

Tracking poverty

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Watch this video:

https://vis.csh.ac.at/poverty-maps/static/poverty_map.mp4

- 01 How many people are expected to still be living in **extreme poverty** in 2030?
- 02 Do some research on the Internet:
What **source** could this number come from?
- 03 Can you find any other projections of poverty in 2030?
If so, **why** can there be different numbers in data like these?
- 04 On which **continent** will the most people be affected by extreme poverty?
- 05 Do some research:
What are "**poverty maps**?"
- 06 **Why** do we need high-resolution "poverty maps?"
- 07 Which **two African countries** appear in the video?
- 08 What does a **red dot** on the poverty map in the video mean?

Now open this link in another window of your internet browser:

<https://vis.csh.ac.at/poverty-maps/>

- 09 What does "**wealth score**" mean?
In what range can the wealth score lie?
- 10 Move the **black frame** of the wealth score so that only the red area is displayed (as in the video).
Where in Sierra Leone do the wealthiest people live?
Give **two examples**.
- 11 If you move the black frame to the left (to the blue area), can you find poor regions in Freetown, the capital of Sierra Leone?

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12 Is there a region in Sierra Leone that has a wealth score **below 10**?

Tip: Move the black frame to the blue area.

13 Find a region with a very low wealth score (light blue) and click on it. Look at the item "**connectivity**." How far away is the nearest antenna?

14 Now compare this poor region (light blue) with a wealthy region (red). Name at least **three differences** (in Mobility, Population, Infrastructure...).

15 Open Google Maps. Drag the yellow figure (**Street View**) to different regions of Sierra Leone. What do you observe? What does Sierra Leone look like?

16 Share your thoughts with someone from your class: **What would be necessary** for poor regions (light blue) to become wealthy (red) in the future?

17 Now select "**Uganda**" at the top right under "COUNTRY." What do you notice at first glance when you compare the wealth scores of Uganda and Sierra Leone?

18 The **wealthiest region** in Uganda is ... and its wealth score is ...

19 There are also wealthy regions in the city of Jinja. On which **river** is the city located?

20 Research: Imagine you are **traveling to Uganda**. What would you like to do there?

BONUS

- * All of the results you've explored here are created using a mathematical model. Do some research: What is a mathematical model?
- * What different mathematical models can you compare in this poverty map?

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SOLUTION

- 01 574 million people
 - 02 E.g., from the World Bank's Poverty and Shared Prosperity 2022 report
 - 03 Individual response. Projections are estimations and their accuracy depend on multiple factors, such as historic data. Data in general can be biased (e.g., small sample, not representative, out-dated, incomplete, etc). Projections often do not consider random shocks or fluctuations like natural disasters or pandemics. However, with the help of precise mathematical models, forecasts can be very accurate nowadays.
 - 04 Africa
 - 05 Poverty Maps are detailed maps on which we can see how poverty and inequality are distributed in a country.
 - 06 Poverty maps are essential tools for governments and NGOs to track socioeconomic changes and adequately allocate infrastructure and services in places in need. In this way, poverty can not only be combated, but negative trends can also be identified at an early stage.
 - 07 Sierra Leone and Uganda
 - 08 Red dots represent rich places with a high quality of life.
 - 09 The wealth score shows how wealthy a region is. It ranges from 0 to 100. Households with score=0 have no assets and possess the lowest quality housing. In contrast, households with score=100 represent the richest end of the spectrum.
 - 10 In the region around Freetown (e.g., Little Kroo, Southern Central, Brookfield Community...)
 - 11 No, there are no blue dots in Freetown.
 - 12 No, there is no region in Sierra Leone with a wealth score below 10.
 - 13 Individual answer (e.g., Kasine with a Wealth Score of 12.60; the nearest antenna here would be 9,371.33 meters away.)
 - 14 Individual answer
 - 15 Individual answer; poor areas very often don't have open street view and are not well represented in technological systems or data collections.
 - 16 Individual answer (e.g., improve educational opportunities; develop infrastructure by building roads, train connections...; create new jobs; improve water supply; fight crime...)
 - 17 Individual answer (e.g., Uganda seems to be wealthier; there are more red areas outside the capital, i.e., prosperous regions; there are no extremely poor regions (light blue); there are many regions in the middle field...)
 - 18 "Dubai" in Kampala; wealth score = 65.05 (see footnote)
 - 19 On the Nile
 - 20 Individual answer (e.g., watching the last free living gorillas, rafting on the Nile in Jinja, going on safari, watching chimps, taking a boat trip on Lake Victoria, looking for the rare shoebill...)
- * A mathematical model aims to describe real-world problems with formulas, functions and other mathematical tools. This simplified image of reality can then be investigated. It is thus possible to include aspects that are important for a particular question, but omit irrelevant aspects. This is particularly important when real processes are so complex that they cannot be described in their entirety. Mathematics can therefore help to answer complex questions from the real world with the help of models.
- * Feature-based, image-based, combined, weighted, augmented