Data for Children Collaborative WITH UNICEF

Impact Collaborations

Challenge Question

THE UNIVERSITY of EDINBURGH
Data-Driven Innovation
Part of the Edinburgh & South East Scotland City Region Deal

THE UNIVERSITY of EDINBURGH

unicef for every child

Scottish Government
Riaghaltas na h-Alba
gov.scot

Challenge Question Information

Reference Number	ICCLC01

Challenge Question

Where are children most vulnerable to the impact of climate change and environmental degradation, both now and in the future?

Background & Detail

All countries are facing the challenges of climate change and a degrading natural environment. Some countries, and some children within those countries, are more vulnerable to the impacts of climate change than others. Moreover, some countries have in place mechanisms that make them more resilient and ready to address the negative effects of climate change.

Leveraging existing work carried out by UNICEF to build a Climate Change Vulnerability Index, which uses past and current data to assess climate/environmental hazards, child wellbeing and macro resilience, we would like to be able to predict where children are going to be most vulnerable to the impact of climate change. The aim of this project to provide UNICEF with the information required to target their climate change response and resilience investments to best serve the most vulnerable children of today and tomorrow.

The **Children's Climate & Environment Vulnerability Index (CCVI)** aims to capture children's exposure to climate and environment-related hazards, the degree to which they are vulnerable, and the degree to which countries are resilient and ready to address the effects of climate change. Currently, the CCVI brings 27 variables together to measure vulnerability across 193 countries.

The CCVI incorporates more child-specific dimensions of vulnerability, including child education, nutrition, poverty, among others. Moreover, the CCVI uses improved climate and environmental risks/hazard data that are not only more relevant with near- and long-term projections but are also higher resolution and measure more localized effects due to enhanced GIS (Geographic Information System) methods, which measures indicators every square kilometre rather than at district or national boundaries. Finally, the CCVI is not restricted to only climate change, but takes a holistic look at the broader environmental risks that children face – such as air pollution. This is an important improvement because broader environmental considerations are not only linked with climate change, but often also have much more tangible and direct effects on children.

Desired Outcome

The desired outcome of this project is to establish a robust method and create a sustainable, user-friendly tool that provides a geo-spatial analysis, to a sub national level, of predicted climate change impacts on vulnerable children - thereby also mapping demographics through disaggregated data.

Challenge Sponsor(s)

UNICEF

Stakeholder(s)

UNICEF, Scottish Government

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: Machine Learning, Predictive Analytics, Data Engineering

Description: Research / Data Scientists

The collaborative team will seek to use data to predict how the CCVI will change in the future. Data will come from a broad variety of sources, both traditional and novel. The team will need to navigate these engineering challenges and work in collaboration with topic experts and geospatial data architects to perform suitable analysis to address the challenge question.

Estimated proportion of project time: 40%

SKILL SET 2: Geospatial Data Architecture

Description: Geospatial Analysts / Developers / Researcher

The collaborative team will need to assess and predict changes to the CCVI at both national and disaggregated subnational levels. This will require expertise in compiling geospatial data, building pipelines, and assessing outputs. The outcomes will need to be accessible for assessment and evaluation within existing geospatial systems, used for programmatic decision.

Estimated proportion of project time: 40%

SKILL SET 3: Climate Change Modelling, Demographic Modelling

Description: Subject Matter Experts (Climate and Demographics)

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: 20%

Additional Information

Funding Availability

For this challenge question, The Data for Children Collaborative can fund project partners a portion of up to £180,000. 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 1st March 2021. We envisage that a project addressing this challenge question should take approximately 11 months. The deadline for submissions is 15th December 2020 with the collaboration workshop taking place week commencing 11th January 2020.