is exported overseas, which may be at higher risk of entering the ocean.



Data source: Meijer et al. (2021)

OurWorldInData.org/plastic-pollution | CC BY

Ranking der Flüsse weltweit, die die größte Menge an Kunststoffmüll ins Meer spülen im Jahr 2017* (in Millionen Tonnen)



Quelle
Heimholtz-Zentrum für Umweltforschung
© Statista 2024

Weitere Informationen:
Weltweit; 2017*; Kontinent in Klammern

Illustration 5 Source: statista.de, retrieved on 02/04/2024

Ranking of rivers worldwide that flush the largest amount of plastic waste into the oceans in 2017 (in million tons)

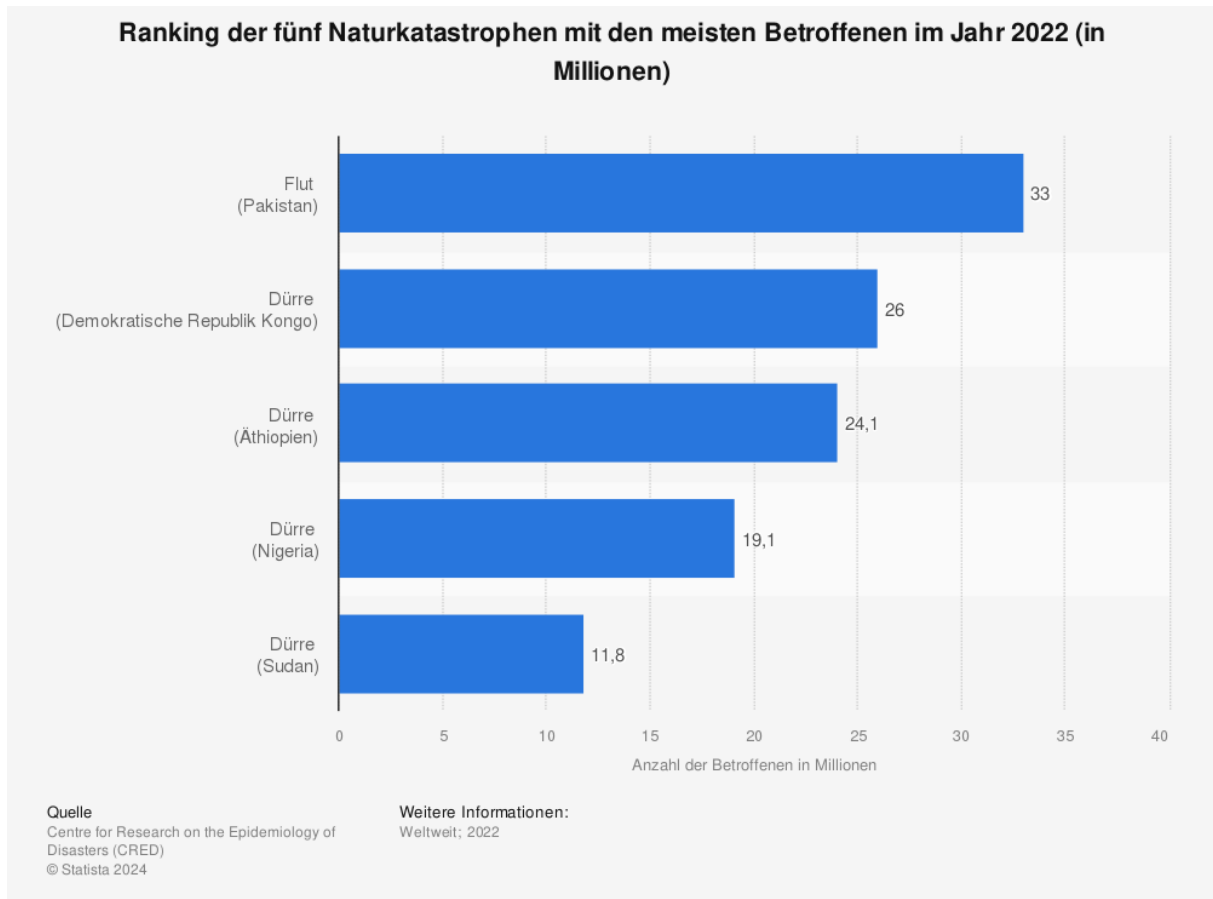


Illustration 6 Source: statista.de, retrieved on 03/04/2024

Ranking of the five natural disasters affecting the most people in 2022 (in millions)