Forum:	**Commission on Sustainable Development**
Question of:	**Combating our earth's sand shortage**
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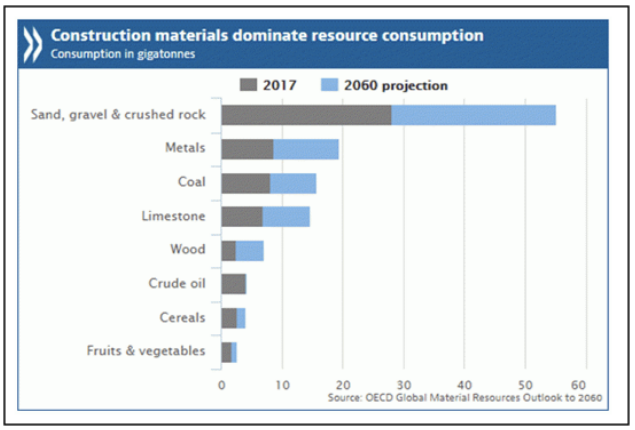
I. Description of the issue:

In recent years, more and more sand has been used, leading to a shortage of sand today. According to the United Nations, sand is the world's second-most important resource after water, measured in terms of extraction and trade volume, and is the primary solid used.

Sand is seemingly everywhere—under our feet, in the surrounding walls, and, increasingly, in our pockets. What is the most important ingredient for making concrete, by percentage? Sand. What's glass? Melted sand. What's the backbone of silicon, obviously a major player in the tech industry and in putting mobile devices in your hand and pocket? Sand.

Sand is the basis for some of the most commonly used materials, including concrete, which is a composite of gravel and sand. This will meet the demand for new homes, commercial buildings, roads, and other infrastructure projects. In addition to cement and concrete production, there are numerous other areas of application, such as glass production or electronics.

Can the world really run out of sand? No, says the British trade association Mineral Products Association. The MPA confirms the points mentioned in the 2019 UN report but emphasizes that the existing bottlenecks are not due to a "shortage" but to a lack of building materials as a result of the coronavirus pandemic.



Although the question of how long the sand will last seems obsolete, there are legitimate concerns about the decreasing availability of permitted minerals. In addition, the ecological consequences of global sand mining and the increased need for construction due to the coronavirus pandemic, population growth, and urbanization make the urgency of the topic

clear.

II. Definition of Key Terms

endangering biodiversity: a decrease in biological diversity within a species, ecosystems, places, and the earth as a whole. If there is a loss of a species in each area or a loss in the number and genetic variability of any area, it is often described as a loss in biodiversity.

Increasing soil erosion**:** It is the natural process of wearing away topsoil, but human activities have accelerated the process. It is usually caused by the removal of vegetation or any activity that renders the ground dry. Farming, grazing, mining, construction, and recreational activities are some of the causes of soil erosion.

Groundwater salinity**:** Groundwater contains salt. Depending on the amount of salt in it, groundwater can alter soil structure and interfere with plants' ability to take up water. Groundwater salinity can pose a potential risk to agricultural productivity if not managed.

Stakeholders: A group or an independent party with an interest in or concern for something, especially a business.

III. Background information:

One of the reasons sand is becoming scarce is the construction boom, which is increasing demand around the world. Sand is used, for example, to manufacture concrete or glass and is an important raw material for the construction industry. Sand production is not monitored, but concrete and cement production are. Based on the production data for these building materials, industry observers can estimate how much sand is removed from the ground and by whom. At the same time, not every type of sand in its natural state can be used for building; desert sand, for example, is not suitable.

The increasing lack of sand has consequences for the environment and people. On the one hand, the ongoing global sand mining in natural zones such as coasts or estuaries can endanger local ecosystems. On the other hand, there can be price increases on the sand market that affect, for example, construction projects, industry, or the energy sector.

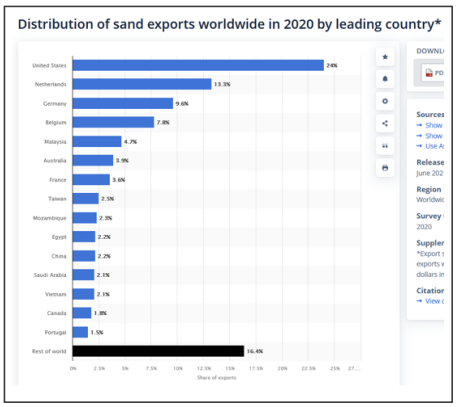
The global demand for sand and aggregates is huge; the UN estimated it at around 40 to 50 billion tons in 2019. The coronavirus pandemic initially led to a decline in global sand consumption. However, it is expected that the resumption of global economic activity and the increased need for construction measures as part of the economic recovery plans will quickly push this figure back up. The UN expects growth of almost 6 percent per year. A report by the UN Environment Program from 2022 draws attention to the ecological impact of global sand mining and its consequences. In its natural state, sand takes on important ecological functions. Sand mining in natural zones such as coasts, beaches, or rivers can have negative consequences for ecosystems. Possible consequences include endangering biodiversity and increasing soil erosion and groundwater salinity. In many areas, sand extraction has so far been carried out without adequate standards and controls. In some cases, more sand is already being used than it can reproduce naturally. Global sand mining has an impact on all sustainability goals (Sustainable Development Goals), which is why urgent measures are needed to avert a global crisis.

The consequences of a possible sand shortage not only affect the construction industry but are also evident in other sectors, such as industry, the energy sector, or the social sector. The building material, sand, must therefore be classified as a strategic resource.

According to numbers from the UN, cement production has reached an estimated 4.1 billion tons per year. Comparatively, the use of sand in construction is around ten times this amount, standing at a surprising 40 to 50 tons per year — an amount that cannot be replenished at the rate at which it is being used and enough to cover the United Kingdom completely.

From 1950 until 2018, the number of people that live in urban areas increased from 751 million to 4.2 billion, with a projected 2.5 billion to follow by 2050. As more areas are urbanized, the increased level of building and street construction threatens this seemingly endless resource.

IV. Mayor Countries involved



The United States was the world's leading exporter of sand based on value in 2020, with exports amounting to 363.7 million U.S. dollars that year.

The Netherlands was the world's second-largest sand exporting nation that year, with an export value of nearly 202 million U.S. dollars.

Germany has 9.6% of the worldwide sand exports.

With over three percent, **Belgium** (7.8%), **Australia** (4.7%), and **France** (3.6%).

V. Timeline of events

According to a report by the UN Environment Program, up to 50 billion tons of sand resources are used every year. This corresponds to a tripling over the past two decades. With growing population figures and increasing urbanization, an increase in demand is foreseeable; the UN assumes 6 percent per year.

VI. Possible solutions

The UNEP report from 2022 also specifies the necessary steps to prevent a shortage of sand. Among other things, the replacement of sand with alternative materials and the sustainable use of the resource are mentioned as possible solutions. The UN gives ten specific recommendations that can counteract the impending lack of sand:

1. Define sand as a strategic resource.
2. Creating place-based and equitable perspectives for the transition to sustainable sand management, involving local stakeholders.
3. Initiate a paradigm shift towards a regenerative future.
4. Introduce strategic regulations and legal bases.
5. Establish a legal framework for ownership and access to sand resources.
6. Record, control, and document resources.

7. Create best practices and national standards that move within a uniform global framework.
8. Promote efficient use of resources and circularity.
9. Taking responsibility for the origin of the sand resources, especially in companies and organizations.
10. Compensate for existing damage and rebuild ecosystems.

Researchers at the University of Cambridge have found that recycled plastic waste can, under certain circumstances, be used to thicken sand as a building material, although a ratio of 10% plastic waste to 90% sand may not sound very promising.

In the construction industry, other building materials can also come into focus as alternatives to sand in their production forms. In our blog, you can find out more about, for example, building with wood, using plastic in construction, or building with clay.

VII. How to prepare as a delegate:

To have fruitful debates, all delegates need to be well-prepared and know their topics. As this research report only gives a short overview of the topic, please do further research on the issue ofCombating our earth sand shortage.

As a delegate, you should know how or if your country is involved in this issue. Did your country ever do something to tackle this problem? If yes, what? If not, is there any plan to tackle it? You must research all the important information about your country, so you can answer the questions delegations may ask you about your country and also have a better overview of this issue, like:

- Is my country exporting sand or profiting from the export?
- Does my country have a high demand for sand?
- Does my country research new ways to substitute sand?
- Is my country involved in the research involving the sand shortage?
- Does my country acknowledge the problem?

For that, you could use the research report or any other useful link.

If you have any questions regarding the topic, both in the preparatory work and later in the debate, you can contact me or the deputy chair.

UN resolutions

https://www.un.org/en/our-work/support-sustainable-development-and-climate-action

Useful links:

https://www.unep.org/news-and-stories/story/problem-our-dwindling-sand-reserves

https://www.cnbc.com/2021/03/05/sand-shortage-the-world-is-running-out-of-a-crucial-commodity.html

https://medium.com/sia-nyuad/the-global-sand-shortage-an-unexpected-crisis-23624ea84e82

https://medium.com/sia-nyuad/the-global-sand-shortage-an-unexpected-crisis-23624ea84e82

https://www.economist.com/finance-and-economics/2017/03/30/an-improbable-global-shortage-sand

Sources:

https://www.unep.org/resources/report/sand-and-sustainability-10-strategic-recommendations-avert-crisis

https://www.designingbuildings.co.uk/wiki/Global_construction_market_projections_from_2020_to_2030

https://oec.world/en/profile/hs/sand#trade

https://www.bbc.com/news/business-57832425

https://accelerator.chathamhouse.org/article/driven-to-extraction-can-sand-mining-be-sustainable