World Health Organization

THE GLOBAL CLIMATE & HEALTH ALLIANCE

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Rationale for a health metric in monitoring progress towards the GGA

A health metric under the Global Goal on Adaptation (GGA) is essential for assessing implementation of the Paris Agreement.

First, it supports the recognition of the right to health under this Agreement and supports the recognition by the UN General Assembly of the human right to a clean, healthy, and sustainable environment (Resolution 76/300).

Second, it supports party Commitments under the UNFCCC (Article 4.1) to:

- (4.1.e) "cooperate in **preparing for adaptation to the impacts** of climate change" such as to "develop and elaborate **appropriate and integrated plans**" including for the water and agriculture sectors;
- (4.1.f) take into account in "relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on **public health** and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change";
- (4.1.g) "promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and **development of data archives** related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, **effects**, magnitude and timing of climate change and the **economic and social consequences of various response strategies**";
- (4.1.h) "**promote and cooperate in the full, open and prompt exchange** of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies";
- (4.1.j) **communicate to the Conference of the Parties** information related to implementation."

The health of populations is an outcome of climate action across all sectors and provides a vital indicator of progress. In addition, the healthcare sector is one of the three sectors most often prioritized for adaptation in Parties' nationally determined contributions (NDCs).[1] Healthy societies are a core pillar of climate resilience. Quantitative and qualitative aspects of health data and indicators are a recognized and highly valued part of adaptation assessment and resilience, including in National Adaptation Plans (NAPs). To this end, Health National Adaptation Plans (HNAPs) have been and are being developed by Ministries of Health with support of the WHO to expand and further integrate health-promoting considerations into adaptation strategies.

We note that the UNFCCC Adaptation Committee has proposed options for health metrics[2], including:

[1] World Health Organization. (November 2021). 2021 WHO Health and Climate Change Survey Report. https://www.who.int/publications/i/item/9789240038509

[2] Adaptation Committee. (March 2021). Considering approaches to reviewing the overall progress made in achieving the global goal on adaptation. [AC19/SUM-INFO/6A] https://unfccc.int/sites/default/files/resource/ac19_6a_gga.pdf

- Saved Wealth by calculation of assets
- Saved Health by disability adjusted life years (DALYs)
- by proxy of human security
- by health sector input, output, and outcomes (i.e., number of health care practitioners trained to identify and respond to climate-related health effects; maximum response times to search and rescue/emergency response; percentage of total financial losses restored; the number of days of disruption to basic services and critical infrastructure; and the number of community-based climate-related monitoring and adaptation programs that include indigenous, local, and scientific knowledge)

We also note the important synergies of the GGA to relevant health indicators for natural and biological hazards developed under the Sendai Framework on Disaster Risk Reduction[3], including on mortality, people injured and ill, damage and destruction of health facilities, and disruption to basic health services.

The World Health Organization (WHO) and Global Climate and Health Alliance (GCHA)[4], and Climate Action Network (CAN)[5] have previously expressed support for inclusion of health as part of a metric to assess progress made towards the GGA.

In addition, as part of its global monitoring programme on climate change and health, the WHO has developed a set of indicators which track health sector progress in building climate resilient health systems, including process indicators related to health adaptation.[6] Jointly with the UNFCCC, WHO works with national governments to develop health and climate change country profiles detailing national level climate hazards, health risks and response.[7] Additionally, the WHO monitors several Sustainable Development Goal (SDG) indicators related to climate-sensitive health outcomes, including SDG 2.2.1 on prevalence of stunting in children under five and 2.2.2 on prevalence of malnutrition in children under five, SDG 3.3.3 on malaria incidence, SDG 3.9.1 on mortality attributed to household and ambient air pollution, and SDG 3.9.2 on mortality attributed to unsafe water, sanitation and hygiene (WASH) services.[8]

The Lancet Countdown, an international research collaboration monitoring impacts, opportunities and action on health and climate change, annually reports on numerous indicators on climate change hazards, exposures, vulnerabilities and impacts on health, and on climate change adaptation for health.

Cross-sectoral coordination

[3] WHO. (2020). WHO Technical guidance notes on Sendai Framework reporting for Ministries of Health. (https://apps.who.int/iris/bitstream/handle/10665/336262/9789240003712-eng.pdf

[4] Submission to the Global Stocktake by the World Health Organization, Global Climate and Health Alliance, Lancet Countdown and partners, See https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202208051800---Submission%20by%20World%20Health%20Organization,%20Global%20Climate%20and%20Health%20Alliance,%20and%20Partners_5%20August%202022.pdf

[5] Submission to the Global Stocktake by Climate Action Network https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202208052058---CAN%20Submission_GlobalStocktake-August-2022.pdf

[6] WHO (2021). WHO health and climate change global survey. (https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/evidence-monitoring/health-and-climate-change-global-survey).

[7] WHO (2015-2022). WHO UNFCCC health and climate change country profiles. (https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/evidence-monitoring/health-and-climate-change-country-profiles).

[8] WHO (2021). World Health Statistics (https://www.who.int/data/gho/publications/world-health-statistics) and WHO Global Health Repository. (https://www.who.int/data/gho).

Metrics to measure progress towards achieving the GGA are still to be developed and scoped.

The health sector brings meaningful depth and diverse understanding and perspective to compound and cascading risks and impacts of climate change and associated environmental changes on physical and mental health, and on a range of other social determinants of health. The health sector also brings value to discussion on approaches that are socially inclusive, and reflective of environmental justice and health equity.

There is significant added value to identifying an ongoing role for the health sector and UN health agencies to engage on the GGA and development of indicators and other metrics under the UNFCCC to support and enhance implementation of the Paris Agreement. The health sector can provide complementary technical expertise. For instance, technical health experts could be invited to present at future GGA and other workshops, identified to be part of formal working groups, or called on to contribute to technical papers under UNFCCC processes, to ensure human health and wellbeing is protected from the effects of climate change. Using health expertise is also a widely known way to build trust and can be used to overcome well-known trust barriers[9] to engagement between developed and developing countries.

Climate change impacts are multidimensional, and often interact with one another, through multiple routes in natural, built, and social environments upon which human health and wellbeing depends. These impacts converge to ultimately affect health outcomes. Measuring impacts on health and wellbeing therefore describes the effects, or lack thereof, of climate change on humans, and can be a common metric to assess climate adaptation

Elements of a strong health metric

The Intergovernmental Panel on Climate Change (IPCC) provides a physical and mental health evidence base which can be further developed to establish clearly agreed baselines for utilizing indicators and setting targets and goals for outcomes.

We note here some key criteria for a successful health metric. It should:

- aim to broadly **evaluate the health of populations**.
- express health impacts of climate change and/or benefits of action as a **proportion of population size**.
- **link to the effectiveness of adaptation actions**. Ideally, the metric should monitor outcomes rather than risks or actions.
- provide a **qualitative or quantitative** assessment of the implementation, penetrance, or effectiveness of adaptation actions.
- be as **diverse** as the impacts observed, and at the appropriate scale. An indicator or set of indicators should ideally be relevant and applicable at **global, regional, and national levels** and promote data quality, coherence, and standardization particularly for **vulnerable countries and vulnerable sub-populations**.
- be structured to ensure that **the burden or gains in vulnerable countries is not diminished** in comparison to developed countries. For instance, costs and savings should be expressed as a proportion of GDP, and health burden as a proportion of population size, rather than as absolute numbers. Furthermore, health burden should be expressed in terms of morbidity and mortality wherever possible when compared to the

[9] Cited by participants in discussion during the UNFCCC second workshop on the GGA, 31 August 2022

global level since data on hospitalisations may be artificially lowered in settings where healthcare facilities are hard to reach or hospitals have limited capacity.

- be relevant to **both health systems[10] directly, and health-relevant systems more broadly** (including food systems, water and sanitation, urban systems, and built environment, etc).
- be developed and supported alongside a practical **monitoring and evaluation plan**. Only 38% of NAPs have monitoring and evaluation frameworks.[11]
- be, at a **minimum, scoped and linked to IPCC evidence** on health risks, outcomes, and transmission pathways, as a baseline, while also being **inclusive of additional or emerging health research findings** relevant to climate and environmental change, adaptation, resilience, and other associated topics.

Climate change impacts that are long-term, or which affect chronic diseases, can be more difficult to measure than the immediate effects of natural hazards. This means the outcomes of adaptation interventions to address these impacts are also more complicated and challenging to assess. A more comprehensive approach is required and more investment is needed to develop practical, measurable, **systems-level health metrics** in these cases.

Indicators which may be feasible to apply in the near term

Existing metrics proposed by the Adaptation Committee and under the Sendai Framework for Disaster Risk Reduction are valuable and can yield helpful data. In particular, quantification of Saved Health by disability adjusted life years (DALYs) would provide a theoretically ideal measurement of health burden which could be comparable across countries. However, limitations] exist which mean that measuring the health impacts of climate change by some previously proposed methods are not feasible at present. Some alternative indicators which may be feasible in the nearer term are presented below. The co-submitting organisations would be pleased to discuss these further.

The goal of adaptation is to reduce the health risks that are exacerbated by climatic changes, so that potential health impacts are avoided. Feasible indicators for the near term can:

1) Assess the influence of climate change on increasing health risks, with the purpose of identifying those locations, populations and sectors where adaptation is necessary. The Lancet Countdown on Health and Climate Change has developed multiple indicators of climate risks, including for heat-relate adverse health outcomes, infectious disease outbreaks, food insecurity, and extreme events.
2) Measure observed impacts (such as deaths, DALYs, medical visits*[12], healthcare costs as a proportion of GDP, or other metrics of healthcare demand), as metrics for identifying where interventions might have been successful or insufficient. This needs to be assessed using data on observed impacts collected through monitoring, rather than modelled estimates (which generally do not reflect the potential influence of adaptation interventions).
3) Monitor the implementation of health-relevant adaptation interventions and relate them to indicators described under 1) and 2).

The indicators can be combined to provide a more thorough assessment of adaptation. For example, climate-driven increase in health risks, accompanied by an increase in impacts of a smaller magnitude than the increase in risks would predict, reflects a reduction in health risks due to factors other than climatic changes. This could potentially

[10] "Health systems" refers to all organizations, people and actions whose primary intent is to promote, restore or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities.

[11] Cited by NAP Global Network in discussion during the UNFCCC second workshop on the GGA, 31 August 2022.

[12] *"medical visits" is intended to be an inclusive phrase to capture medical care at any scale, such as clinical visits or hospitalisations, as defined in a national context most practical to population health and local healthcare

(but not exclusively) be due to effective adaptation interventions. This needs to be carefully assessed on a case-by-case basis, taking into account possible confounders, and cautiously considering any attribution of impact modification to specific interventions. This can include a qualitative assessment of interventions and their effect on risk modification and health impacts, or a quantitative assessment in the cases in which more complex models can be developed. Given that the risks and impacts of climate change are strongly dependent on highly diverse local contexts, the interventions that could be assessed should also reflect that diversity.

The examples below provide an overview of how such metrics could work:

Heat and health

- *Measure of climate change-related risk*: occurrence of extreme heat to which susceptible populations could be exposed
- *Measure of impact*: change in morbidity or mortality during heatwaves (excess deaths, attributable deaths, heat-related hospital admissions, etc)
- *Adaptation intervention*: Implementation of targeted heat-health early warning and/or response systems.

An increased incidence of heatwaves and potential exposure of susceptible populations to extreme heat, matched with a reduction in the relative risk of heat exposure as measured epidemiologically through heat-related mortality or morbidity assessment, could be assessed in the context of the implementation of heat-health early warning or response systems, to assess their effectiveness, and monitor the need for strengthening such response

Extreme weather events:

- *Measure of climate change-related risk*: Occurrence and intensity of extreme weather events to which humans could be exposed
- *Measure of impact*: mortality, hospitalisations, assets lost, or assistance needed during extreme weather events
- *Adaptation intervention*: Implementation of interventions that build resilience to health and health-related systems

An increased incidence or intensity of extreme weather events occurring in places where people are settled or could be affected by them, matched with a reduction in mortality, hospitalisations, requirement of assistance, or economic losses per event, could reflect an increase in resilience. This should then be evaluated against the implementation of interventions that could increase resilience to extreme weather events. The Lancet Countdown has developed one such indicator, showing a clear and statistically significant inverse relationship between extreme event-related mortality and healthcare spend, in a context of increased incidence and intensity of extreme weather events.

Additional considerations

We propose that it may be helpful to **cluster indicators**, for example health emergency and health systems capacity. It would also be of great value to **collate lists of interventions** which have successfully prevented or reduced health impacts in different national circumstances. The WHO operational framework for building climate resilient health systems includes a range of interventions in this regard.

Second, by increasing identification and reporting of adaptive measures that have been put in place and relating them to reduction in impact in the face of increased climate risks, it is possible to build a broad knowledge base on which types of interventions work in different contexts. An example of this is flood adaptation measures in the Netherlands which contributed to reduced severity of impacts compared to those observed in Germany.[13]

Considerations for the third GGA workshop on methodologies, indicators, data and metrics, monitoring and evaluation

We propose that it would be valuable to use part of the workshop to **jointly define criteria** (essential and desirable) for the metrics to be used to monitor progress towards the GGA. It would also be beneficial to have time in **thematic breakout groups**, e.g. health, economics, biodiversity, etc. In the 2023 workshop cycle, we also strongly support one **workshop being fully focused on health** (with other workshops during the year focused on other key themes to be reflected in the GGA).

[13] Kottasová and Krever, 2021. Deadly floods inundated parts of Europe, but the Netherlands avoided fatalities. Here's why. CNN. https://edition.cnn.com/2021/07/19/world/netherlands-germany-flood-defense-warning-system-intl-cmd/index.html