

Impact Collaborations Challenge Question

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Reference Number

ICNUT02

Challenge Question

How can we produce a time series of childhood wasting estimates, accounting for climate impacts?

Background & Detail

Child wasting is a key Sustainable Development Goal target and indicator (SDG 2.2b). Even before the COVID-19 pandemic 47 million children were already wasted (a life-threatening form of malnutrition) in 2019. However, in specific countries, survey results on wasting have a variance of 10-20%, meaning that trends arising from these surveys are difficult to interpret. Several factors impact the consistency of these survey results, one of which is climate and seasonality.

UNICEF, as part of the Joint Malnutrition Estimates (JME) working group and official co-custodian of SDG indicators 2.2 including on child wasting, currently uses data from MICS, DHS and other surveys with nutrition components to:

- Create a dataset of country wasting estimates that are tagged with dates of data collection
- Generate global and regional estimates for one year only (i.e., the most recent year).

The JME working group has been constrained in its ability to generate reliable wasting timeseries trend estimates at the country, regional or global levels. To support generation of trend estimates, the JME working group would benefit from availability of:

- A seasonal/climate metadata database which maps dates to specific agricultural seasons/climate patterns (e.g., pre-harvest and post-harvest seasons / rainy and dry season, "hunger" season) by country and which also contains metadata related to significant periodic climatic events like hurricanes.
- Tagging of existing household surveys to seasonal/climate information relevant to wasting.
- Estimates regarding the influence different seasons/climate patterns and significant periodic climatic events have on wasting prevalence in different

contexts (e.g., by country) and which can be used to inform generation of trend estimates and also to advise on optimal timing of future surveys.

Other related modelling exercises are also underway with UNICEF and other partners to help better estimation of wasting burden to support programming. The key objective of this project would be to collate and develop methods at a global scale that can be used for SDG monitoring, while maintaining links and creating synergies with other relevant projects as appropriate. The project could also include a special case study for the Sahel region as well as a few key focus countries to delve into deeper discussions.

Desired Outcome

1. A seasonal/climate metadata database which maps dates to specific agricultural seasons/climate patterns (e.g., pre-harvest and post-harvest seasons / rainy and dry season, "hunger" season,) by country
2. Existing household surveys tagged to seasonal/climate information relevant to wasting.
3. Analyses to explore and assess the influence of the seasonal/climate metadata on the wasting estimates in the JME database and other available surveys, and proposed adjustments which could be applied to generate trends across survey years by country.
4. Annual timeseries country wasting estimates, adjusted to reflect the impact of seasons/climate
5. Guidance on how to update and use the seasonal/climate metadata database for optimal planning of survey timings.

Challenge Sponsor(s)

UNICEF

Challenge Co-funders

The Data for Children Collaborative with UNICEF is a unique partnership between UNICEF, The Scottish Government and the University of Edinburgh, hosted by The Edinburgh Futures Institute - <https://www.dataforchildrencollaborative.com>

The Jameel Observatory for Food Security Early Action brings together leading research and humanitarian agencies to help tackle the growing threat to people in the world's drylands posed by the increasing severity and frequency of climate-related disasters - <https://jameelobservatory.org>

Stakeholder(s)

Myriad group

Famines group

Skill Sets

Below are the broad skill sets needed to meet this challenge. It is likely that there may be additional skills required. We encourage applicants to propose capabilities that may lie out with the work packages below, as these will also be considered when forming a collaboration.

SKILL SET 1: Climate science

Description: Subject Matter Experts (Climate Models, Climate data and their limitations)

The collaborative team will need contextual expertise of data and models currently used to understand climate change and the subsequent impacts this will have on broader environmental hazards and populations globally and sub-nationally.

Estimated proportion of project time: 30%

SKILL SET 2: Data Collection and Exploratory Data Analysis

Description: Statisticians with knowledge of time series analysis

A significant requirement of this challenge is the construction and analysis of a time series relating to nutritional wasting by focusing on climate change indicators, including:

- Searching through large data sets for usable information
- Processing, cleansing & verifying of data
- Analyzing data for trends and patterns and to find answers to specific questions

This process will require statistical and data management expertise, leveraging support from team to explore the data and understand trends.

Estimated proportion of project time: 30%

SKILL SET 3: Data science and modeling

Description: Build Machine Learning and pattern detection algorithms related to wasting.

Collaborate with UNICEF analysts and to improve the ability to use frontier data and machine learning models in support of childhood nutritional wasting estimates; including AI tools and techniques to better understand situations of concerns of and global impact of wasting, with special attention to children and climate impacts.

Estimated proportion of project time: 20%

SKILL SET 4: Global health survey analytics

Description: Experts in managing traditional health survey data

The project team will need to draw on expertise in gathering, managing, and interpreting global health survey data. Including Democratic Health Survey (DHS) and Multiple Indicator Cluster Surveys (MICS), along with other health survey data available to the project team.

Estimated proportion of project time: 20%

Additional Information

Funding Availability

For this challenge question, The Data for Children Collaborative and the Jameel Observatory can fund project partners a portion of up to £138,000. The funding available to individual organisations will be dependent on the agreed contribution to the project once the collaboration has been formed and delivery plan approved.

We welcome applications from all sectors (private / public / third / academia) and encourage submissions from any team looking to do any in kind Data for Good work to develop their expertise.

If possible, we encourage private sector partners to provide time pro-bono.

Funding is available at 70% of total contribution with 30% match funded through in-kind contributions.

This is an experimental development project and VAT will not apply to any agreed funding. Academic partners will receive 80% FEC.

Timescales & Deliverability

We would aim for the collaboration to **begin work on a project by 16th May 2022**. We envisage that a project addressing this challenge question should take approximately **6 months**.

The deadline for submissions is **4th March 2022** with the first collaboration workshop taking place week commencing **14th March 2022**.

For this collaboration, the initial output must be delivered for Nov 2022 for onward validation through technical consultations by Feb 2023.

For further information on how the Impact Collaborations process works, please visit:

<https://www.dataforchildrencollaborative.com/impact-collaborations>